VALIDATION REPORT

GUOHUA TONGLIAO KEZUO ZHONGQI PHASE I 49.5 MW WIND FARM PROJECT IN CHINA

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VALIDATION REPORT

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Client: Guohua (Tongliao) Wind power Co., Ltd		Client ref.: Mr. Wang Wei

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Summary:

Project Name: Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project
Country: China
Methodology: ACM0002 **Version:** 11
GHG reducing Measure/Technology: Grid-connected electricity generation from wind energy
ER estimate: 111 877 tCO_2e per year (average)
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 project activity "Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project" in China, as described in the PDD, version 07 of 25 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 11. Hence DNV requests the registration of the project as a CDM project activity.

Report No.:	Subject Group:
2010-1547	Environment

Report title:
Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project in China

Work carried out by:
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Work verified by:
Tang Zhiang

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Abbreviations

BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction(s)
CH_4	Methane
CL	Clarification request
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CREIA	Chinese Renewable Energy Industries Association
DNV	Det Norske Veritas
DNA	Designated National Authority
EIA	Environment Impact Assessment
EF	Emission Factor
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG	Greenhouse gas(es)
IPCC	Intergovernmental Panel on Climate Change
LoA	Letter of approval
NDRC	National Development and Reform Commission
NGO	Non-governmental Organisation
ODA	Official Development Assistance
OM	Operation Margin
PDD	Project Design Document
PPSA	Power Purchase and Sale Agreement
tCO_2e	Tonnes of CO_2 equivalents
UK	United Kingdom of Great Britain and Northern Ireland
UNFCCC	United Nations Framework Convention on Climate Change

1 EXECUTIVE SUMMARY – VALIDATION OPINION

Det Det Norske Veritas Certification AS (DNV) has performed a validation of the "Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project" in China. The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism and host Party criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

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

The host Party is China and the Annex I Party is United Kingdom. Both Parties fulfill the participation criteria and have approved the project and authorized the project participants. The DNA of China confirmed that the project assists in achieving sustainable development.

The project correctly applies ACM0002 version 11: "Consolidated baseline & monitoring methodology for grid-connected electricity generation from renewable sources".

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

The monitoring plan complies with the applied methodology ACM0002 version 11. Adequate training and monitoring procedures have been developed and will be implemented before the starting date of the crediting period.

The total emission reductions from the project are estimated to be on the average 111 877 tCO_2e per year over the 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.

In summary, it is DNV's opinion that the "Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project" in China as described in the PDD version 07 dated 25 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 11. DNV thus requests the registration of the "Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project" as a CDM project.

Beijing and Oslo, 2010-12-15

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2 INTRODUCTION

Guohua (Tongliao) Wind power Co., Ltd has commissioned Det Norske Veritas Certification AS (DNV) to perform a validation of the Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project project in China (hereafter called "the project"). This report summarises the findings of the validation of the project, performed on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, and the subsequent decisions by the CDM Executive Board.

2.1 Objective

The purpose of a validation is to have an independent third party 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 11. The validation was based on the recommendations in the Validation and Verification Manual /26/.

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 tables list the documentation that was reviewed during the validation.

3.1.1 Documentation provided by the project participants

/1/ Chinese Renewable Energy Industries Association (CREIA): *CDM-PDD for project activity* "Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project" *in China*, Version 06 dated 14 July 2010 and version 07 dated 25 September 2010

/2/ CREIA: IRR calculation spreadsheet, dated 25 September 2010

/3/ CREIA: EF & CER calculation spreadsheet, dated 25 September 2010

/4/ Beijing Guodian Water Resources & Electric Power Engineering Co., Ltd: Feasibility Study Report of "Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project" in August 2006

FSR Approval by Development and Reform Commission of Inner Mongolia Autonomous Region issued on 9 November 2006

Beijing Guodian Water Resources & Electric Power Engineering Co., Ltd: Supplementary FSR dated December 2006

/5/ Inner Mongolia Exploration & Design Institute of Water Resources and Hydropower : EIA of Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project in September 2006

EIA approval by Environmental Protection Bureau of Inner Mongolia Autonomous Region issued on 25 September 2006

/6/ Trade and Industry Bureau of Inner Mongolia Autonomous Region: Business Licence for Guohua (Tongliao) Wind power Co., Ltd, registration no. 152300400000439

/7/ Guohua (Tongliao) Wind power Co., Ltd and East Inner-Mongolia Power Grid Company: Power Purchase & Sales Agreement, Date 9 July 2010

/8/ Guohua (Tongliao) Wind power Co., Ltd: Wind Turbine Generator Purchasing Contract with Dongfang Turbine Manufacture Co., Ltd dated 12 June 2007

/9/ Guohua (Tongliao) Wind power Co., Ltd: Construction Contract with Tongliao Shizheng Lutong Engineering Co., Ltd, dated 10 October 2007

/10/ Heilongjiang Zhengxin Construction Co., Ltd: construction permission letter for the proposed project, dated 20 November 2007

/11/ Guohua (Tongliao) Wind power Co., Ltd: Final Accounts Report of Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project, 2009

/12/ Guohua (Tongliao) Wind power Co., Ltd: Grid connecting contract with East Inner-Mongolia Power Grid Company, dated 28 December 2008

/13/ Guohua (Tongliao) Wind power Co., Ltd: Emission Reduction Purchasing Agreement with Merrill Lynch Commodities (Europe) Limited dated 25 July 2008

/14/ Guohua (Tongliao) Wind power Co., Ltd: Operation report of the first date, dated 15 January 2009

/15/ Guohua (Tongliao) Wind power Co., Ltd: CDM Consultant Agreement with CREIA dated February 2007

/16/ Guohua (Tongliao) Wind power Co., Ltd: Board meeting minute for CDM development decision dated January 2007

/17/ Guohua (Tongliao) Wind power Co., Ltd: Monitoring and Management Manual dated

December 2008.

/18/ Guohua (Tongliao) Wind power Co., Ltd: 27 questionnaires of stakeholders investigation dated March 2007

/19/ Guohua (Tongliao) Wind power Co., Ltd: Re-validation contract for "Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project" with DNV, dated 19 July 2010

3.1.2 Letters of approval

/20/ NDRC (DNA of China): *Letter of approval* dated 30 September 2007 for Chinese version, and October 2007 for English version.

/21/ Department for Environment Food and Rural Affirs (DNA of United Kingdom): *Letter of approval* dated 13 March 2008

3.1.3 Methodologies, tools and other guidance by the CDM Executive Board

/22/ CDM Executive Board: *Baseline and monitoring methodology ACM0002, Consolidated baseline methodology for grid-connected electricity generation from renewable source*, version 11

/23/ CDM Executive Board: *Tool for the demonstration and assessment of additionality*, version 5.2

/24/ CDM Executive Board: *Tool to calculate the emission factor for an electricity system*, version 2.0

/25/ CDM Executive Board, Guidance for request for deviation titled "*Application of AM0005 and AMS-I.D in China*", http://cdm.unfccc.int/Projects/Deviations

/26/ CDM Executive Board: *Clean Development Mechanism Validation and Verification Manual* version 1.2, 30 July 2010.

http://cdm.unfccc.int/UserManagement/FileStorage/18Y54N6CWUV2LOESXQP3RMBAID9FHK

/27/ IPCC: *2006 IPCC Guidelines for National Greenhouse Gas Inventories Reference Manual*, 2006

/28/ CDM Executive Board: "*Guidelines for completing the project design document and the proposed new baseline and monitoring methodologies*", version 7, adopted at EB41

/29/ CDM Executive Board: *information note on the highest tariffs applied by the executive board in its decisions on registeration of projects in the People's Republic of China*, version 01, dated June 2010.

http://cdm.unfccc.int/Reference/Notes/reg_note07.pdf

/30/ EB51 meeting minute version 1.1: http://cdm.unfccc.int/EB/051/eb51rep.pdf, dated 4 December 2009

/31/ EB51 Annex58: *Guidelines on the Assessment of Investment Analysis* (Version 3.1) 15 January 2010

3.1.4 Documentation used by DNV to validate / cross-check the information provided by the project participants

/32/ NDRC: *The power grid partition in China and emission factor calculation for each*

power grid of China, published in July 2009. http://qhs.ndrc.gov.cn/qjfzjz/t20090703_289357.htm

/33/ In 2002, Electricity Power System Reform was carried out by China State Council which broke the state-monopoly of the electric supply system and separated the electric power generation and electric grid operation into sectors in order to establish a more commercialized power market:
Guofa[2002] No.5, year 2002: http://www.china5e.com/show.php?contentid=43549.

/34/ The Dali Phase III wind farm project is a demonstration project supported by national debt as "The fourth issue of national debt special fund project"
news.eastday.com: *Wind power is increasing in Keshiketeng Qi*, dated 26 July 2006: http://news.eastday.com/eastday/node545/node12905/u1a153684.html

/35/ Da Mao Qi Bailingmiao phase one/two project was developed and registered as a GS-VER project to make it feasible:
SGS project information about Honiton Energy Bailingmiao Phase one and two Wind Farm Project:
SGS:
http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/project.php?id=423; dated 17 January 2008
SGS:
http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/project.php?id=554 . dated 20 March 2009

/36/ Data source of wind farm projects in East Inner Mongolia
www.cwea.org.cn: *China Wind farm Installed Capacity Statistic in 2007 by Shi Pengfei*, dated 24 March 2008*:*
http://www.cwea.org.cn/download/display_info.asp?cid=2&sid=&id=25
UNFCCC database for CDM projects:
http://cdm.unfccc.int/Projects/registered.html
http://cdm.unfccc.int/Projects/Validation/index.html
http://cdm.ccchina.gov.cn/web/ItemList.asp

/37/ State Power Corporation of China: *Interim Rules on Economic Assessment of Electric Engineering Retrofit Projects (trial)*, dated March 2003.

/38/ China Electric Press: *China Electric Power Yearbook*, 2004~2008

/39/ China Statistic Press: *China Energy Statistical Yearbook*, 2006~2008
NDRC: Summary of Statistic Materials on Power Industry, 2008

/40/ Approved tariff documents by NDRC:
NDRC: *Notification of electricity tariff for wind power projects*, Fa Gai Jia Ge [2008]1876), 23 July 2008.
NDRC: *Notification of electricity tariff for wind power projects*, Fa Gai Jia Ge [2007]1260), 09 June 2007.
NDRC: *Notification of electricity tariff for wind power projects*, Fa Gai Jia Ge [2007]3303), 03 December 2007.
NDRC: *Notification of electricity tariff for wind power projects*, Fa Gai Jia Ge [2009]1906), 20 July 2009.

/41/ The references of the taxes involved in the project:

State Council: *Provisional Regulations of the People's Republic of China on Value Added Tax, State Council No.134 [1993],* issued on 13 December 1993 and effective on 1 January 1994.

President of People's Republic of China: *Interim regulations of Enterprise Income Tax Law of People's Republic of China*, effective on 1 January 1994.

State Council: *Interim Provision on Education Tax Law*, effected on 1 October 2005. http://www.law-lib.com/law/law_view1.asp?id=99771;

/42/ NDRC: *Notification of electricity tariff for wind power projects, Fa Gai Jia Ge [2009]1906*, 20 July 2009.

/43/ State Administration of Taxation: *Notification about confirming the implement time of the adjusted company's rate of salvage value*, Guosuihan [2005] No. 883, dated 11 November 2005. http://www.chinatax.gov.cn/n8136506/n8136563/n8193451/n8193526/n8194270/8245508.html

/44/ National Tax Bureau: Notification of Guoshuifa [994] 038, dated 25 February 1994

/45/ China National Water Resources & Electric Power Materials & Equipment Co., Ltd.: Registered PDD of Inner Mongolia Dali Phase IV 49.5MW Wind Power Project (Ref. 1628), version 05 dated 02 December 2007. http://cdm.unfccc.int/UserManagement/FileStorage/R8YATR6GZASARWOENB4ZSQA7RKE65Y

/46/ Li Junfeng: *China Wind Power Report 2008*, published October 2008. http://www.wwfchina.org/wwfpress/publication/climate/2008Chinawindpower.pdf

/47/ DNV: Validation report for "Guohua Tongliao Kezuo ZHongqi Phase I 49.5 MW Wind Farm Project in China", report No.: 2008-0235; dated 13 August 2008 http://cdm.unfccc.int/UserManagement/FileStorage/K59MLGS34WVBO210YIXHQPZACE7FRT

/48/ GSP of 1st validation of Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project: http://cdm.unfccc.int/Projects/DB/DNV-CUK1218668130.3/view

3.2 Follow-up interviews with project stakeholders

On 8 September 2010, Mr. Li Lei from DNV Beijing office visited Dailiji County, Kezuozhong Qi, Tongliao City of Inner Mongolia Autonomous Region in China, where the project located and performed interviews with project stakeholders. Representatives of the project owner Guohua (Tongliao) Wind power Co., Ltd, the project consultant CREIA were interviewed to resolve the issues identified during the desk review.

DNV has checked that the proposed project ever applied the CDM from UNFCCC but was rejected in EB 51 /31/. Then project participant signed a re-validation contract with DNV and started validation again /19/. Meanwhile the project participant continued to perform the project.

Until the validation commencement, the proposed project has been totally completed and under operation. DVN has checked the operation report by project participant and could confirm the commission date of the proposed project was 15 January 2009 /14/.
At the project site DNV visited the wind farm, booster station, centre control room of Guohua (Tongliao) Wind power Co., Ltd and found the proposed project was under normally operation.

	Date	Name	Organization	Topic
/49/	8 Sep. 2010	Mr. Chen Guozhong; Mr. Wang Wei; Ms. Li Jia	Guohua (Tongliao) Wind power Co., Ltd	➢ The development of wind power project in Inner Mongolia; ➢ The approval status (incl. EIA approval, the FSR approval, CDM project approval); ➢ Emission reduction monitoring plan; ➢ Consulting process for stakeholder's comments; ➢ Information of project construction; ➢ Project management; ➢ Investment risks and barriers.
/50/	8 Sep. 2010	Ms. Liu Ying	CREIA	➢ Baseline determination of the project; ➢ Applicability of selected methodology ACM0002; ➢ Issues related to the additionality; ➢ Common practice analysis; ➢ Emission reductions calculation; ➢ Emission reduction monitoring plan and project management.

3.3 Resolution of outstanding issues

The objective of this phase of the validation is to resolve any outstanding issues which need 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 four tables. The different columns in these tables are described in the figure below. The completed validation protocol for the project activity "Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project" in China is enclosed in Appendix A to this report.

A corrective action request (CAR) is raised if one of the following occurs:

(a) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;

(b) The CDM requirements have not been met;

(c) There is a risk that emission reductions cannot be monitored or calculated.

A clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

A forward action request (FAR) is raised during validation to highlight issues related to project implementation that require review during the first verification of the project activity. FARs shall not relate to the CDM requirements for registration.

Validation Protocol Table 1: Mandatory Requirements for CDM Project Activities		
Requirement	***Reference***	***Conclusion***
The requirements the project must meet.	*Gives reference to the legislation or agreement where the requirement is found.*	*This is either acceptable based on evidence provided (**OK**) or a **corrective action request (CAR)** if a requirement is not met.*

Validation Protocol Table 2: Requirement Checklist				
Checklist question	***Reference***	***Means of verification (MoV)***	***Assessment by DNV***	***Draft and/or Final Conclusion***
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organised in different sections, following the logic of the CDM-PDD	*Gives reference to documents where the answer to the checklist question or item is found.*	*Means of verification (MoV) are **document review (DR)**, **interview (I)** or any other follow-up actions (e.g., on site visit and telephone or email interviews) and **cross-checking (CC)** with available information relating to projects or technologies similar to the proposed CDM project activity under validation.*	*The discussion on how the conclusion is arrived at and the conclusion on the compliance with the checklist question so far.*	*OK is used if the information and evidence provided is adequate to demonstrate compliance with CDM requirements. A c**orrective action request (CAR)** is raised when project participants have made mistakes, the CDM requirements have not been met or there is a risk that emission reductions cannot be monitored or calculated. A **clarification request (CL)** is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met. A **forward action request (FAR)** during validation is raised to highlight issues related to project implementation that require review during the first verification of the project activity.*

Validation Protocol Table 3: Resolution of Corrective Action and Clarification Requests			
Corrective action and/ or clarification requests	***Ref. to checklist question in table 2***	***Response by project participants***	***Validation conclusion***
*The **CARs** and/ or **CLs** raised in Table 2 are repeated here.*	*Reference to the checklist question number in Table 2 where the CAR or CL is explained.*	*The responses given by the project participants to address the CARs and/or CLs.*	*The validation team's assessment and final conclusions of the CARs and/or CLs.*

Validation Protocol Table 4: Forward Action Requests		
Forward action request	***Ref. to checklist question in table 2***	***Response by project participants***
The FARs raised in Table 2 are repeated here.	*Reference to the checklist question number in Table 2 where the FAR is explained.*	*Response by project participants on how forward action request will be addressed prior to first verification.*

Figure 1: Validation protocol tables

3.4 Internal quality control

The validation report underwent a technical review performed by a technical reviewer qualified in accordance with DNV's qualification scheme for CDM validation and verification.

3.5 Validation team

				Type of involvement						
Role	***Last Name***	***First Name***	***Country***	Administrative	Desk review	Site visit / Interviews	Reporting	Supervision of work	Technical review	Sectoral competence
Project manager	Li	Lei	China	✓						
Technical team leader/ CDM validator	Li	Lei	China		✓	✓	✓	✓		✓
Technical reviewer	Tang	Zhiang	China						✓	✓

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 PDD, version 07 dated 25 September 2010.

4.1 Participation requirements

The project participants are Guohua (Tongliao) Wind power Co., Ltd of China and Merrill Lynch Commodities (Europe) Limited of the United Kingdom. Both participating Parties, China and the United Kingdom fulfill the requirements for participating in a CDM project activity. China ratified the Kyoto Protocol on 30 August 2002 and has established DNA, National Development and Reform Commission (NDRC). The United Kingdom also ratified the Kyoto Protocol on 31 May 2002 and has established DNA, Department of Energy & Climate Change.

DNV has verified the two LoAs provided by the project participant, and could confirm that:

The DNA of China has issued the LoA on 30 September 2007 for Chinese version and in October for English version, authorizing Guohua (Tongliao) Wind power Co., Ltd as project participant and also confirmed that the project assists in achieving sustainable development; DNV also checked the LoA issuance website of NDRC (http://cdm.ccchina.gov.cn/web/NewsInfo.asp?NewsId=2072) and could determine it validity and authenticity /20/.

The DNA of the United Kingdom has issued the LoA on 13 March 2008, authorizing Merrill Lynch Commodities (Europe) Limited as project participant. The issuance email of LoA by the DNA of United Kingdom was mailed to the project participant. DNV has checked the electronic copy /21/.

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. According to the LoA issued by the United Kingdom, any public funding for the project activity did not result in a diversion of UK's official development assistance.

4.2 Project design

The project involves installation and operation of 33 wind turbines in Dailiji County, Kezuozhong Qi, Tongliao city, Inner Mongolia Autonomous Region, north China. The geographical coordinates of the project site is east longitude 122°57′ and north latitude 41°13′. The physical boundary of the project includes the wind turbines and transmission system along with the NECPG as the electrical grid to which the project is physically connected. The project's spatial boundaries are clearly defined.

Based on the wind resource conditions, adopted FD77-1500 turbines with an installed generation capacity each of 1.5 MW are selected, which constitute a total generation capacity of 49.5 MW. The installation also includes a central control room for control, measurement and surveillance of the wind farm /4/. The project applies state of the art technology.

Based on DNV sectoral expertise and experience in similar project in the region, DNV could confirm that the project design engineering reflect current good practices.

The project's system boundaries are clearly defined as the NECPG, which is in line with the delineation of the grid boundaries regulated by DNA of China. Being a renewable electricity project, the project activity will generate greenhouse gas (GHG) emission reductions by avoiding CO_2 emissions from electricity generation by fossil fuel power plants.

The wind turbine generator contract between Guohua (Tongliao) Wind power Co., Ltd and Dongfang Turbine Manufacture Co., Ltd was signed on 12 June 2007 /8/, and the construction contract between Guohua (Tongliao) Wind power Co., Ltd and Tongliao Shizheng Lutong Engineering Co., Ltd was signed on 10 October 2007 /9/. Thus 12 June 2007 was identified as the first financial commitment of the proposed project and the project starting date was confirmed as 12 June 2007. DVN has checked the operation report by project participant and confirmed the commission date of the proposed project is 15 January 2009 /14/.

The project operating lifetime is 20 years. A renewable crediting period of 7 years has been chosen for the project, starting from 1 May 2011 with an annual emission reduction 111 877 tones CO_2 and total 783 139 tones CO_2 during the 7 years renewable crediting period.

The project description is deemed by DNV to be complete and accurate.

4.3 Application of selected baseline and monitoring methodology

The project applies the approved consolidated baseline and monitoring methodology ACM0002 version 11, titled "Consolidated baseline methodology for grid-connected electricity generation from renewable source" /22/.

The applicability of this methodology is justified since:

- The project is a wind farm project with the installation capacity of 49.5 MW, which has been confirmed from the FSR /4/.
- The electricity from the project activity is proposed to be supplied to the NECPG, and information on the characteristics of NECPG can be clearly identified.
- The project is a new wind farm power plant with installed capacity of 49.5 MW, not involved switching from fossil fuels to renewable energy sources at the site of the project activity, as confirmed by FSR /4/.

4.4 Project boundary

The project boundary is clearly defined as the site of project activity and all power plants connected physically to the NECPG including Heilongjiang, Jilin and Liaoning Province /32/. There are no significant transmission constraints amongst the power plants of the NECPG grid, nor with the proposed project. It is DNV's opinion that the project boundary of Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project is clearly defined.

The emission source in this project boundary is as following table:

	GHGs involved	Description

Baseline emissions	CO_2	The NECPG.
Project emissions	N/A	Project emission is regarded as zero as the project is a renewable energy (wind source) project. 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.

4.5 Baseline identification

Since the project can be considered additional, cf. Section 4.5, the baseline scenario is in line with ACM0002 that the electricity delivered to the grid by the project activity would otherwise have been generated by the operation of grid-connected power plants in NECPG and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system".

The grid emission factor has been determined *ex ante* based on the most recent information available at the time of the PDD was web-hosted and will be fixed for the entire first crediting period. This is reflected in the combined margin (CM) - the weighted average of the operating margin (OM) emission factor and the build margin (BM) emission factor. The weighting is set to be 75% and 25% respectively.

4.6 Additionality

The additionality of the project has been established using the "Tool for the demonstration and assessment of additionality" version 5.2 approved by the CDM-EB /23/.

4.6.1 Evidence for prior CDM consideration and continuous actions to secure CDM status

The wind turbine generator contract between Guohua (Tongliao) Wind power Co., Ltd and Dongfang Turbine Manufacture Co., Ltd was signed on 12 June 2007 /8/. The construction contract between Guohua (Tongliao) Wind power Co., Ltd and Tongliao Shizheng Lutong Engineering Co., Ltd was signed on 10 October 2007 /9/ and the construction permission letter was issued by Heilongjiang Zhengxin Construction Co., Ltd on 20 November 2007 /10/. Based on the above timeline 12 June 2007 was identified as the first financial commitment of the proposed project and the project starting date was confirmed as 12 June 2007.

Before the project starting date, the execute board of Guohua (Tongliao) Wind power Co., Ltd held a meeting and decide to apply CDM because the proposed project was not financial attractive in January 2007 /16/. Then in February 2007 the CDM consultant agreement between Guohua (Tongliao) Wind power Co., Ltd and CREIA was signed /15/. CDM was therefore seriously considered in the decision to proceed with the project activity.

The project project did first time undergo global stakeholder consultation from 8 September 2007 to 7 October 2007 /48/, i.e. four months after the starting date. After being rejected at

EB51 on 4 December 2009 /30/, the project participant continued to pursue CDM status and conducted the second global stakeholder consultation on 31 Jule 2010 to 29 August 2010.

Since there were no gaps of more than two years between initiatives by the project participants to secure CDM status, sufficient efforts to secure CDM status was demonstrated.

It is DNV's opinion that the proposed CDM project activity complies with the requirements of the latest version of the guidance on prior consideration of CDM.

4.6.2 Identification of alternatives to the project activity

In accordance with "Tool for the demonstration and assessment of additionality" version 5.2 paragraph 4 /23/ and ACM0002 the two options continued operation of grid-connected power plants including addition of new generation sources in the grid and the project activity were considered.

4.6.3 Investment analysis

Choice of approach

As the 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.

4.6.4 Investment analysis: Benchmark selection

According to Interim Rules on Economic Assessment of Electrical Engineering Retrofit Project /37/ which is still in valid, 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 in China. The benchmark of 8% (after tax) is therefore appropriate for this project. DNV was able to confirm this is suitable and reasonable as following:

1. This benchmark was determined by the national administration of this industry in China /37/;

2. This benchmark is for project and after tax and the investment analysis for this project will be for project and after tax also;

3. This Interim Rules on Economic Assessment of Electrical Engineering Retrofit Project referred to the risk premiums of large scale wind farm power project /37/.

4.6.5 Investment analysis: Input parameters

The input parameters except the power tariff used in the financial analysis of this project activity are all taken from the FSR developed by Beijing Guodian Water Resources & Electric Power Engineering Co., Ltd on August 2006 and the approval letter was issued by Development and Reform Commission of Inner Mongolia Autonomous Region on 9 November 2006 /4/.

In the FSR the power tariff was an assumed one by PP, but the FSR approval said "the power tariff during the whole operational lifetime can refer to the bidding electricity tariff of other projects in Inner Mongolia" /4/. Thus under the request of the project owner the FSR

developer Beijing Guodian Water Resources & Electric Power Engineering Co., Ltd made a supplementary FSR adjust the power tariff referring to the bidding electricity tariff of other projects in Inner Mongolia as 0.5123 RMB/kWh (including VAT). DNV could determine that except the power tariff there are no differences between the FSR and the supplementary FSR.

DNV compared the input parameters used in the financial analysis and included in the PDD with the parameters stated in the FSR and supplementary FSR. DNV was able to confirm that all the values applied are consistent with the FSR, and the power tariff is consistent with the supplementary FSR /4/.

The FSR was approved on 9 November 2006 /4/ and the project starting date was on 12 June 2007 /8/. Given this negligible short period of time between these it is unlikely in the context of the project that the input values would have materially changed. It is thus reasonable to assume that the FSR has been the basis of the decision to proceed with the investment in the project.

Furthermore, the input parameters used in the financial analysis were compared with the data reported for other registered CDM projects (http://cdm.unfccc.int/Projects/registered.html) with the same generation technology in the same region East Inner Mongolia. As shown in the following table, the data comparison included investment cost per MW, other costs per kW and annual O&M costs per kWh among wind power projects in East Inner Mongolia.

Table 1 - Wind power projects in East Inner Mongolia

	Reg. No.	MW	Investment cost (Yuan/kW)	Annual O&M per MWh (RMB/MWh)	Other costs per kW (RMB/kW)
Saihanba East 45.05 MW Windfarm Project	0561	45.05	10 587	-	-
Saihanba North 45.05 MW Windfarm Project	0576	45.05	10 150	-	-
Inner Mongolia Chifeng Dongshan 49.3 MW Wind Power Project	0689	49.3	10 445	-	-
Guohua Hulunbeier Xinbaerhu Youqi Wind Farm Project	0981	49.5	-		-
Inner Mongolia Chifeng Saihanba West 30.6 MW Wind Farm Project	0994	30.6	9 491	88.2	-
Inner Mongolia Wudaogou 50.25 MW Wind Power Project	1487	50.25	9 406	90.8	40
Inner Mongolia Sunjiaying 50.25 MW Wind Power Project	1488	50.25	10 072	99.0	40
Inner Mongolia Dali Phase IV 49.5 MW Wind Power Project	1628	49.5	11 049	177.6	9
Inner Mongolia Dali Phase V 49.5 MW Wind Power Project	1629	49.5	11 719	122.3	9
Guohua Tongliao Kezuo Zhongqi Phase II 49.5 MW Wind Farm Project	1825	49.5	9 885	83.0	5
Inner Mongolia Chifeng Bolike 50 MW	1830	50	10 372	70.8	10.8

Wind Power Project					
Inner Mongolia Chifeng Dongshan Phase II 50 MW Wind Power Project	1869	50	10 180	65.4	7.2
Inner Mongolia Meiyaoshan Wind Farm Project	2381	49.92	9 240	108.3	21
Guohua Chenbaerhu Qi Phase I 49.5 MW Wind Farm Project	2472	49.5	9759	66.9	10
Inner Mongolia Keyouqianqi Wind Farm Project	2593	49.5	9 769	109.3	-
Huaneng Tongliao Baolongshan Phase II Wind Farm Project	2599	49.5	10 800	80.1	13.37
Inner Mongolia Chifeng Saihanba Qingmachang Wind Power Project	2617	49.5	9 389	104.4	10
Inner Mongolia Tongliao Huolinhe Wind Power Project	2886	50	9 188	86.0	30
Datang Chifeng Bolike Ⅱ Wind Power Project	3105	50	10 164	86.2	-
The proposed project		**49.5**	**8 990**	**106.3**	**40**

(1) Investment costs

It can be seen from the table above that the investment cost per kW is 8 990 RMB/kW for the proposed project, which is lower than all similar project in East Inner Mongolia in the above table (9 188 RMB/kW – 11 719 RMB/kW). This is conservative.

Futhermore, DNV has checked the main turbine generator purchase contract /8/ and the main construction contract /9/, whose value occupied a large proportion (90.89%) of the total investment value assumed in the FSR /4/. DNV has verified that the total value of the main turbine generator purchase contract /8/ and the main construction contract /9/ is 5% higher than the budget value in the approved FSR /4/.

Hence, the investment cost applied in the investment analysis is deemed conservative.

(2) O&M costs

The operating costs of the wind power project include employee expenditure, maintenance and repairs rate, insurance, materials, and other costs /4/.

The O&M costs for wind power projects may vary by site location, conditions for transportation, applied technology and number of turbines. The annual O&M cost per output electricity for the proposed project is 106.3 RMB/MWh /4/, which was found to be within the range of other wind farms in East Inner Mongolia (65.4 RMB/MWh - 177.6 RMB/MWh) as shown in the table above.

(3) Other costs

The other costs of the proposed project applied in the FSR developed by Guohua (Tongliao) Wind power Co., Ltd in August 2006 was verified by DNV /4/. DNV has verified that the "other costs" mainly constitutes of travel expenses, office expenses, training fee, traffic expenses and union due, etc., which is isolated from the costs of maintenance, insurance, materials fee, salary and welfare in the O&M cost.

The estimated other O&M cost per unit of electricity of the project is 40 RMB/kW /4/, which is within the range of all the registered CDM wind projects in the east Inner Mongolia of 5 RMB/kW to 40 RMB/kW. As tested in the IRR spreadsheet, even the other cost was assumed zero, the tested IRR was 6.68% and still below the benchmark. Thus the other cost value is reasonable.

(4) Electricity generation (plant load factor)

The plant load factor of the proposed project is derived from the FSR prepared by Beijing Guodian Water Resources & Electric Power Engineering Co., Ltd which was an independent third party accredited by the government. The FSR was also approved by local government - Development and Reform Commission of Inner Mongolia Autonomous Region on 9 November 2006 /4/. Hence, the plant load factor of the project can be considered information provided by a trustworthy and recognized source.

Annex 11 to the CDM EB's 48th meeting report gives a guideline for validation of plant load factor for renewable energy. One option is to use plant load factor provided to the government while applying the project activity for implementation approval. The FSR has this purpose and hence according to current CDM regulation, the checking that the value is in line with the FSR should be considered sufficient for validation of plant load factor. This estimated electricity generation used in the PDD is for this project in line with the FSR.

As per the approved FSR, the expected power generation of the proposed project is calculated by an independent qualified design institute on the basis of wind assessment records of passed 26 years (1971-2005) and one year (August 2005 - August 2006) wind resources measurement /4/. The volume of annual generation therefore represents the long-term average power supply during the lifetime of the wind farm, taking into account yearly variations in power generation.

(5) Power tariff

The power tariff was an assumed value in the FSR, but the FSR approval said "the power tariff during the whole operational lifetime can refer to the bidding electricity tariff of other projects in Inner Mongolia" /4/. Thus by request from the project owner the FSR developer Beijing Guodian Water Resources & Electric Power Engineering Co., Ltd made a supplementary FSR to include the bidding electricity tariff of other projects in East Inner Mongolia which is 0.5123 RMB/kWh (including VAT).

DNV has checked the tariff guiding document "Notification of electricity tariff for wind power projects, Fa Gai Jia Ge [2007]1260" issued by NDRC on 6 July 2007 /40/ which is the latest notification before the project starting date 12 June 2007, and the tariff in the East Inner Mongolia was 0.54 RMB/kWh (including VAT) according to this notification. Furthermore DNV performed the site visit and confirm that the proposed project has been completed and under operation at the validation time.

In China, the electric power system reform was implemented by the State Council in 2002 which led to a diversification in the ownership of power generation and the tariff reform /33/. After the reform, power companies and grid companies were separated to be more market oriented; as a result, power projects prior to 2002 enjoyed higher electricity price than

projects after 2002. The approved tariffs for wind power projects in East Inner Mongolia and West Inner Mongolia are different due to export to different grids and different wind resources in these two regions. The proposed project is located in East Inner Mongolia.

Therefore, sourced from *China Wind Farms Capacity Statistics in 2007* and UNFCCC website /36/, the projects after 2002 in East Inner Mongolia were listed in the table 3 below for tariff comparison.

Table 2: Wind power projects in East Inner Mongolia Autonomous Region after Year 2002

No.	Project name	Installed capacity, MW	Tariff source	Tariff approval time	Tariff Incl. VAT, RMB/KWh	Note
Demonstration projects in East Inner Mongolia Autonomous Region						
1	Dali Phase III Wind Power Project	31.2	PDD of Ref. 1628 /45/	2007-4 (1628 GSP)	0.79	Demonstration
Concessional projects in East Inner Mongolia Autonomous Region						
2	Huadian Tongliao Beiqinhe 300MW Wind Farm Project	300	China Wind Power Report 2008 /46/	2007-11-30	0.5216	Ref. 3091
Commercial projects in East Inner Mongolia Autonomous Region						
3	Inner Mongolia Chifeng Saihanba West 30.6 MW Wind farm Project	30.6	Fagaijiage [2007] 1260 /40/	2007-6-9	0.54	Ref. 0994
4	Inner Mongolia Sunjiaying 50.25MW Wind Power Project	50.25	Fagaijiage [2007] 1260 /40/	2007-6-9	0.54	Ref. 1488
5	Inner Mongolia Wudaogou 50.25MW Wind Power Project	50.25	Fagaijiage [2007] 1260 /40/	2007-6-9	0.54	Ref. 1487
6	Guohua Hulunbeier Xinbaerhu Youqi 49.5 MW Wind Farm Project	49.5	Fagaijiage [2007] 1260 /40/	2007-6-9	0.54	Ref. 0981
7	Inner Mongolia Chifeng Dongshan 49.3 MW Wind Power Project	49.3	Fagaijiage [2007] 1260 /40/	2007-6-9	0.54	Ref. 0689
8	Saihanba North 45.05 MW Windfarm Project	45.05	Fagaijiage [2007] 1260 /40/	2007-6-9	0.54	Ref. 0576
9	Saihanba East 45.05 MW Windfarm Project	45.05	Fagaijiage [2007] 1260 /40/	2007-6-9	0.54	Ref. 0561
10	Inner Mongolia Chifeng Dongshan Phase II 50MW Wind Power Project	50	Fagaijiage [2007] 3303 /40/	2007-12-3	0.54	Ref. 1869
11	Chifeng Sunjiaying Wind Power Project	49.3	Fagaijiage [2007] 3303 /40/	2007-12-3	0.54	Applying CDM
12	Inner Mongolia Keyouqianqi Wind Farm Project	49.3	Fagaijiage [2007] 3303 /40/	2007-12-3	0.5325	Ref. 2593
13	Inner Mongolia Chifeng Bolike 50MW Wind Power Project	50	Fagaijiage [2007] 3303 /40/	2007-12-3	0.54	Ref. 1830
14	Inner Mongolia Keshiketeng County Wutaohai South Wind Farm 49.5 MW Project	49.5	Fagaijiage [2007] 3303 /40/	2007-12-3	0.54	Ref. 2420
15	Inner Mongolia Dali Phase IV 49.5MW Wind Power Project	49.5	Fagaijiage [2008] 1876 /40/	2008-7-23	0.54	Ref. 1628
16	Inner Mongolia Chifeng Daguangdingzishan Wind Power Project	49.3	Fagaijiage [2008] 1876 /40/	2008-7-23	0.54	Ref. 3116
17	Inner Mongolia Chifeng Daheishan Wind Power Project	49.3	Fagaijiage [2008] 1876 /40/	2008-7-23	0.54	Applying CDM
18	Inner Mongolia Mangniuhai Wind Farm Project	49.3	Fagaijiage [2007] 3303 /40/	2007-12-3	0.54	Applying CDM

19	Guohua Tongliao Kezuo Zhongqi Phase I 49.5 MW Wind Farm Project	49.5	Fagaijiage [2007] 3303 /40/	2007-12-3	0.54	Ref. 2216
20	Inner Mongolia Wengniute Banner Wudaogou Wind Power Project (II)	50	Fagaijiage [2007] 3303 /40/	2007-12-3	0.54	Applying CDM
21	Inner Mongolia Meiyaoshan Wind Farm Project	49.92	Fagaijiage [2007] 3303 /40/	2007-12-3	0.54	Ref. 2381
22	Inner Mongolia Chifeng Gaofeng Wind Power Project	50	Fagaijiage [2008] 1876 /40/	2008-7-23	0.54	Applying CDM
23	Inner Mongolia Tongliao Baolongshan 49.5MW Wind Power Project	49.5	Fagaijiage [2008] 1876 /40/	2008-7-23	0.54	Applying CDM
24	Inner Mongolia Dali Phase V 49.5MW Wind Power Project	49.5	Fagaijiage [2008] 1876 /40/	2008-7-23	0.54	Ref. 1629

From the table 2, it was found that there were no existing commercial wind farms in East Inner Mongolia before 2006, only the demonstration project Dali phase III wind farm project which was supported by national debt fund /45/; and from 2006 to now, the tariff for wind power projects in East Inner Mongolia has been stable at 0.54 RMB/kWh (incl. VAT), which have been approved by NDRC except for two wind projects, Huadian Tongliao Beiqinghe 300 MW Wind Farm Project which is a concessional project with the approved tariff of 0.5216 RMB/kWh (incl. VAT) /46/ and Inner Mongolia Keyouqianqi Wind Farm Project with approved tariff of 0.5325 RMB/kWh (incl. VAT) /40/.

The "information note on the highest tariffs applied by the executive board in its decisions on registration of projects in the People's Republic of China" /29/ indentify the highest tariff in the Inner Mongolia Autonomous Region as 0.54 RMB/kWh (incl. VAT).

The highest tariff 0.54 RMB/kWh (incl. VAT) in the IRR calculation spreadsheet leads to an IRR became 6.91%, which is still below the benchmark.

Furthermore DNV has also checked the PPA signed between Guohua (Tongliao) Wind power Co., Ltd and East Inner-Mongolia Power Grid Company on 9 July 2010 and verified that the actual power tariff during operation for the proposed project is 0.54 RMB/kWh (including VAT).

Hence, DNV could confirm that the tariff 0.5123 RMB/kWh (including VAT) applied in the proposed project for all years of operation is acceptable at the time of the investment and that with the actual tariff of 0.54 RMB/kWh the project is also not financially attractive.

(6) Taxes

According to the current law in China, The Statute of People's Republic of China on value added tax, the VAT is defined as 17% for industry. In order to encourage the development of wind power in China, the Ministry of Finance and State Administration of Taxation provides tax reduction for wind power projects which is 8.5% /41/.

According to Interim regulations of Enterprise Income Tax Law of People's Republic of China issued by Chairman of the Peoples Republic of China on 1 January 1994 /41/, the income tax for normal enterprise is 25%, but for the high-tech enterprise the tax rate could be 15%. The income tax rate applied in the investment analysis for the proposed project is 15%, DNV could confirm it appropriate and conservative.

DNV has verified the business license of Guohua (Tongliao) Wind power Co., Ltd and confirm the Guohua (Tongliao) Wind power Co., Ltd is a joint ventures company /6/ and

according to the notification Guoshuifa [994] 038 by National Tax Bureau /44/, both city building tax and education added tax can enjoy the tax holiday.

In the IRR calculation spreadsheet, the tax benefits from interest are included /2/, which is complied with the *Guidance on the Assessment of Investment Analysis* (version 3.1) issued in CDM EB51 annex 58 /31/. DNV could determine this is appropriate and acceptable.

The residual value is 5% and the depreciation is 15 years, which are in line with the government document: Notification about confirming the implement time of the adjusted company's rate of salvage value Guoshuihan [2005] No. 883 /43/.

As mentioned in the section 4.6.1, the project participant performed the 1st CDM registration application and the PDD version 1 of 10 August 2007 was made publicly available on the CDM website and Parties, stakeholders and NGOs were through the CDM website /48/ invited to provide comments during a 30 days period from 8 September to 7 October 2007. The project was finially rejected on EB51 dated 4 December 2009 /30/. DNV can determine that the parameters applied in the investment analysis in the 1st validation and the re-validation are consistent. The only change is in the re-validation the project participant has applied the *Guidance on the Assessment of Investment Analysis* (version 3.1) issued in CDM EB51 annex 58 /31/ and the tax benefits from interest are included in the IRR calculation.

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.

4.6.6 Investment analysis: Calculation and conclusion

The IRR calculations covering 20 years of operation were provided in a spreadsheet /2/. 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 without CDM revenues is 6.10%, which confirms that the project in the absence of CDM benefits and compared to the benchmark of 8% is not financially attractive. With CER revenues the project IRR increases to 9.34%, which is above the benchmark of 8%.

4.6.7 Investment analysis: Sensitivity analysis

A sensitivity analysis has been carried out for parameters contributing more than 20% to revenues or costs to check the robustness of the financial analysis. Reasonable variations of the static investment, annual operational costs, and annual output delivered to the grid 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 touch the benchmark only if the above mentioned parameters change by values as mentioned below:

Key Indicators	***Variation of the parameter indicator needed to reach benchmark 8%***
Static investment costs	-13.7%

Annual O&M cost	-63%
Electricity tariff	12.1%
Annual output delivered to the grid	12.1%

1) Total Static Investment:

The proposed project has been completed at validation and the final final account report was in place. DNV has checked the final account report by Guohua (Tongliao) Wind power Co., Ltd and found that the actual expenditure of the proposed project is 486.084 million RMB /11/, which is more than the total investment assumed in FSR 455.37 million RMB /4/.

Hence DNV could confirm that the static total investment is not likely to decrease by more than 13.7% based on the assumed investment in the FSR.

2) O&M cost:

The annual O&M cost per output electricity for the proposed project is 106.3 RMB/MWh /4/. The percentage of O&M costs per output electricity was found to be within the range of other wind farms in East Inner Mongolia (65.4 RMB/kWh - 177.6 RMB/kWh) as per the table in section 4.5.5. If the O&M costs decrease 63% the value would become 39.3 RMB/MWh, which is far beyond the normal region 65.4 RMB/kWh - 177.6 RMB/kWh.

Hence DNV can determine the annual O&M cost is not likely to decrease as much as 63%.

3) Power Tariff:

If the assumed power tariff 0.5123 RMB/kWh (including VAT) in the supplementary FSR /4/ increase 12.1% then it will be 0.5743 RMB/kWh (including VAT).

At validation the proposed project has been under operation and the PPSA was signed between PP and East Inner-Mongolia Power Grid Company. DNV has checked the PPSA and confirmed the power tariff is fixed as 0.54 RMB/kWh (including VAT) in the whole operation period of the proposed project /7/.

Thus DNV could confirm it is unlikely that the tariff increases 12.1% to make the project-IRR reach the benchmark.

4) Annual Power Generation:

The annual power generation (plant load factor) of the proposed project was estimated by an independent third party accredited by the government. Hence, the plant load factor of the project can be considered information provided by a trustworthy and recognized source. The expected power generation of the proposed project is calculated by an independent qualified design institute on the basis of wind assessment records of passed 26 years (1971-2005) and one year (August 2005 - August 2006) wind resources measurement /4/. The volume of annual generation therefore represents the long-term average power supply during the lifetime

of the wind farm, taking into account yearly variations in power generation.

Thus DNV can confirm it unlikely for the annual generation output to increase 12.1% higher than the estimated value.

4.6.8 Common Practice

In China, most policies are promulgated in provincial level by combining the national policy with the region's condition. In addition, abundant and high quality wind resources in Inner Mongolia Autonomous Region make this region different from other regions in the aspect of electricity output, eventually in the aspect of economic feasibility. Hence, it is reasonable that Inner Mongolia Autonomous Region is selected as scope for common practice analysis.
It is reasonable to define as the analysis capacity more than 15 MW of the wind power projects.
The chosen year benchmark after 2002 is reasonable as 2002 is a threshold for economic reform in electricity sector /33/.
Following the above mentioned scope there are two projects not applying CDM: 1) Inner Mongolia Chifeng Dali Wind Power Project (Phase III) 2) Honiton Energy Bailingmiao wind farm project.
Inner Mongolia Chifeng Dali Wind Power Project (Phase III) is a demonstration project and benefits from favourable policy /37/ which is not available for the proposed project. Honiton Energy Bailingmiao wind farm project /38/ use foreign capital and thus not eligible for CDM under the Chinese DNA rules; therefore, it had to be implemented as a Gold Standard VER project, meeting the same additionality criteria.

DNV has checked all sources /36/ mentioned in the PDD and could conclude that the construction of a wind farm project of 49.5 MW is not a common practice in Inner Mongolia Autonomous Region.
Thus, it was shown that this project is not financial attractive and common practice. DNV can confirm all assumptions and analysis as well as the information source.
In summary, it is demonstrated that the project is not a likely baseline scenario and the emission reductions are additional to what would have happened in absence of the project activity.

4.7 Monitoring

The monitoring methodology selected complies with the requirements of ACM0002 version 11 "Consolidated monitoring methodology for zero emissions grid-connected electricity generation from renewable sources" /22/.

4.7.1 Parameters determined ex-ante

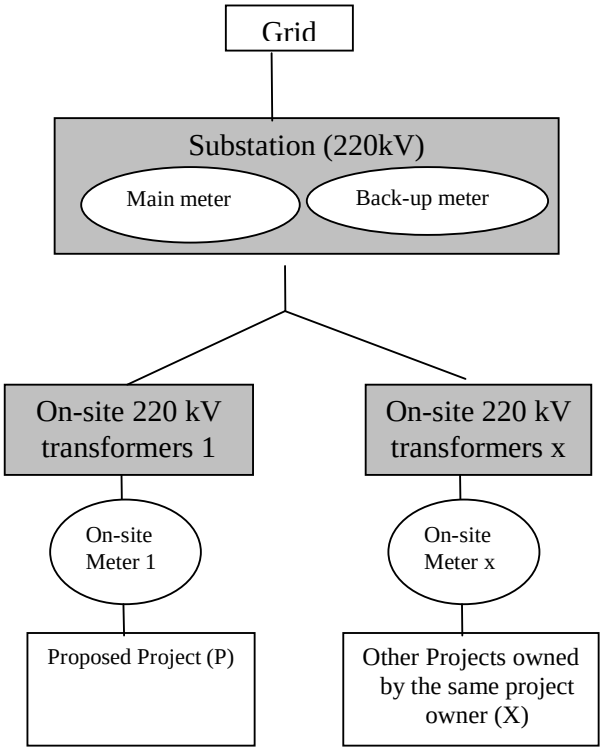
The combined margin emission factor is determined *ex-ante* based on the most recent information available at the time of the validation starting date. The detailed calculations of the combined margin emission factor are described in the following section 4.6. The parameters are listed below table are from China Energy Statistic Yearbook 2006-2008 /39/ and China Electric Power Yearbook 2004-2008 /38/ and calculated in ER spreadsheet /3/:

Data and Parameters	*Unit*	*Ex-ante Determined Value*
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

4.7.2 Parameters monitored ex-post

The parameter monitored *ex-post* is the electricity supplied to NECPG from the proposed project activity. Two bidirectional meters (one is main meter and the other one is backup) both with accuracy 0.2S will be installed on the two lines which were both connected to the 220 kV substation to measure both the electricity exported and imported by the proposed project and other projects /1/.

As shown in the flow chat below there are also share meters with accuracy 0.5 installed before the on-site 220 kV transformers of the proposed project and other projects and thus the net electricity imported to the NECPG by the proposed project will be calculated with the formula as below based on the values of the main meter and the share meters:



$$EG_{P,y} = EG_{Total,y} \times E_{P,y} / (E_{P,y} + E_{X,y})$$

Where:

$EG_{P,y}$ is the calculated net electricity supplied from the proposed project (P) in year y;

$EG_{Total,y}$ is the total net electricity supplied to the NECPG by the proposed project (P) and other projects (X) in year y, read by the main meter;

$E_{X,y}$ is the electricity export by the other projects (X) owned by the same project owner in year y, read by share on-site meter x;
$E_{P,y}$ is the electricity export by the proposed project (P) in year y, read by share on-site meter 1.

The detailed information will be stated in the Monitoring and Management Manual and updated in accordance with PPSA /7/. All meters will be calibrated once a year according to the local industrial regulation.
The electricity generation will be continuously measured and recorded monthly. This data will be cross verified against the sales receipt. Data will be archived for 2 years following the end of the last crediting period by means of electronic and paper backup. Guohua (Tongliao) Wind power Co., Ltd will be responsible for the overall monitoring and reporting and will keep all the dates and material /1/.

The monitoring plan will give opportunity for real measurements of achieved emission reductions. DNV can confirm the project participants have the ability to implement the monitoring plan.

4.7.3 Management system and quality assurance

The project's monitoring plan includes:
1. The users - who use the monitoring plan
2. Operational and management structure for monitoring
3. Monitoring
4. Calibration of Meters & Metering
5. Quality Assurance and Quality Control
6. Data Management System
7. Monitoring Report

Detailed procedures have been elaborated and attached at B.7.2 of the PDD. These will be maintained and implemented to enable subsequent verification of emission reductions.

4.8 Estimation of GHG emissions

The emission reductions (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 grid emission factor ($EF_{grid,CM,y}$ 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 wind energy project.

3) Leakage: No leakage has to be considered for the proposed 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*" version 2.0 /24/ and Guidance for request for deviation titled "*Application of AM0005 and AMS-I.D in China*" /25/, based on the most recent information available at the time when the PDD was web-hosted on 2

November 2009. It has been calculated as the weighted average (w_{OM} = 0.75: w_{BM} = 0.25) of the operating margin and the build margin.

The data used in the EF calculation is in accordance with data in the China Electric Power Yearbook from 2004 to 2008 (published annually) /38/, the China Energy Statistical Yearbook from 2006 to 2008 /39/, IPCC data and the *Summary of Statistic Materials on Power Industry by NDRC* /39/.

Operating Margin: Simple OM was chosen and this is justified since the low cost /must run resources constitute less than 50% of (5.44%, 4.72%, 6.45%, 7.98%, 5.69% and 5.53% from the year 2002 to 2007) total grid generation /38/.

Aggregated generation and fuel consumption data are used due to the fact that more disaggregated data are not available in the NECPG (option B). The total electricity delivered to the NECPG has been used which is obtained from the China Electric Power Yearbook from 2004 to 2008 (published annually). Country specific data for net calorific value of each type of fossil fuel, the statistic data for fuel consumption of fossil fuels within the grid, electricity transported between grids are obtained from the China Energy Statistical Yearbook from 2006 to 2008, the IPCC 2006 default values for the emission factor of different kinds of fossil fuels and the *Summary of Statistic Materials on Power Industry by NDRC* /27//38//39/. The emission factors of each type of fossil fuel are deemed reasonable. In the documents issued by NDRC, there is the lower limit of the 95% percent confidence intervals for CO_2 emission factor of fossil fuels from IPCC 2006 /27/.

The OM is calculated to be 1.1293 tCO_2e/MWh. The sources and calculation have been verified by DNV /3/.

Build Margin: Build margin was determined *ex-ante*. 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:

- Use of capacity additions from the years 2004 to 2007 is chosen and reaches 21.39% of the total installed capacity /38/.
- Use of weights estimated using installed capacity in place of annual electricity generation. Thermal power plant accounts for 88.42% of the total installed capacity additions in this period. Since specific data for each technology is not available, the fraction of fuels (coal 98.59%; natural gas 1.23%; oil 0.18%) was estimated from the CO_2 intensity for the fuels used in NECPG /38//39/.
- Efficiencies of 38.10% for coal power plants and 49.99% for oil or gas power plants are defined as the best technology commercially available in China by the DNA of China /32/.

Country specific net calorific value of each kind of fuel from the China Energy Statistics Yearbook 2008, and IPCC 2006 default values for emission factors of each kind of fuel and carbon oxidization factor are used to calculate the BM in the NECPG. The official supporting documentation has been verified /27//38//39/.

0.7241 tCO_2e/MWh is calculated as BM which was verified by the provided emission factor calculation spreadsheet /3/.

The resulting combined margin emission factor 1.0280 tCO_2e /MWh is fixed *ex-ante* for the first crediting period. The annual electricity delivered to the NECPG is expected to be 116 820 MWh. The expected annual baseline emission reduction of the project is 111 877 tCO_2e.

DNV has referred the validation report of the 1st validation of the proposed project /47/ and found the EF of the year 2005 in the 1st validation period is 1.1461 tCO_2e /MWh, thus DNV can determine that the 1.0280 tCO_2e /MWh of the year 2007 is more conservative and acceptable.

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.

4.9 Environmental impacts

An Environmental Impact Assessment (EIA) of the project activity completed by Inner Mongolia Exploration & Design Institute of Water Resources and Hydropower on September 2006 /5/ has been conducted and the potential environmental impacts, such as waste water, noise and waste gas, have been sufficiently identified. No significant environmental impacts are expected from the project activity. The Environmental Protection Bureau of Inner Mongolia Autonomous Region approved the EIA on 25 September 2006 /5/.

4.10 Comments by local stakeholders

The project participants carried out a public survey on the project in the format of questionnaires on 25 March 2007. 1-page questionnaires were distributed to the households. The questionnaire was designed to be understandable and easy to fill in for the local stakeholders. The survey had a 100% response rate (50 questionnaires returned out of 50) and according to the comments summary received from local stakeholders, there is no negative opinion on this project /18/.

DNV can confirm the adequacy of the local stakeholder consultation process.

4.11 Comments by Parties, stakeholders and NGOs

The PDD version 01 dated 10 August 2007 was made publicly available on the CDM website and Parties, stakeholders and NGOs were through the CDM website (http://cdm.unfccc.int/Projects/Validation/DB/47SVNTXWQP21VAAECIA1HCR8QVFUIM/view.html) invited to provide comments during a 30 days period from 08 September 2007 - 07 October 2007. No comments were received in this period.

The proposed project was finally rejected in EB 51 during the first the validation /30/.

Otherwise the project participant decided to continue to secure the CDM and go on the validation process. Then the updated PDD version 06 dated 14 July 2010 was made publicly available on the CDM website and Parties, stakeholders and NGOs were through the CDM website (http://cdm.unfccc.int/Projects/Validation/DB/TOE3WHPXWPDG4I0CRS17T91FQ2C2B8/v

iew.html) invited to provide comments during a 30 days period from 31 July 2010 - 29 August 2010. No comments were received in this period.

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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	~~CAR 1~~ OK
2. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC.	Kyoto Protocol Art.12.2.	OK
3. The project shall have the written approval of voluntary participation from the designated national authority of each Party involved.	Kyoto Protocol Art. 12.5a, CDM Modalities and Procedures §40a	OK
4. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof.	Kyoto Protocol Art. 12.2, CDM Modalities and Procedures §40a	OK
5. In case public funding from Parties included in Annex I is used for the project activity, these Parties shall provide an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of these Parties.	Decision 17/CP.7, CDM Modalities and Procedures Appendix B, § 2	OK
6. Parties participating in the CDM shall designate a national authority for the CDM.	CDM Modalities and Procedures §29	OK
7. The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol.	CDM Modalities §30/31a	OK
8. The participating Annex I Party's assigned amount shall have been calculated and recorded.	CDM Modalities and Procedures §31b	OK
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	Kyoto Protocol Art. 12.5c, CDM Modalities and Procedures §43	~~CL 1~~ ~~CL 2~~

Requirement	Reference	Conclusion
that would have occurred in the absence of the registered CDM project activity.		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 design document and comments have been made publicly available.	CDM Modalities and Procedures §40	OK
Other		OK
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. 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	~~CL 3~~ OK

Table 2 Requirements checklist

Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
A General description of project activity						
A.1	**Title of the project activity (VVM para 55-57)**					
A.1.1	Does section A.1 of the PDD include a clearly identifiable project title, version number of the PDD and date of the PDD?	/1/	DR	☒ Clearly identifiable title of the project activity ☒ Version number of the PDD is included ☒ Date of the PDD is included.		OK
A.1.2	Is the PDD is in accordance with the applicable requirements for completing PDDs?	/1/	DR	☒ Yes *If no, list where the PDD is not in accordance:*		OK
A.2	**Description of the project activity (VVM para 58-64)**					
A.2.1	How was the design of the project assessed?	/4/ /49/ /50/	DR I	*What type is the project?* ☐ Project in existing facility or utilizing existing equipment(s) ☐ Project is either a large scale project or a small scale project with emission reductions exceeding 15 000 tCO_2e per year. In this case, a site visit must be performed. ☐ Project is a bundled small scale project, with each project in the bundle with emission reductions not exceeding 15,000 tCO_2e per year. In such case the number of physical site visits may be		OK

MoV = Means of Verification, DR= Document Review, I= Interview, CC= Cross-Checking

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			based on sampling, if the sampling size is appropriately justified through statistical analysis. ☐ The project is an individual small scale project activity with emission reductions not exceeding 15 000 tCO_2e per year. In this case, DOE may not conduct a physical site visit as appropriate. ☒ Greenfield project *How was the design of the project assessed?* ☒ Physical site inspection ☐ Reviewing available designs and feasibility studies On 8 September 2009, Mr. Li Lei from DNV Beijing office visited Dailiji County, Kezuozhong Qi, Tongliao City of Inner Mongolia Autonomous Region in China, where the project located and performed interviews with project stakeholders. Representatives of the project owner Guohua (Tongliao) Wind power Co., Ltd, the project consultant CREIA and the CER buyer Merrill Lynch Commodities (Europe) Limited were interviewed to resolve the issues identified during the desk review. DNV has checked that the proposed project ever applied the CDM from UNFCCC but		

Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
				was rejected in EB 51. But the PP signed a re-validation contract with DNV and started validation again. Meanwhile the PP continued to perform the project.		
A.2.2	If a greenfield project, describe the physical implementation of the project when the validation was commenced.	/14/ /19/ /31/	DR I	Until the validation commencement, the proposed project has been totally completed and under operation. DVN has checked the operation report by PP and could confirm the commission date of the proposed project is 15 January 2009. At the project site DNV visited the wind farm, booster station, centre control room of Guohua (Tongliao) Wind power Co., Ltd and found the proposed project was under normally operation.		OK
A.2.3	If physical site visits were performed based on sampling (only applicable for bundled small scale projects, each with emission reductions not exceeding 15 000 tCO_2e per year), justify the sampling through a statistical analysis:	/49/ /50/	DR	Until the validation commencement, the proposed project has been totally completed and under operation. DNV has visited the wind farm, booster station, centre control room of Guohua (Tongliao) Wind power Co., Ltd and found the proposed project was under normally operation.		OK
A.2.4	Is the description of the proposed CDM project activity as contained in the PDD sufficiently covers all relevant elements, is accurate and that it provides the reader with a clear understanding of the nature of the proposed CDM project activity?	/1/	DR	Yes. The description in the PDD covers all relevant elements, like the location, installed capacity and provides a clear understanding of the nature of the proposed CDM project activity.		OK
A.2.5	Does the project activity involve alteration of existing installations? If so, have the differences between pre-	/4/	DR	Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project is a newly built		OK

	Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
	project and post-project activity been clearly described in the PDD?			project and there is no alteration to existing installation.		
A.2.6	Does the project design engineering reflect current good practices?	/4/	DR	The project involves installation and operation of 33 wind turbines in Tongliao city, Inner Mongolia Autonomous Region, north China. The physical boundary of the project includes the wind turbines and transmission system along with the NECPG as the electrical grid to which the project is physically connected. The project's spatial boundaries are clearly defined. Based on the wind resource conditions, adopted FD77-1500 turbines with an installed generation capacity each of 1500 kW are selected, which constitute a total generation capacity of 49.5MW. The installation also includes a central control room for control, measurement and surveillance of the wind farm /4/. The project applies state of the art technology.		OK
A.2.7	Would the technology result in a significantly better performance than any commonly used technologies in the host country? Is any transfer of technology from any Annex-I Party involved?	/4/	DR	Yes. As check the FSR, DNV could confirm that the technology result in a significantly better performance than any commonly used technologies in China and there's no technology transfer from any Annex-I Party involved.		OK
A.3	**Participation requirements (VVM para 51-54, 125-127)**					
A.3.1	Do all participating Parties fulfil the participation	/1/	DR	The names of project participants in LoAs	~~CAR 1~~	OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
requirements as follows:	/20/ /21/	I	respectively from China and UK should be kept consistent.		
			China (host) / Annex 1 party		
a) Party has ratified the Kyoto Protocol			☒ Yes ☐ No / ☒ Yes ☐ No		
b) Party has designated a Designated National Authority			☒ Yes ☐ No / ☒ Yes ☐ No		
c) The assigned amount has been determined			☒ Yes ☐ No		
A.3.2 Do the letters of approval meet the following requirements?		DR CC	The names of project participants in LoAs respectively from China and UK should be kept consistent.	~~CAR 1~~	OK
			China (host) / Annex 1 party		
a) LoA confirms that Party has ratified the Kyoto Protocol			☒ Yes ☐ No / ☒ Yes ☐ No		
b) LoA confirms that participation is voluntary			☒ Yes ☐ No / ☒ Yes ☐ No		
c) The LoA confirms that the project contributes to the sustainable development of the host country?			☒ Yes ☐ No / NA		
d) The LoA refers to the precise project activity title in the PDD			☒ Yes ☐ No / ☒ Yes ☐ No		
e) The LoA is unconditional with respect to (a) to (d) above			☒ Yes ☐ No / ☒ Yes ☐ No		
f) The LoA is issued by the respective Party's DNA			☒ Yes ☐ No / ☒ Yes ☐ No		
g) The LoA was received directly by the DNA or the PP			☐ DNA ☒ PP / ☐ DNA ☒ PP		
h) In case of doubt regarding the authenticity of the letter of approval, describe how it was verified that the letter of approval is authentic			The LoA by NDRC can be found on the official website of / The issuance email of LoA by the DNA of UK was mailed to the		

MoV = Means of Verification, DR= Document Review, I= Interview, CC= Cross-Checking

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
	NDRC: http://cdm.ccchina.gov.cn/web/NewsInfo.asp?NewsId=2072.		project participant. DNV has checked the electric copy and can confirm the authority.		
A.3.3 Have all private/public project participants been authorized by an involved Party?	/1/ /20/ /21/	DR I	The names of project participants in LoAs respectively from China and UK should be kept consistent.	~~CAR 1~~	OK
A.4 Technical description of the project activity (VVM para 58-64)					
A.4.1 Is the project's location clearly defined?	/4/	DR	The project involves installation and operation of 33 wind turbines in Tongliao city, Inner Mongolia Autonomous Region, north China. The geographical coordinates of the project site is east longitude 122°57′ and north latitude 41°13′.		OK
A.5 Public funding of the project activity					
A.5.1 In case public funding from Parties included in Annex I is used for the project activity, have these Parties provided 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?	/20/ /21/	DR	The names of project participants in LoAs respectively from China and UK should be kept consistent.	~~CAR 1~~	OK
B Application of a baseline and monitoring methodology					
B.1 Methodology applied (VVM para 65-76)					
B.1.1 Does the project apply an approved methodology and	/22/	DR	Yes. The approved methodology ACM0002		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
the correct and valid version thereof?			"*Consolidated baseline methodology for grid-connected electricity generation from renewable source*" version 11 is used for this project.		
B.1.2 If applicable, has any specific guidance provided by the CDM EB in respect to the applied methodology been considered?		DR	N/A		OK
B.2 Applicability of methodology (and tools) (VVM para 65-76) *ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable source" version 11;* *Tool for the demonstration and assessment of additionality, Version 5.2;* *Tool to calculate the emission factor for an electricity system, Version 2.0.*					
B.2.1 How was it validated that project complies with the following applicability criteria: insert applicability criteria 1? The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit.	/4/	DR	Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project is a newly built wind power project. It can also be proved by the provided FSR's approval.		OK
B.2.2 How was it validated that project complies with the following applicability criteria: insert applicability	/4/	DR	Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project is the project		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
criteria 2? Project activities that not involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site?			that uses wind to generate electricity. So there is no fossil fuel switch in this project. It can also be verified by the project design in the approved FSR.		
B.2.3 How was it validated that project complies with the following applicability criteria: insert applicability criteria 3? Not a biomass fired power plants?	/4/	DR	Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project is the project that uses wind to generate electricity not by using biomass. It can also be verified by the project design in the approved FSR.		OK
B.2.4 Is the selected baseline on of the baseline(s) described in the methodology and this hence confirms the applicability of the methodology?	/22/	DR	Yes. As per the ACM0002 version 11, the baseline scenario is that the electricity delivered to the grid by the project activity would otherwise have been generated by the operation of grid-connected power plants in NECPG and by the addition of new generation sources.		OK
B.3 Project boundary (VVM para 78-80)					
B.3.1 What are the project's system boundaries (components and facilities used to mitigate GHGs)? Are they clearly defined and in accordance with the methodology?	/32/	DR	The project boundary is clearly defined as the site of project activity and all power plants connected physically to the NECPG including Beijing, Tianjin, Hebei, Shandong, Shanxi and Inner Mongolia /32/. There are no significant transmission constraints amongst the power plants of the NECPG, nor with the proposed project. It is DNV's opinion that the project boundary of Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project is clearly defined		OK

Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
B.3.2	Which GHG sources are identified for the project? Does the identified boundary cover all possible sources linked to the project activity? Give reference to documents considered to arrive at this conclusion.	/32/ /22/	DR	The major emission source of Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project is CO_2 and this is in line with the approved methodology ACM0002. The project boundary is defined as the site of the project activity and all power plants connected physically to the NECPG including Heilongjiang, Jilin and Liaoning power grid. And this boundary covers all possible sources linked to the project activity. It can be verified with the grid boundary published by NDRC in July 2009.		OK
B.3.3	Does the project involve other emissions sources not foreseen by the methodologies that may question the applicability of the methodology? Do these sources contribute with more than 1% of the estimated emission reductions of the project?	/4/	DR	There is no other emission sources involved in Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project. And there is also no other sources contribute more than 1% of the estimated emission reductions of the project.		OK
B.4	**Baseline scenario determination (VVM para 81-88, 105-107)**					
B.4.1	Which baseline scenarios have been identified? Is the list of baseline scenarios complete?	/22/	DR	According to the methodology ACM0002 version 11, the baseline scenario is identified directly as “provision of equivalent amount of annual power output by the NECPG where the proposed project is connected into, which is the continued operation of the existing power plants and the addition of new generation sources on the NEPG to meet the electricity demand”.		OK

Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
B.4.2	How have the other baseline scenarios been eliminated in order to determine the baseline?	/22/	DR	The baseline scenario has been directly determined according to the methodology ACM0002 version 11.		OK
B.4.3	What is the baseline scenario?	/22/	DR	The baseline scenario of Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project is: provision of equivalent amount of annual power output by the NEPG where the proposed project is connected into, which is the continued operation of the existing power plants and the addition of new generation sources on the NEPG to meet the electricity demand. This is in line with the approved methodology ACM0002 version 11.		OK
	B.4.4 Is the determination of the baseline scenario in accordance with the guidance in the methodology?	/22/	DR	Yes. All the process is under the guidance in the methodology ACM0002 version 11.		OK
	B.4.5 Has the baseline scenario been determined using conservative assumptions where possible?	/22/	DR	Yes. The baseline scenario has been directly determined according to the methodology ACM0002 version 11.		OK
B.4.6	Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	/22/	DR	Yes. The baseline scenario has been directly determined according to the methodology ACM0002 version 11, and it has sufficiently taken into account relevant national and/or sectoral policies, macro-economic trends and political aspirations		OK
	B.4.7 Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced?	/22/	DR	The baseline scenario has been directly determined according to the methodology ACM0002 version 11.		OK

MoV = Means of Verification, DR= Document Review, I= Interview, CC= Cross-Checking

	Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
	B.4.8 Is the baseline determination adequately documented in the PDD? • 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. • 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	/22/	DR	Yes. The baseline scenario has been directly determined in PDD according to the methodology ACM0002 version 11.		OK
B.5	**Additionality determination (VVM para 94-121)**					
B.5.1	What approach/tool does the project use to assess additionality? Is this in line with the methodology?	/22/	DR	The tool used to assess additionality is "*Tool for the demonstration and assessment of additionality*" version 5.2. All the process of analysing the additionality in the PDD is in line with the methodology ACM0002 and additonality tool.		OK
B.5.2	Have the regulatory requirements correctly been taken into account to evaluate the project activity and the alternatives?	/22/	DR	In accordance with ACM0002 paragraph 4, the two options continued operation of grid-connected power plants including addition of new generation sources in the grid and the project activity were considered.		OK
B.5.3	Is sufficient evidence provided to support the relevance of the arguments made?	/22/	DR	In accordance with ACM0002 paragraph 4, the two options continued operation of grid-		OK

Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
				connected power plants including addition of new generation sources in the grid and the project activity were considered.		
B.5.4	What is the project additionality mainly based on (Investment analysis or barrier analysis)?	/1/	DR	The project additionality is based on the investment analysis.		OK
Prior consideration of CDM (VVM para 98-103)						
B.5.5	What is the evidence for serious consideration of CDM prior to the time of decision to proceed with the project activity?	/8/ /9/ /10/	DR	The wind turbine generator contract between Guohua (Tongliao) Wind power Co., Ltd and Dongfang Turbine Manufacture Co., Ltd was signed on 12 June 2007 /8/. The construction contract between Guohua (Tongliao) Wind power Co., Ltd and Tongliao Shizheng Lutong Engineering Co., Ltd was signed on 10 October 2007 /9/ and the construction permission letter was issued by Heilongjiang Zhengxin Construction Co., Ltd on 20 November 2007 /10/. Base on the above timeline 12 June 2007 was identified as the first financial commitment of the proposed project and the project starting date was confirmed as 12 June 2007.		OK
B.5.6	If the starting date is after 2 August 2008 and before the global stakeholder consultation, has the DNA and UNFCCC confirmed that the project participants have informed in writing of the project's intention to seek CDM status?	/8/ /9/ /10/	DR	The project started before 2 August 2008.		OK

	Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
	Continuous efforts to secure CDM status (only to be completed if starting date is before 2 August 2008)					
B.5.7	What initiatives where taken by the project participants from the starting date of the project activity to the start of validation in parallel with the physical implementation of the project activity?		DR			
B.5.8	When did the construction of the project activity start?	/10/	DR	The construction permission letter was issued by Heilongjiang Zhengxin Construction Co., Ltd on 20 November 2007 and then the construction started.		OK
B.5.9	When was the project commissioned?	/14/	DR	DVN has checked the operation report by PP and could confirm the commission date of the proposed project is 15 January 2009 /14/.		OK
B.5.10	Does the timeline of the project confirm that continuous actions in parallel with the implementation were taken to secure CDM status?	/8/ /9/ /10/ /20/	DR	Yes. Before the project starting date, in January 2007 the execute board of Guohua (Tongliao) Wind power Co., Ltd held a meeting and decide to apply CDM because the proposed project was not financial attractive. In February 2007 the CDM Consultant Agreement between Guohua (Tongliao) Wind power Co., Ltd and CREIA was signed. Only 3 months later than the project starting date, NDRC issued the LoA for the proposed project and appointed Guohua (Tongliao) Wind power Co., Ltd as the project participant for CDM on 30 September 2007. Based on the evidence above DNV could determine that CDM was seriously		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			considered before the project starting and then secured.		
Investment analysis (VVM para 108-114)					
B.5.11 Does the project activity or any of the remaining alternatives generate revenues apart from CDM? Is this reflected in the PDD?	/1/	DR	Yes. The only source of generating revenue is from the sales of electricity. This is reflected in the PDD. And it can also be confirmed by the FSR of Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project.		OK
B.5.12 Do any of the alternatives to the project activity involve investment? Is this reflected in the PDD?		DR	The alternative for the baseline scenario of the project is not a similar investment project, which has been correctly described in the PDD.		
B.5.13 Is the choice of benchmark analysis, investment comparison or simple cost analysis correct?		DR	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 (option III) is justified for conducting the investment analysis. The choice is in line with methodology ACM0002 and correct.		
B.5.14 Is the benchmark/discount rate the latest available at the time of decision?	/37/	DR	According to the *Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects*, in China an IRR of 8% (after tax) 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		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			therefore appropriate for this project. DNV was able to confirm this is suitable and reasonable as following: 1. This benchmark was determined by the national administration of this industry in China; 2. This benchmark is for project-IRR and after tax and the investment analysis for this project will be for 'project and after tax' also; 3. This *Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects* refers to the risk premiums of wind farm power project, and this file is still valid now.		
B.5.15 What is the financial indicator? Is it on equity/project basis? Before/after tax? Is the financial indicator in correspondence with the benchmark?	/2/	DR	The IRR calculations were provided in a spreadsheet. The calculations were verified and found to be corrected by DNV. The project-IRR over 20 years without CDM revenues is 6.10%, which confirms that the project in the absence of CDM benefits and compared to the benchmark of 8% is not financially attractive. The project IRR with CER revenues also needs to be calculated in the IRR spreadsheet and stated in PDD.		OK
B.5.16 Are the underlying assumptions appropriate, e.g. what is considered as waste in the baseline is considered to have zero value?		DR	N/A		OK

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Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
B.5.17	Does the income tax calculation take depreciation into account? Is the depreciation year in accordance with normal accounting practice in the host country?	/31/	DR	The income tax calculation takes depreciation into account. The depreciation year is 15 year with the fixed residual rate 5%. This depreciation year and rate is in accordance with normal accounting practice in China. As per the reqirement of EB 51 Annex 58, the loan interest needs to be taken into account while doing the income tax calculation. This part needs to be updated in the IRR calculation sheet.		OK
B.5.18	Is the time period of the investment analysis and operating time of the project realistic? Has salvage value been taken into account? Is working capital returned in the last year of operation?	/4/	DR	The operating period is 20 years for Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project which is derived from the FSR. The depreciation time is 15 years and the rate of residual value of fixed assets is 5%. The working capital returned as income in the last year of operation.		OK
B.5.19	When a feasibility study report or similar approved by the government is used as the basis for the investment analysis: Can it be confirmed that the values used in the PDD are fully consistent with the FSR and is the period of time between finalization of the FSR and the investment decision adequate?	/2/	DR	The FSR was finished in August 2006 and it was approved by Development and Reform Commission of Inner Mongolia Autonomous Region on 9 November 2006.		OK
B.5.20	How was the amount of output (e.g. sales of electricity) assessed? Remember to include all the data sources used and list all the projects that have been used for cross-checking in accordance with VVM paragraph 95.	/4/	DR	☐ The plant load 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 ☒ The plant load factor determined by a		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			third party contracted by the project participants (e.g. an engineering company) ☐ Other approach. The plant load factor of the proposed project is derived from the FSR prepared by Beijing Guodian Water Resources & Electric Power Engineering Co., Ltd which was an independent third party accredited by the government. The FSR was also approved by local government - Development and Reform Commission of Inner Mongolia Autonomous Region on 9 November 2006. Hence, the plant load factor of the project can be considered information provided by a trustworthy and recognized source. DNV can thus confirm that the plant load factor has been validated as per the requirements of EB48 Annex 11. As per the FSR, the expected power generation of the proposed project is calculated by an independent qualified design institute on the basis of wind assessment records of passed 26 years (1971-2005) and one year (August 2005 - August 2006) wind resources measurement. The volume of annual generation therefore represents the long-term average power supply during the lifetime of the wind farm, taking into account yearly variations in power generation.		

Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
				Thus DNV can confirm that the assumed annual grid connected output from the FSR is appropriate and acceptable.		
B.5.21	How was the output price (e.g. electricity price) assessed? Were the data available and valid at the time of decision? Remember to include all the data sources used and list all the projects that have been used for cross-checking in accordance with VVM paragraph 95.	/4/ /29/ /40/	DR	☐ Cross-check against third-party or publicly available sources (e.g. invoices or price indices) ☐ Review of feasibility reports, public announcements and annual financial reports related to the project and the project participants The key parameters including investment costs, tariff, O&M costs and tax applied in investment analysis should be justified to be valid and appropriate by cross-checking or other appropriate manner with the other similar projects in East Inner Mongolia.	~~CL 1~~	OK
B.5.22	How were the investment costs assessed? Were the data available and valid at the time of decision? Remember to include all the data sources used and list all the projects that have been used for cross-checking in accordance with VVM paragraph 95.		DR	☐ Cross-check against third-party or publicly available sources (e.g. invoices or price indices) ☐ Review of feasibility reports, public announcements, contracts and annual financial reports related to the project and the project participants The key parameters including investment costs, tariff, O&M costs and tax applied in investment analysis should be justified to be valid and appropriate by cross-checking or other appropriate manner with the other		

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Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
				similar projects in East Inner Mongolia.		
B.5.23	How were the O&M costs assessed? Were the data available and valid at the time of decision? Remember to include all the data sources used and list all the projects that have been used for cross-checking in accordance with VVM paragraph 95.	/4/	DR	☐ Cross-check against third-party or publicly available sources (e.g. invoices or price indices) ☐ Review of feasibility reports, public announcements and annual financial reports related to the project and the project participants The key parameters including investment costs, tariff, O&M costs and tax applied in investment analysis should be justified to be valid and appropriate by cross-checking or other appropriate manner with the other similar projects in East Inner Mongolia.	~~CL 1~~	OK
B.5.24	Describe the assessment of the taxes applied in the investment analysis. Were the data available and valid at the time of decision? Remember to include all the data sources used and list all the projects that have been used for cross-checking in accordance with VVM paragraph 95.	/2/ /6/ /31/ /41/ /43/ /44/	DR	☐ Cross-check against third-party or publicly available sources (e.g. invoices or price indices) ☐ Review of feasibility reports, public announcements and annual financial reports related to the project and the project participants The key parameters including investment costs, tariff, O&M costs and tax applied in investment analysis should be justified to be valid and appropriate by cross-checking or other appropriate manner with the other similar projects in East Inner Mongolia.	~~CL 1~~	OK
B.5.25	Was the financial calculation spreadsheet verified and found to be correct?		DR	The conclusion will be got at the final report.	~~CL 1~~	OK

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Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
B.5.26	Sensitivity analysis: Have the key parameters contributing to more than 20% of the revenue/costs during operating or implementation been identified? Has possible correlation between the parameters been considered?	/1/	DR	In the sensitivity analysis, the project participants are request to determine the likelihood of total investment increasing to happen in a more transparent manner.	~~CL 2~~	OK
B.5.27	Sensitivity analysis: Is the range of variations is reasonable in the project context?	/1/	DR	In the sensitivity analysis, the project participants are request to determine the likelihood of total investment increasing to happen in a more transparent manner.	~~CL 2~~	OK
B.5.28	Have the key parameters been varied to reach the benchmark and the likelihood of this to happen been justified to be small?	/1/	DR	In the sensitivity analysis, the project participants are request to determine the likelihood of total investment increasing to happen in a more transparent manner.	~~CL 2~~	OK
Barrier analysis (VVM para 115-118)						
B.5.29	Are the barriers identified complimentary to a potential investment analysis? Does the barrier have a clear impact on the financial returns so that it can be assessed in an investment analysis? Each barrier is discussed separately.		DR	N/A		OK
Common practice analysis (VVM para 119-121)						
B.5.30	What is the geographical scope of the common practice analysis? Is this justified?	/1/	DR	In China, most policies are promulgated in provincial level by combining the national policy with the region's condition. In addition, abundant and high quality wind resources in Inner Mongolia Autonomous Region make this region different from other regions in the aspect of electricity output, eventually in the aspect of economic feasibility. Hence, it is reasonable that Inner		OK

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Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
				Mongolia Autonomous Region is selected as scope for common practice analysis.		
B.5.31	What is the scope of technology and size (e.g. capacity of power plant) for the common practice analysis and how has this been justified?	/1/	DR	It is reasonable to define as the analysis capacity more than 15 MW of the wind power projects.		OK
B.5.32	What is the data source(s) used for the common practice analysis?	/36/	DR	The data source is : www.cwea.org.cn: *China Wind farm Installed Capacity Statistic in 2007 by Shi Pengfei*, dated 24 March 2008*: http://www.cwea.org.cn/download/display_info.asp?cid=2&sid=&id=25* *UNFCCC database for CDM projects*: http://cdm.unfccc.int/Projects/registered.html http://cdm.unfccc.int/Projects/Validation/index.html http://cdm.ccchina.gov.cn/web/ItemList.asp		OK
B.5.33	How many similar non-CDM-projects exist in the region within the scope?	/1/	DR	Following the above three rules there are 2 projects not applying CDM: 1) Inner Mongolia Chifeng Dali Wind Power Project (Phase III) 2) Honiton Energy Bailingmiao wind farm project.		OK
B.5.34	How were possible essential distinctions between the project activity and similar activities assessed?	/38/ /37/	DR	Inner Mongolia Chifeng Dali Wind Power Project (Phase III) is a demonstration project and benefits from favourable policy which is not available for the proposed project. Honiton Energy Bailingmiao wind farm project use foreign capital and thus not eligible for CDM under the Chinese DNA rules; therefore, it had to be implemented as a		OK

Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
				Gold Standard VER project, meeting the same additionality criteria.		
B.5.35	What is the conclusion of the common practice analysis?	/1/	DR	It was shown that this project is not financial attractive and common practice. DNV can confirm all assumptions and analysis as well as the information source.		OK
	Conclusion					
B.5.36	What is the conclusion with regard to the additionality of the project activity?		DR	In summary, it is demonstrated that the project is not a likely baseline scenario and the emission reductions are additional to what would have happened in absence of the project activity.		OK
B.6	**Calculations of GHG emission reductions**					
	Data and parameters that are available at validation and that are not monitored (VVM para 199-203)					
B.6.1	How was the insert parameters available at validation verified?	/27/ /38/ /39/	DR	The values need to be available at validation are available from *2006 IPCC Guidelines for National Greenhouse Gas Inventories Reference Manual*, China Electric Power Yearbook 2006~2008 and China Energy Statistical Yearbook 2006~2008. Moreover, the EF used is sourced from the emission factor calculation for each power grid of China. All these data used in the PDD are verified and confirmed by DNV.		OK
	Baseline emissions (VVM para 89-93)					
B.6.2	Are the calculations documented according to the approved methodology and in a complete and	/3/	DR	The emission reduction calculation process is documented in a transparent manner and it is		OK

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	Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
	transparent manner?			cross-checked by the published data from NDRC that all the data and calculation in the provided calculation sheet is correct.		
B.6.3	Have conservative assumptions been used when calculating the baseline emissions?	/25/ /24/	DR	Yes. All the used assumptions are in line with the "*Tool to calculate the emission factor for an electricity system*" version 2.0 and Guidance for request for deviation titled "*Application of AM0005 and AMS-I.D in China*" from EB.		OK
B.6.4	Are uncertainties in the baseline emission estimates properly addressed?		DR	Yes. There are no uncertainties in the baseline emission estimates.		
	Project emissions (VVM para 89-93)					
	B.6.5 Are the calculations documented according to the approved methodology and in a complete and transparent manner?	/22/	DR	There is no need to consider project emissions according to the approved methodology ACM0002 "*Consolidated baseline methodology for grid-connected electricity generation from renewable source*" version 11.		OK
	B.6.6 Have conservative assumptions been used when calculating the project emissions?	/22/	DR	Refer to B 6.5.		OK
	B.6.7 Are uncertainties in the project emission estimates properly addressed?	/22/	DR	Refer to B 6.5.		OK
	Leakage (VVM para 89-93)					
	B.6.8 Are the leakage calculations documented according to the approved methodology and in a complete and transparent manner?	/22/	DR	There is no need to consider leakage according to the methodology ACM0002 "*Consolidated baseline methodology for grid-connected electricity generation from renewable source*" version 11.		OK
	B.6.9 Have conservative assumptions been used when	/22/	DR	Refer to B 6.8		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
calculating the leakage emissions?					
B.6.10 Are uncertainties in the leakage emission estimates properly addressed?	/22/	DR	Refer to B 6.8		OK
Emission Reductions (VVM para 89-93)					
B.6.11 Algorithms and/or formulae used to determine emission reductions: • 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 • All documentation is correctly quoted and interpreted. • All values used can be deemed reasonable in the context of the project activity • 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.	/25/ /24/ /27/ /38/ /39/	DR	Yes. The documentation used are "Tool to calculate the emission factor for an electricity system" version 2.0, Guidance for request for deviation titled "Application of AM0005 and AMS-I.D in China" from EB, 2006 IPCC Guidelines for National Greenhouse Gas Inventories Reference Manual, 2006 and the emission factor calculation for each power grid of China published by National Development and Reform Committee. All the data is correctly quoted and interpreted.		OK
B.7 Monitoring plan (VVM para 122-124)					
Data and parameters monitored					
B.7.1 Do the means of monitoring described in the plan comply with the requirements of the methodology?	/22/	DR	Yes. The means of monitoring in the PDD are described according to the methodology ACM0002 "*Consolidated baseline methodology for grid-connected electricity generation from renewable source*" version 11.		OK
B.7.2 Does the monitoring plan contains all necessary parameters, and are they clearly described?	/22/	DR	Yes. The only parameter needs to be monitored is the net electricity generation supplied by the Guohua Tongliao Kezuo		OK

Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
				zhongqi Phase I 49.5 MW Wind Farm Project.		
B.7.3	In case parameters are measured, is the measurement equipment described? Describe each relevant parameter.	/1/	DR	The installation point, function, backup system of the metering equipment need exact clarification in the monitoring plan. The agreement signed between the project owner and Power Grid Company which defines the metering arrangements and the required quality control procedures to ensure accuracy needs to be provided.	~~CL 3~~	OK
B.7.4	In case parameters are measured, is the measurement accuracy addressed and deemed appropriate? Describe each relevant parameter.	/1/	DR	The proposed project has already been under operation, and the installation of monitoring equipment should be clarified according to the real fact. The backup monitoring system should be indentified in PDD.	~~CL 3~~	OK
B.7.5	In case parameters are measured, are the requirements for maintenance and calibration of measurement equipment described and deemed appropriate? Describe each relevant parameter.	/1/	DR	The proposed project has already been under operation, and the installation of monitoring equipment should be clarified according to the real fact. The backup monitoring system should be indentified in PDD.	~~CL 3~~	OK
B.7.6	Is the monitoring frequency adequate for all monitoring parameters? Describe each parameter.	/1/	DR	The proposed project has already been under operation, and the installation of monitoring equipment should be clarified according to the real fact. The backup monitoring system should be indentified in PDD.	~~CL 3~~	OK
B.7.7	Is the recording frequency adequate for all monitoring	/1/	DR	The proposed project has already been under	~~CL 3~~	OK

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	Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
	parameters? Describe each parameter.			operation, and the installation of monitoring equipment should be clarified according to the real fact. The backup monitoring system should be indentified in PDD.		
	Ability of project participants to implement monitoring plan					
B.7.8	How has it been assessed that the monitoring arrangements described in the monitoring plan are feasible within the project design?	/1/	DR	The monitoring arrangements have been assessed during the interview. The only monitored parameter is the net generated electricity by Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project. The monitor equipment – electrical meters- is a part of the project design. The project owner will have a CDM management organization to be in charge of the CDM issues.		OK
B.7.9	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/		The recording frequency will be continuously measured and monthly recorded. And all archived data including calibration records are kept until 2 years after the end of the last crediting period of the CDM project. The documents in paper format, such as maps, tables, and the EIA report, will be used in conjunction with the monitoring plan to check the authenticity of the information, and be kept at least one copy by the project owner.		OK
B.7.10	Are the data management and quality assurance and	/1/	DR	The project participant should state sufficient		OK

	Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
	quality control procedures sufficient to ensure that the emission reductions achieved by/resulting from the project can be reported ex post and verified?			description of the QA&QC procedures in monitoring plan.		
B.7.11	Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of CERs, for this project activity, whichever occurs later?	/1/	DR	Yes. All parameters monitored under the monitoring plan will be archived electronically and be kept at least for 2 years after the end of last crediting period.		OK
	Monitoring of sustainable development indicators/ environmental impacts					
B.7.12	Is the monitoring of sustainable development indicators/ environmental impacts warranted by legislation in the host country?	/22/	DR	Neither ACM0002 version 10 nor the Chinese DNA requires collection and archiving of relevant data concerning environmental, social and economic impacts. The environmental impacts will be monitored by local environmental authority.		OK
B.7.13	Does the monitoring plan provide for the collection and archiving of relevant data concerning environmental, social and economic impacts?	/22/	DR	The indicators of environmental impacts will be stipulated by local environmental authority.		OK
B.7.14	Are the sustainable development indicators in line with stated national priorities in the host country?	/22/	DR	Yes. This will be on local authority decision.		OK
	C Duration of the project activity / crediting period					
C.1.1	**Start date of project activity (VVM para 99-100, 104)**					
C.1.2	How has the starting date of the project activity been determined? What are the dates of the first contracts for the project activity? When was the first construction activity?	/8/ /9/ /10/	DR	The wind turbine generator contract between Guohua (Tongliao) Wind power Co., Ltd and Dongfang Turbine Manufacture Co., Ltd was signed on 12 June 2007. The construction		OK

Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
				contract between Guohua (Tongliao) Wind power Co., Ltd and Tongliao Shizheng Lutong Engineering Co., Ltd was signed on 10 October 2007 and the construction permission letter was issued by Heilongjiang Zhengxin Construction Co., Ltd on 20 November 2007. Base on the above timeline 12 June 2007 was identified as the first financial commitment of the proposed project and the project starting date was confirmed as 12 June 2007.		
C.1.3	Is the stated expected operational lifetime of the project activity reasonable?	/1/	DR	The expected operation lifetime of Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project is 20 years (excluding one year construction) which is in line with data in the FSR and it is reasonable.		OK
C.1.4	Is the start date, the type (renewable/fixed) and the length of the crediting period clearly defined and reasonable?	/1/	DR	Yes. The choice of crediting period for Guohua Tongliao Kezuo zhongqi Phase I 49.5 MW Wind Farm Project is seven years renewable crediting period.		OK
D Environmental Impacts (VVM para 131-133)						
D.1.1	Are there any host country requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved? Does the approval contain any conditions that need monitoring?	/5/	DR	Yes. An Environmental Impact Assessment (EIA) of the project activity completed by Inner Mongolia Exploration & Design Institute of Water Resources and Hydropower on September 2006 has been conducted and the potential environmental impacts, such as waste water, noise and waste		OK

Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
				gas, have been sufficiently identified. No significant environmental impacts are expected from the project activity.		
D.1.2	Does the project comply with environmental legislation in the host country?	/3/	DR	Yes. The Environmental Protection Bureau of Inner Mongolia Autonomous Region approved the EIA on 25 September 2006.		OK
	D.1.3 Will the project create any adverse environmental effects?	/3/	DR	The project will have no significant impacts on the local environment according to the EIA and FSR.		OK
	D.1.4 Have identified environmental impacts been addressed in the project design?	/1/	DR	Yes. It clearly states the environmental impacts in the PDD.		OK
	D.1.5 Has an analysis of the environmental impacts of the project activity been sufficiently described?	/1/	DR	Yes. It clearly states the environmental impacts in the PDD.		OK
	D.1.6 Are transboundary environmental impacts considered in the analysis?	/1/		There is no need to consider transboundary environmental impacts.		OK
E Stakeholder Comments (VVM para 128-130)						
E.1.1	Have relevant stakeholders been consulted?	/1/	DR	Yes. The project participants carried out a public survey on the project in the format of questionnaires on 25 March 2007.		OK
E.1.2	Have appropriate media been used to invite comments by local stakeholders?	/18/	DR	Yes. The project participants carried out a public survey on the project in the format of questionnaires on 25 March 2007. 1-page questionnaires were distributed to the households. The questionnaire was designed to be understandable and easy to fill in for the local stakeholders. The survey had a 100% response rate (50 questionnaires returned out		OK

Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
				of 50) and according to the comments summary received from local stakeholders, there is no negative opinion on this project.		
E.1.3	If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	/18/	DR	Yes. The stakeholder consultation process been carried out was in accordance with EIA regulations/laws in China.		OK
E.1.4	Is a summary of the stakeholder comments received provided?	/1/	DR	Yes. The summary of the stakeholder comments received was clearly stated in PDD.		OK
E.1.5	Has due account been taken of any stakeholder comments received?	/1/	DR	There is no negative opinion on this project.		OK

Table 3 Resolution of corrective action requests and clarification requests

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
CAR 1 The names of project participants in LoAs respectively from China and UK should be kept consistent.	A.3.1 A.3.2 A.3.3 A.5.1	The name of project participant in LoA from China has a mistake. We have contacted China DNA and update the LoA. When we got the update one, we will submit it to DOE for Check.	Yes. The names of project participants in LoAs respectively from China and UK should be kept consistent. DNV checked the LoA issuance website of NDRC (http://cdm.ccchina.gov.cn/web/NewsInfo.asp?NewsId=2072) and could determine it validity and authenticity. CAR 1 is closed.
CL 1 The key parameters including investment costs, tariff, O&M costs and tax applied in investment analysis should be justified to be valid and appropriate by cross-checking or other appropriate manner with the other similar projects in East Inner Mongolia.	B.5.21-B.5.28	The key parameters including investment costs, tariff, O&M costs and tax applied in investment analysis has been justified to be valid and appropriate by cross-checking with the other similar projects in East Inner Mongolia, please check it in section B.5 of PDD.	Yes. The key parameters of total investment costs, tariff, O&M costs and tax applied in investment analysis have been compared with similar projects in East Inner Mongolia, and the validity and appropriateness of the input parameters were clarified. CL1 is closed.
CL 2 In the sensitivity analysis, the project participants are request to determine the likelihood of total investment increasing to happen in a more transparent manner.	B.5.26 B.5.27 B.5.27 B.5.28	According to the final account issued by the independent third party, the actual expenditure of the proposed project is 486.084 million RMB Yuan, which is more than 44.537 million RMB Yuan. Therefore, the total statistic investment increasing is never happened. Please check the B.5 in PDD.	Yes. DNV has checked the final account report and could determine the evidence is corrected and acceptable. CL2 is closed.
CL 3	B.7.3-B.7.7	The installation of monitoring	Yes. The monitoring plan has been

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
The proposed project has already been under operation, and the installation of monitoring equipment should be clarified according to the real fact. The backup monitoring system should be indentified in PDD.		equipment has been clarified according to the real fact. Moreover, the backup monitoring system has been indentified in Section B.7.2 of PDD.	updated in the section 7.2 of PDD and The installation of monitoring equipment has been clarified according to the real fact. CL 3 is closed.

Table 4 Forward action requests

Forward action request	Reference to Table 2	Response by project participants
FAR N/A		

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APPENDIX B

CURRICULA VITAE OF THE VALIDATION TEAM MEMBERS

CURRICULA VITAE OF THE VALIDATION TEAM MEMBERS

Li, Lei:

Mr. Li Lei holds a Master Degree in Environment Science & Technology. He has an overall experience of around 3 years. Prior to joining DNV, he had around 1.2 years experience as a government servant covering Olympic environment management, carbon footprint research and supporting the government decision making process. Prior to that, he has completed one year practical training on the CDM project consulting majoring in the sector of energy generation from renewable energy sources.

He had an experience of around 2 years in validation and verification of numerous CDM projects in DNV, majoring in China.

His qualification, industrial experience and experience in CDM demonstrate his sufficient sectoral competence in "Energy Generation from Renewable Energy Sources".

Tang Zhiang, Walter

Mr. Tang Zhiang, Walter holds a Bachelor Degree in Thermodynamic Engineering and a Master Degree in Business Administration. He had an overall experience of around twelve years. Prior to joining DNV, he had around 5 years in the field of power industry covering of consulting and engineering for thermal power, wind power, hydropower and solar energy projects. His experience also covers the field of space industry for thermal design, the energy analysis and thermal control for about 4 years.

He has gained the relevant financial and investment knowledge through his courses in MBA. He has applied his financial and investment knowledge in his consulting work for the power industry, such as investment risk analysis, financial accounting, investment parameters assessment, etc.

He has experience of more than 3 years in validation and verification of numerous CDM, VCS and GS projects in DNV both in China and abroad.

His qualification, industrial experience and experience in CDM demonstrate his sufficient sectoral competence in "Energy Generation from Renewable Energy Sources".