



---

# VALIDATION REPORT

---

## HUADIAN KULUN 201MW WIND FARM PROJECT IN CHINA

REPORT No. 2008-1463

REVISION No. 04



# VALIDATION REPORT

DET NORSKE VERITAS  
CERTIFICATION AS

*Climate Change Services*  
Veritasveien 1,  
1322 HØVIK, Norway  
Tel: +47 67 57 99 00  
Fax: +47 67 57 99 11  
<http://www.dnv.com>  
Org. No: NO 945 748 931 MVA

Date of first issue: 2008-10-28	Project No.: 63603230
Approved by: Michael Lehmann	Organisational unit: Climate Change Services
Client: Carbon Asset Management Sweden AB	Client ref.: Mr. Niels Von Zweibergk

**Project Name:** Huadian Kulun 201MW Wind Farm Project  
**Country:** China  
**Methodology:** ACM0002  
**Version:** 7  
**GHG reducing Measure/Technology:** electricity generation from wind source  
**ER estimate:** 523 765 tCO<sub>2</sub>e / year

## Size

- ☒ Large Scale  
☐ Small Scale

## Validation Phases:

- ☒ Desk Review  
☒ Follow up interviews  
☒ Resolution of outstanding issues

## Validation Status

- ☐ Corrective Actions Requested  
☐ Clarifications Requested  
☒ Full Approval and submission for registration  
☐ Rejected

In summary, it is DNV's opinion that the "Huadian Kulun 201MW Wind Farm Project" in China, as described in the PDD of 3 February 2009, meets all relevant UNFCCC requirements for the CDM and all relevant host Party criteria and correctly applies the baseline and monitoring methodology ACM0002 version 7. DNV thus requests the registration of the project as a CDM project activity.

Report No.: 2008-1463	Date of this revision: 2009-02-19	Rev. No. 04
Report title: Huadian Kulun 201MW Wind Farm Project in China		
Work carried out by: Jiandong Ma, Zhiang(Walter) Tang		
Work verified by: Weidong Yang		

## Key words:

Climate Change  
 Kyoto Protocol  
 Validation  
 Clean Development Mechanism

- ☒ No distribution without permission from the Client or responsible organisational unit
- ☐ Limited distribution
- ☐ Unrestricted distribution



---

## VALIDATION REPORT

---

### Abbreviations

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



## VALIDATION REPORT

### TABLE OF CONTENTS

1	EXECUTIVE SUMMARY – VALIDATION OPINION .....	1
2	INTRODUCTION .....	2
2.1	Objective	2
2.2	Scope	2
3	METHODOLOGY .....	3
3.1	Desk Review of the Project Design Documentation	3
3.2	Follow-up Interviews with Project Stakeholders	6
3.3	Resolution of Outstanding Issues	7
3.4	Internal Quality Control	9
3.5	Validation Team	9
4	VALIDATION FINDINGS .....	10
4.1	Participation Requirements	10
4.2	Project Design	10
4.3	Baseline Determination	11
4.4	Additionality	12
4.5	Monitoring	16
4.6	Estimate of GHG Emissions	17
4.7	Environmental Impacts	18
4.8	Comments by Local Stakeholders	19
4.9	Comments by Parties, Stakeholders and NGOs	19

Appendix A: Validation Protocol

Appendix B: Certificates of Competence



---

## VALIDATION REPORT

---

### 1 EXECUTIVE SUMMARY – VALIDATION OPINION

*Det Norske Veritas Certification AS (DNV) has performed a validation of the “Huadian Kulun 201MW 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 fulfilment of stated criteria.*

*The host Party is China and the Annex I Party is Sweden. Both Parties fulfil the participation criteria and have approved the project and authorized the project participants. The DNA from China confirmed that the project assists in achieving sustainable development /2/.*

*The project correctly applies the baseline and monitoring methodology ACM0002 “Consolidated methodology for grid-connected electricity generation from renewable sources”, version 7.*

*By generating electricity from wind power and exporting it to the grid, the project activity displaces electricity partly from fossil fuel, thereby resulting in reductions of CO<sub>2</sub> emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It has been demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.*

*The total emission reductions from the project are estimated to be on the average 523 765 tCO<sub>2</sub>e per year over the selected 7-year renewable crediting period. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.*

*The monitoring methodology will give opportunity for real measurements of achieved emission reductions. The monitoring methodology has been correctly applied. Adequate training and monitoring procedures have been implemented.*

*In summary, it is DNV’s opinion that the “Huadian Kulun 201MW Wind Farm Project” in China, as described in the PDD of 3 February 2009, meets all relevant UNFCCC requirements for the CDM and all relevant host Party criteria and correctly applies the baseline and monitoring methodology ACM0002, version 7. DNV thus requests the registration of the project as a CDM project activity.*



---

## VALIDATION REPORT

---

## 2 INTRODUCTION

Carbon Asset Management Sweden AB has commissioned Det Norske Veritas Certification AS (DNV) to perform a validation of the “Huadian Kulun 201MW Wind Farm 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.

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.



## VALIDATION REPORT

### 3 METHODOLOGY

The validation consisted of the following three phases:

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

The following sections outline each step in more detail.

#### 3.1 Desk Review of the Project Design Documentation

The following table outlines the documentation assessed during the validation:

- /1/ Carbon Asset Management Sweden AB, Project Design Document for Huadian Kulun 201MW Wind Farm Project, Version 01 dated 5 September 2008 and version 03 dated 3 February 2009.
- /2/ Letter of Approval from by DNA of China is issued in November 2008.
- /3/ Letter of Approval from DNA of Sweden is issued on 25 November 2008.
- /4/ CDM Executive Board, Baseline and monitoring methodology ACM0002, Consolidated methodology for grid-connected electricity generation from renewable sources, Version 7, 30 November 2007.
- /5/ CDM Executive Board: “*Validation and Verification Manual*”, Version 01
- /6/ Inner Mongolia Power Exploration & Design Institute, Feasibility Study Report of Huadian Kulun 201MW Wind Farm Project in August 2007 and the approval letter by National Development and Reform Commission on 14 December 2007.
- /7/ Inner Mongolia Power Exploration & Design Institute, the EIA of Huadian Kulun 201MW Wind Farm Project on 5 February 2007 and the approval letter by Environmental Protection Bureau of Inner Mongolia Autonomous Region on 12 March 2007.
- /8/ Chinese DNA’s guidance for the determination of grid boundaries and emission factors (18 July 2008), NDRC official website:  
<http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/2008/200887164119674.pdf>
- /9/ China’s Regional Grid Baseline Emission Factor Calculation (OM) issued by Chinese DNA (18 July 2008), NDRC official website  
<http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File1888.pdf>
- /10/ China’s Regional Grid Baseline Emission Factor Calculation (BM) issued by Chinese DNA (18 July 2008), NDRC official website  
<http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File1875.pdf>
- /11/ China Electric Power Yearbook 2003, 2004, 2005, 2006 and 2007.
- /12/ China Energy Statistical Yearbook 2005, 2006 and 2007.
- /13/ 2006 IPCC Guidelines for National Greenhouse Gas Inventories.
- /14/ CDM Executive Board, Guidance for request for deviation titled “Application of AM0005 and AMS-I.D in China”  
(<http://cdm.unfccc.int/Projects/Deviations>).
- /15/ China NDRC, The statistics by China Electricity Council (CEC) on newly built thermal



---

## VALIDATION REPORT

---

- plants in 2006, and NDRC official website  
<http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File1875.pdf>
- /16/ State Power Corporation of China. *Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects*. Beijing: China Electric Power Press, 2003.
- /17/ CDM Executive Board: Tool for the demonstration and assessment of additionality, version 5.2, dated 26 August 2008.
- /18/ CDM Executive Board: Tool to calculate the emission factor for an electricity system, version 1.1, 29 July 2008.
- /19/ Notice on Strictly Prohibiting the Installation of Fuel-fired Generators with the Capacity of 135 MW or below, Issued by State Council Office, decree No. 2002-6.
- /20/ Temporary provisions on construction of small thermal power generation unit”, published on 17 August 1997.
- /21/ The China Huadian Group New Energy Development Co.,Ltd. as a controlling company of the project owner, a permission letter of starting construction, dated 2 February 2008.
- /22/ Procurement contract of wind power equipment signed by Inner Mongolia Huadian Huitengxile Wind Power Co., Ltd. dated 25 December 2007.
- /23/ 2007 Statistics on Installed Capacity of Wind Power Projects, China Wind Energy Association, 28 February 2008.
- /24/ Kyoto protocol ratification  
[http://unfccc.int/parties\\_and\\_observers/parties/items/2352.php](http://unfccc.int/parties_and_observers/parties/items/2352.php)
- /25/ Express report of electric power industry statistics 2007 in China  
<http://www.chinapower.com.cn/article/1120/art1120273.asp>
- /26/ News regarding cost barriers for the new energy development ,dated 27 February 2007  
<http://www.chinaenergy.gov.cn/news.php?id=15688>
- /27/ China Wind Power Report in 2007, by Li Junfeng (vice director of Energy Graduate School of NDRC),Gao Hu etc., China Environment Science press
- /28/ Approval letter regarding grid connection with Huadian Kulun 201MW Wind Farm Project issued by Inner Mongolia Electric Power (Group)Co. Ltd., dated 13 February 2007.
- /29/ Summary regarding wind power concession project and the price of them, dated 26 April 2007  
[http://www.scec.sh.cn/hydt\\_detail.aspx?id=567](http://www.scec.sh.cn/hydt_detail.aspx?id=567)
- /30/ News regarding labour cost, dated 28 June 2006  
<http://www.cinn.cn/show.asp?classid=34&id=26999>
- /31/ IRR calculation spreadsheet dated 13 February 2009.
- /32/ 30 Questionnaires for the Huadian Kulun 201MW Wind Farm Project completed in January 2007.
- /33/ CDM Executive Board: Guidelines for completing the project design document (CDM-PDD) and the proposed new baseline and monitoring methodology (CDM-NM) version 7, dated 2 August 2008.
- /34/ Inner Mongolia Power Exploration and Design Institute, the clarifications regarding the coordinates of the Huadian Kulun 201MW Wind Farm Project, 3 November 2008.
- /35/ Inner Mongolia Huadian Huitengxile Wind Power Co., Ltd, Management and





## VALIDATION REPORT

- Monitoring manual for Huadian Kulun 201MW Wind Farm Project, dated 10 September 2008.
- /36/ Inner Mongolia Huadian Huitengxile Wind Power Co., Ltd, Training plan for Huadian Kulun 201MW Wind Farm Project, in December 2008.
  - /37/ A description about on-site water resource by the Land Authorities of Chayou Zhongqi County of Inner Mongolia, dated 29 October 2008.
  - /38/ The photos: the notice of comments invitation regarding the Huadian Kulun 201MW Wind Farm Project from 3 January to 12 January 2007, poster on the wall.
  - /39/ The land occupation contract signed by the project owner with the local government and residents, dated 18 April 2008.
  - /40/ Board resolution of Inner Mongolia Huadian Huitengxile Power Co.,Ltd issued on 17 October 2007.
  - /41/ The letter of intention signed by project owner with Carbon Asset Management Sweden AB for information about CER transaction issues dated 20 January 2008.
  - /42/ Emission Reduction Purchasing Agreement signed by project owner with Carbon Asset Management Sweden AB on 19 May 2008.
  - /43/ Notice regarding grid-in tariff of Wulate Zhongqi and Bailingmiao, etc. wind farm projects Neifagajiazi[2007]47, approved Jan 11<sup>th</sup>, 2007.
  - /44/ Notice regarding approval of tariff for Hebei Zhangjiawan and Inner Mongolia Wuerqulishan, etc. wind farm projects FaGaiJiaGe[2007]3303, approved on Dec. 3<sup>rd</sup>, 2007.
  - /45/ Notice regarding approval of tariff for Heilongjiang Maanshan and Liaoning Fuxin, etc. wind farm projects FaGaiJiaGe[2008]1876, approved on Jul. 23<sup>rd</sup>, 2008.
  - /46/ Notice regarding grid-in tariff adjustment in Inner Mongolia NeiFaGaiJiaZi[2006]1328 approved on Jul. 26, 2006.
  - /47/ China wind resource distribution introduction  
<http://www.showchina.org/zgdl/sylm/200701/t104908.htm>
  - /48/ Electric Power Industry System Reform introduction dated 3 June 2002  
<http://www.chinapower.com.cn/article/1000/art1000014.asp>
  - /49/ National statistics data for electric power industry tariff index issued by National Bureau of Statistics of China.
  - /50/ National statistics year report issued by National Bureau of Statistics of China  
<http://www.stats.gov.cn/tjgb/>
  - /51/ National statistics data for PPI in Inner Mongolia issued by National Bureau of Statistics of China.
  - /52/ National statistics data for employee wage and index issued by National Bureau of Statistics of China.
  - /53/ The fourth wind farm concession project bidding result issued in September 2006  
<http://www.nwtc.cn/Article/ShowArticle.asp?ArticleID=991>
  - /54/
    - 1) Contract of transformer (33 sets) in Jan. 3<sup>rd</sup> 2008
    - 2) Contract of pylon (1) 17 sets in Sep. 5<sup>th</sup> 2008
    - 3) Contract of pylon (2) 18 sets in Oct. 30<sup>th</sup> 2008
    - 4) Contract of pylon (3) 34 sets in Oct. 22<sup>nd</sup> 2008
    - 5) Contract of pylon (4) 30 sets in Oct. 6<sup>th</sup> 2008



## VALIDATION REPORT

- 6) Contract of pylon (5) 17 sets in Mar. 5th 2008
- 7) Contract of pylon (6) 18 sets in Oct. 7th 2008.
- /55/ National statistics data for Indices of Purchasing Prices of Raw Materials, Fuels and Power issued by National Bureau of Statistics of China.
- /56/ News regarding dali III project dated 22 November 2004  
<http://www.kskt.gov.cn:8080/old/news/2004-11-22-01.htm>
- /57/ The suggestive letter regarding tariff of the Huadian Kulun 201MW Wind Farm Project by Trade Center of Inner Mongolia Electric Power Co.,Ltd. dated 15 October 2007
- /58/ Ex-factory price indices of industrial products by region till 2006  
<http://www.stats.gov.cn/tjsj/ndsj/2007/html/I0911e.htm>

The main changes between the version of the PDD published for the globe stakeholder consultation process and the final version of the PDD submitted for registration:

*-Changes related to the CARs and CLs identified in the DNV's draft validation report and issues related to recent EB guidance on investment analysis, project start date and CDM consideration.*

### 3.2 Follow-up Interviews with Project Stakeholders

On 16 October 2008, DNV performed an interview to resolve the issues identified during the desk review of the PDD. The representatives of Carbon Asset Management Sweden AB and Inner Mongolia Huadian Huitengxile Wind Power Co., Ltd were interviewed. An on-site visit was not carried out as the proposed project is a greenfield project.

The table below shows the list of issues discussed during the interview:

	Date	Name	Organization	Topic
/59/	2008-10-16	Mr.Xie Yijun	Inner Mongolia Huadian Huitengxile Wind Power Co., Ltd	<ul style="list-style-type: none"> <li>- Project background information</li> <li>- Project technology, operation, maintenance and monitoring capability</li> <li>- Project additionality</li> <li>- Project financial structure</li> <li>- Project monitoring and management plan</li> <li>- Project approval status</li> <li>- Stakeholder consultation process</li> </ul>
/60/	2008-10-16	Ms.Sun Hui	Carbon Asset Management Sweden AB	<ul style="list-style-type: none"> <li>- Project design document</li> <li>- Baseline determination</li> <li>- Emission reductions calculation</li> <li>- Project additionality</li> </ul>



---

## VALIDATION REPORT

---

### 3.3 Resolution of Outstanding Issues

The objective of this phase of the validation was to resolve any outstanding issues which needed to 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 transparent manner criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

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

The validation protocol consists of three tables. The different columns in these tables are described in the figure below. The completed validation protocol for the "Huadian Kulun 201MW Wind Farm Project" is enclosed in Appendix A to this report.

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

- i) mistakes have been made with a direct influence on project results;
- ii) CDM and/or methodology specific requirements have not been met; or
- iii) there is a risk that the project would not be accepted as a CDM project or that emission reductions will not be certified.

A request for clarification (CL) may be used where additional information is needed to fully clarify an issue.



## VALIDATION REPORT

<i>Validation Protocol Table 1: Mandatory Requirements for CDM Project Activities</i>				
<i>Requirement</i>	<i>Reference</i>	<i>Conclusion</i>		
<i>The requirements the project must meet.</i>	<i>Gives reference to the legislation or agreement where the requirement is found.</i>	<i>This is either acceptable based on evidence provided (OK), a <b>Corrective Action Request (CAR)</b> of risk or non-compliance with stated requirements or a request for <b>Clarification (CL)</b> where further clarifications are needed.</i>		

  

<i>Validation Protocol Table 2: Requirement checklist</i>				
<i>Checklist Question</i>	<i>Reference</i>	<i>Means of verification (MoV)</i>	<i>Comment</i>	<i>Draft and/or Final Conclusion</i>
<i>The various requirements in Table 2 are linked to checklist questions the project should meet. The checklist is organised in different sections, following the logic of the large-scale PDD template, version 03 – in effect as of: 28 July 2006. Each section is then further sub-divided.</i>	<i>Gives reference to documents where the answer to the checklist question or item is found.</i>	<i>Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.</i>	<i>The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.</i>	<i>This is either acceptable based on evidence provided (OK), or a <b>corrective action request (CAR)</b> due to non-compliance with the checklist question (See below). A request for clarification (CL) is used when the validation team has identified a need for further clarification.</i>

  

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

**Figure 1: Validation protocol tables**



## VALIDATION REPORT

### 3.4 Internal Quality Control

The validation report underwent a technical review before requesting registration of the project activity. The technical review was performed by a technical reviewer qualified in accordance with DNV's qualification scheme for CDM validation and verification.

### 3.5 Validation Team

<i><b>Role/Qualification</b></i>	<i><b>Last Name</b></i>	<i><b>First Name</b></i>	<i><b>Country</b></i>	<i><b>Type of involvement</b></i>					
				Desk review	Site visit / Interviews	Reporting	Supervision of work	Technical review	Expert input
Project manager CDM validator	Ma	Jiandong	China	√	√	√			
CDM validator / Technical team leader	Tang	Zhiang	China				√		
Technical reviewer	Yang	Weidong	USA					√	

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



---

## VALIDATION REPORT

---

### 4 VALIDATION FINDINGS

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

The final validation findings relate to the project design as documented and described in the revised project design documentation (version 03 of 3 February 2009).

#### 4.1 Participation Requirements

The host Party China and the Annex I Party Sweden have both ratified the Kyoto Protocol and establishing a DNA as per the requirements for participating in the CDM.

The DNA of China has issued a Letter of Approval (LoA) /2/ in November 2008, authorizing Inner Mongolia Huadian Huitengxile Wind Power Co., Ltd as a project participant and also confirming that the project assists in achieving sustainable development.

The DNA of Sweden has issued a LoA /3/ on 25 November 2008, authorizing Carbon Asset Management Sweden AB as a project participant.

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

#### 4.2 Project Design

The project “Huadian Kulun 201MW Wind Farm Project” involves the installation and operation of 134 sets of wind turbines in Kulun town, Wulan Chabu City, Inner Mongolia Autonomous Region, China /6/. The physical boundary of the project includes the wind turbines site and transmission system. The system boundary for the electricity system selected to determine baseline emissions is the North China Power Grid (NCPG) which is the grid to which the project is physically connected /28/. The project’s spatial boundaries are clearly defined /8/.

The installed capacity of each unit is 1.5 MW, and 134 sets will be installed, thus constituting a total generation capacity of 201 MW. The wind turbines produced by the famous wind turbine manufacturer have been selected /6//22/.

The project activity’s Feasibility Study Report (FSR) was completed in August 2007 and approved on 14 December 2007 /6/. The wind turbines procurement contract was signed on 25 December 2007 /22/, and the construction was permitted in April 2008 /21/. The starting date of the project activity is properly defined to be 25 December 2007 when the contract of the turbine procurement was signed, as this is the earliest date on which the project participant has committed to expenditures related to the construction of the project activity. The designed operation life of the project is 20 years /6/. The length of the first renewable crediting period is seven years, starting on 1 June 2009 or the date of registration whichever is later. Over the first crediting period (7 years), the annual net power output of the project is expected to be 496 530 MWh /6/. The project’s power generation will displace the power generated by the existing power plants and likely capacity additions in the North China Power Grid resulting in an estimated emission reduction of 523 765 tCO<sub>2</sub> annually.



## VALIDATION REPORT

### 4.3 Baseline Determination

The project applies the approved baseline methodology ACM0002 (version 7), titled “Consolidated methodology for grid-connected electricity generation from renewable sources” /4/

The applicability of this methodology is justified since it has been demonstrated that the project activity:

- 1) it is a new built wind power project /6/, and is to be connected to North China Power Grid NCPG /28/, whose geographic and system boundaries can be clearly identified and information on the characteristics of the grid is available /11/.
- 2) the project does not involve switching from fossil fuel to renewable energy at the project site /6/.

The project boundary is defined as the site of the project activity and the NCPG including Beijing City, Tianjin City, Hebei Province, Shanxi Province, Shandong Province and Inner Mongolia Autonomous Region grids. This is in line with the delineation of grid boundaries as provided by the DNA of China /8/. The defined project boundary is in line with ACM0002 (version 7).

Emission sources and gases included in the project boundary are:

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

The selected sources and gases are justified for the project activity.

Since the project activity is the installation of a new grid-connected renewable power plant, the baseline scenario is the following:

The electricity delivered from the project activity to the grid would have otherwise been generated by the operation of fossil fuels grid-connected power plants and the addition of new generation sources. This is reflected in the combined margin (CM) - the weighted average of the operating margin (OM) emission factor and the build margin (BM) emission factor calculated as per “Tool to calculate the emission factor for an electricity system” /18/. The weighting is set to respectively 75% and 25%, the default values stipulated by Tool to calculate the emission factor for an electricity system for wind farm projects.

It is DNV’s opinion that the baseline determination is transparent and reasonable





## VALIDATION REPORT

### 4.4 Additionality

The additionality of the project has been established using the “*Tool for the demonstration and assessment of additionality*” version 5.2 /17/, approved by the CDM-EB.

#### 4.4.1 CDM consideration and continued action to secure CDM status

##### 4.4.1.1 The confirmation of the start date of the proposed project

The starting date of the proposed project is 25 December 2007 as demonstrated as follows:

- a) On 5 February 2007 the environment impact assessment report is completed and approved on 12 March 2007 /7/.
- b) In August 2007 the feasibility study report is completed and approved on 14 December 2007 /6/.
- c) On 13 February 2007 the grid connection agreement is signed /28/.
- d) On 25 December 2007 the turbine procurement contract is signed /22/.
- e) On 2 February 2008 the China Huandian Group New Energy Development Co., Ltd. as a controlling company of the project owner has issued a permission letter of construction, which require the construction to start in April 2008/21/.

The starting date of the proposed project is thus properly defined as the date for turbine contract signing, i.e. 25 December 2007, as this is the earliest date on which the project participant has committed to expenditures related to the construction of the project activity.

##### 4.4.1.2 The justification of the CDM consideration if the project starting date is earlier than the publication of the PDD for the global stakeholder consultation process.

The starting date for the global stakeholder consultation process was 9 September 2008, which is later than the starting date of the project activity (25 December 2007). The following evidence was provided to demonstrate that CDM benefits were seriously considered in the decision to proceed with the proposed project and that real and continuing actions were undertaken to secure CDM status:

- a) The Feasibility Study Report (FSR) completed in August 2007 and approved on 14 December 2007 suggested to apply for CDM due to improving the financial attractiveness for the project /6/.
- b) On 17 October 2007 a board meeting was held and the board decided to apply for the CDM so as to implement the project as soon as possible /40/.
- c) In the approval letter for the FSR of the project of 14 December 2007, the CDM application for the project is also mentioned /6/.
- d) On 20 January 2008 a letter of intent was signed by the project owner with Carbon Asset Management Sweden AB /41/.
- e) The emission reduction purchase agreement (ERPA) was signed on 19 May 2008 /42/.
- f) The PDD is on 9 September 2008 published for global stakeholder comments.

By checking all the above evidences, DNV was able to confirm that the incentives from CDM were seriously considered prior to proceeding with the project and that continuing and real actions were taken to secure CDM status for the project in parallel with its implementation.

#### 4.4.2 Alternative scenarios to the project activity

Four alternatives to the proposed project activity have been identified:

- a) The proposed project itself, but not undertaken as a CDM project activity;
- b) Construction of a fossil fuel-fired power plant with equivalent installed capacity or annual electricity generation;





## VALIDATION REPORT

- c) Construction of a power plant using other renewable energy with equivalent installed capacity or annual electricity generation;
- d) Equivalent electricity service provided by the North China Power Grid

DNV considers the list of realistic and credible alternatives to be complete.

Alternative c) is the potential scenarios consisting of hydro, biomass or solar or geothermal power plant. Only hydropower projects have the investment return rate that can compete with that of wind power projects. However, there is no hydro power resource to develop in the region /37/. Other alternatives such as biomass, solar or geothermal power plants will be difficult to be operated without the support of policies or financial incentives /26/. Therefore, c) is eliminated.

Alternative b) is excluded since it does not comply with the Chinese law prohibiting coal-fired power plants with a capacity less than 135 MW to be built in areas covered by large grids such as regional grids /19//20/ (the capacity of the proposed project is equivalent to 96.66 MW thermal power plant based on the rated power operation hours ratio of 5136 hours for large thermal power plant /25/ and 2470 hours for the proposed project /6/).

Hence, alternative b) and c) are not realistic and credible alternatives and are excluded from further consideration.

### 4.4.3 Investment analysis: Choice of approach

As the proposed project generates financial and economic benefits other than CDM related income through the sales of electricity and the alternative to the project does not involve an investment, a benchmark analysis (option III) was selected for conducting the investment analysis.

### 4.4.4 Investment analysis: Benchmark selection

According to the Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects, a project-IRR of 8% for total investment is regarded as a benchmark for investments in hydropower plants, fossil fuel fired power plants and wind power projects, which can be considered to be appropriate for the benchmark analysis in China /16/.

### 4.4.5 Investment analysis: Input parameters

The input parameters used in the financial analysis are taken from the Feasibility Study Report (FSR) developed by Inner Mongolia Power Exploration & Design Institute in August 2007 and approved by National Development and Reform Commission on 14 December 2007/6/. The input parameters used in the financial analysis can thus be considered information provided by independent and recognized sources.

DNV has compared the input parameters for the financial analysis included in the PDD with the parameters stated in the FSR /6/ and other independent sources /46//53/, and was able to confirm that the values applied are consistent with the value stated in the FSR /6/ and other sources /46//53/.

The FSR was completed in August 2007 (and approved on 14 December 2007) and thus only 4 months prior to the decision to proceed with the project activity on 16 October 2007/40/. Given this relative short period of time between approval of the FSR and the decision to proceed with the project activity it is unlikely in the context of the project that the input values



## VALIDATION REPORT

would have materially changed and that it is thus reasonable to assume that the FSR /6/ has been the basis of the decision to proceed with the investment in the project.

The input parameters used in the financial analysis were compared with the data reported for other similar proposed CDM projects in the Inner Mongolia Autonomous Region, by comparing investment costs per MW, electricity tariff, PLF and percentage of O&M costs relative to total investment costs, etc. 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.

The investment cost were further cross-checked against the contract of pylons and transformers and wind turbine generators and central controlling system contract. The price of pylons and transformers and wind turbine generators and central controlling system contract is 209,118,000 RMB for 134 sets of pylons and 263,000 RMB per transformer /54/ and 1,157,090,670RMB for 134 sets of wind turbine generators and 1 set of central controlling system contract/22/. The sum of equipment cost is thus 1 401 450 670.00 RMB based on pylons and transformers and wind turbine generators and central controlling system contract.

The investment cost has little impact on the financial viability since the percentage of the difference between equipment cost assumed in FSR and actual cost of contracts is no more than 1%.

In accordance with the FSR approval letter /6/, the tariff of the proposed project is to be defined by the price authorities based on the local regional concession projects tariff for generation of less than 30 000 hours and the tariff for generation above 30 000 hours will be determined by the price authorities based on the average of wind farm projects in the region.

The tariff applicable to the proposed for generation of less than 30 000 operation hours is based on the approval letter issued by NDRC dated 14 December 2007/6/. The tariff is determined based on the tariff of the concession projects in Inner Mongolia. The proposed project is concession project as stated in the FSR completed in August 2007 /6/ and the tariff of the proposed project refers to the tariff of concession projects built lately in Inner Mongolia. This was confirmed by checking the approval letter by NDRC /6/. In addition, the project owner also received a letter from the Trade Centre of Inner Mongolia Electric Power Co., Ltd./57/ before the board decision meeting for the proposed project on 16 October 2007. This letter suggested the tariff to be 0.47RMB/kWh(VAT incl.). Considering that the tariff of the concession projects (in September 2006) in Inner Mongolia is from 0.4200RMB/kWh to 0.4656RMB/kWh(VAT incl.) /53/, the tariff selected for the proposed project of 0.47 RMB/kWh as the basis for the investment analysis is appropriate.

The tariff of the proposed project after 30 000 operation hours, is the average of local wind farm projects as per FSR approval/6/.

By checking some wind farm projects in Inner Mongolia approved by the DNA of China from January 2007 to January 2008 /43//44//45/, the tariff after 30 000 hours will be defined based on average tariff in local power plants at that time.

North China Power Grid, the project will be connected, is mainly consisting of thermal power plants by checking the China Electric Yearbook,/11/ Thus the average tariff of local power plants is very close to the average tariff of thermal power plants.

By checking the tariff issued by local NDRC (NeiFaGaiJiaZi[2008]1121)/46/, the standard tariff for new thermal power plants is approved to be 0.2749RMB/kWh.



## VALIDATION REPORT

Thus it is considered to be conservative that the financial analysis considers a tariff of 0.47RMB/kWh also after 30 000 hours.

### 4.4.6 Investment analysis: Calculation and conclusion

The IRR calculations were provided in a spreadsheet /31/. The calculations were verified and found to be correct by DNV. The assumptions used in the calculations were deemed to be appropriate by DNV. The project-IRR without CDM revenues is 5.53%, which confirms that the project in the absence of CDM benefits is not financially attractive compared to the benchmark of 8%. With CER revenues the project IRR increases to 11.77%, which is above the benchmark.

### 4.4.7 Investment analysis: Sensitivity analysis

Moreover, a sensitivity analysis has been assessed with regards to critical parameters contributing more than 20% to the cost or revenue: the total investment, annual O&M costs, on-grid tariff and annual output. None of the parameters in the sensitivity analysis are considered to have any significant positive correlation.

If the static investment decreases by 18%, the IRR of the proposed project would exceed the benchmark. As much of the static investment is spent on construction and the installation and cost of the wind turbine generators and auxiliary equipments, it is unlikely to decrease total investment by 18% to exceed the benchmark IRR, due to the following:

- the general price index has increased from 99.8 in the year 2001 to 106 in the year 2006 as per Indices of Purchasing Prices of Raw Materials, Fuels and Power issued by National Bureau of Statistics of China /55/, and
- Ex-Factory Price of Industrial Products is increased by 3.0% for the year 2006 and 3.1% for the year 2007 respectively /50/.

According to the Approval by NDRC, the tariff for first 30,000 operating hours should be in line with approved tariff of concession projects and fixed /6/. When operating hour reach 30,000 hours, the tariff of the electricity generated afterwards shall be in line with average tariff of wind farm projects in the local area at that time. Thus, a sensitivity analysis on the tariff after 30,000 hours is conducted. In the IRR calculation, the tariff after 30 000 hours was adopted to be 0.47 RMB/kWh. If the electricity tariff after 30,000 hours, i.e., 12 years later, rises to 0.75 RMB/kWh, the project IRR would reach the benchmark of 8%. According to the statistics result published by National Bureau of Statistics of China /49/, the average tariff from 1980 to 1994 increased by 40%, and the tariff from 1994 to 1999 has decreased by 40%, while from 2000 to 2006 the tariff is basically not changed and remains same. Hence, it is considered unlikely that the tariff of the proposed project increases to 0.75RMB/kWh.

When the annual electricity delivered to the grid is increased by 23%, the project IRR would reach the benchmark (8%). The annual electricity output was calculated based on the average wind speed of past 30 years determined from wind testing data (1967~2006) from the meteorological station nearest to the project. Based on the meteorological records of the average annual wind speed from 1967 to 2006, the wind speed from 1967 to 2006 is 4.0m/s and speed from 1987 to 2006 is 3.4m/s and the wind speed is 3.3m/s from 1997 to 2006, which shows a trend of decreasing wind quality during the recent 40 years /6/. Hence, it is unlikely that the annual electricity delivered to grid increases by 23%



## VALIDATION REPORT

When the annual O&M cost is decreased by 85%, the project IRR reaches benchmark. However, it is unlikely that annual O&M costs decrease by 85% since maintenance costs, wages, etc have been increased in recent year as evidenced by the Average Wage of Staff and Workers and Related Indices from 2001 to 2006 /52/ and the industrial product price statistics in Inner Mongolia from 2002 to 2005 /58/.

The financial analysis and sensitivity analysis demonstrate that without the income from CERs sales, the project is not a financially attractive option.

### 4.4.8 Common practice analysis

The proposed project is located in Inner Mongolia Autonomous Region, which was selected as the region for the common practice analysis. As the wind power tariff is determined by national price authorities based on the different investment level and wind resources from different province and region/44//45//47/, this selection is justified. Also, for the common practice analysis, the projects with a capacity over 15MW were selected due to the proposed project being a large scale project. Moreover, only the projects commissioned after 2002 were chosen due to the reform of electric power industry after 2002.

According to the statistics on installed capacity of wind farms in 2007 /23/, there is only one wind farm in the region, which is not implemented as CDM project, i.e. Dali III phase wind farm project. However, this project is a demonstration project supported by national favourable debt fund/56/, and this fund is not available for the proposed project. The proposed project therefore differentiates from this project, and the proposed project can not be taken as a common practice.

In conclusion, it was sufficiently demonstrated that the project is not a likely baseline scenario, and that emission reductions resulting from the project are additional.

## 4.5 Monitoring

The proposed project applies the approved monitoring methodology, ACM0002 "Consolidated monitoring methodology for grid-connected electricity generation from renewable sources", version 7. The selected monitoring methodology is applicable for the project.

The combined margin emission factor is determined *ex-ante* based on the most recent information available at the time the PDD was submitted for validation. The electricity generated from the project will be measured hourly with electronic metering instruments and recorded monthly by designated staff. This data will be cross verified against the sales receipt from the grid.

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

Details of the data to be collected, frequency of data recording, certainty level and format and the project management responsibilities are clearly defined in the monitoring plan of the PDD /1/.

The monitoring plan is in accordance with the monitoring methodology. The monitoring plan will give opportunity for real measurements of achieved emission reductions.



## VALIDATION REPORT

### 4.5.1 Parameters determined ex-ante

The parameters determined *ex-ante* are operating margin and build margin emission factors for the NCPG.

### 4.5.2 Parameters monitored ex-post

The methodology requires monitoring the electricity supplied to the grid by the project, consistent with “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” (ACM0002)/4/;

The net electricity supplied by the project will be measured hourly and recorded monthly. Receipts from electricity sales will also be obtained for cross-checking of monitored data.

The data will 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.

### 4.5.3 Management system and quality assurance

The project developer will establish a CDM team as described below:

The project owner will designate a monitoring manager, who will take the responsibility of supervising and verifying monitored and recorded data, such as metering device readings, sales invoice etc., and for calculating emission reductions and preparing monitoring report.

The responsibility and authority for registration, monitoring, measurement and reporting activities have been properly addressed in the PDD.

All employees responsible for operating and maintaining the wind power station will be trained before the operation of the project by the project owner in accordance with the monitoring plan. The training programs include the on-site operation rules, monitoring requirements, safety codes and inspection specifications, etc. Only qualified employees will be designated by the project owner for the positions of operating the wind power station and data recording.

The monitoring meter will be calibrated according to national standard by qualified entity annually.

## 4.6 Estimate of GHG Emissions

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

1) Baseline emissions: Baseline emissions have been calculated by multiplying the net electricity supplied by the project activity to the grid and the emission factor of the NCPG. The net electricity supply to the grid will be monitored in accordance with the monitoring plan. The grid emission factor has been calculated *ex-ante* and is fixed for the entire crediting period. The grid emission factor has been calculated using combined margin approach as per Tool to calculate the emission factor for an electricity system /18/. It has been calculated as the weighted ratio (0.75:0.25) of operating margin (OM) and the build margin (BM) as defined for wind power projects /18/.

2) Project emissions: regarded as zero due to no auxiliary start-up activity /6/.

3) Leakage: no leakage has to be considered for the proposed project activity according to ACM0002.





## VALIDATION REPORT

The aggregated generation and fuel consumption data are used as more disaggregated data are not available in the North China Power Grid. Country specific data for the net calorific value ( $NCV_i$ ) of each type of fossil fuel, which can be obtained from the China Energy Statistical Yearbook /12/, the IPCC 2006 default values /13/ for the oxidation factor and emission factor of each type of fossil fuel and the total electricity delivered to the NCPG selected are deemed reasonable /11/.

For the calculation of the OM emission factor, the simple OM emission factor calculation method is selected because low cost/must run power plants constitute less than 50% for 2002-2006 in North China Power Grid (0.89% in 2002, 0.86% in 2003, 0.76% in 2004, 0.75% in 2005, and 0.74% in 2006,) /11/ of the total grid generation.

Vintage data for the years 2004, 2005 and 2006 /11//12/ are used for the OM emission factor calculation, which was the most recent data available at the time of submission of the PDD for validation. The OM is calculated to be 1.1169 tCO<sub>2</sub>/MWh /9/.

Because plant specific fuel consumption and electricity generation data is not publicly available in China, the EB guidance on the request for deviation titled “Application of AM0005 and AMS-I.D in China” /14/ has been applied as follows:

- The capacity additions from the year 2005 to 2006 are chosen and this represents 21.75% of total installed capacity /11/.
- The installed capacity additions for thermal power plant are 95.64% of total installed capacity additions /11/.
- The standard coal consumption of 329.94 gSCE/kWh and the standard oil or gas consumption of 252 gSCE/kWh are used to determine the BM emission factor. The coal consumption of 329.94 gSCE/kWh and oil or gas consumption of 252 gSCE/kWh (equivalent to be efficiency of 37.28% and 48.81%, respectively) are defined as the best technology commercially available in China by the DNA of China and were available at the time of submission of the PDD for validation /15/.

The BM is calculated as 0.8687 tCO<sub>2</sub>/MWh. The combined margin of 1.05485 tCO<sub>2</sub>/MWh is fixed *ex-ante* for the entire first crediting period.

The selection of the parameters is complete and transparent. The annual net power generation is 496 530MWh /6/. The estimated emission reductions of the first crediting period are 523 765 tCO<sub>2</sub>e per year.

The GHG calculations are complete and transparent, and their accuracy has been verified. The baseline emission estimate can be replicated using the data and parameter values provided in the PDD and supporting files submitted for registration. The data sources mentioned have been verified by DNV.

### 4.7 Environmental Impacts

An environmental impact assessment (EIA) has been conducted according to Chinese laws and regulations. The potential environmental impacts have been sufficiently identified. The conclusion of the report has been described in the PDD, and no significant environmental impacts are expected from the project activity. The project does not involve the resettlement based on the EIA. The project will have little impact on birds during operation according to EIA. The local Environmental Protection Bureau (EPB) approved the project activity on 12 March 2007 /7/.



---

## VALIDATION REPORT

---

### 4.8 Comments by Local Stakeholders

A survey of local Stakeholders was carried out to invite comments from local stakeholders, such as Chayou Zhongqi Land and Resource Bureau, Chayou Zhongqi Wind Power Office, Chayou Zhongqi Development and Reform Commission, Chayou Zhongqi EPB and local residents. All 30 questionnaires for stakeholders were returned and all the respondents supported the project construction. No negative comments have been received /32/.

DNV has checked all the questionnaires received. The survey shows that the proposed project receives strong support from the local people and the comments received will be taken into consideration during construction and operation to achieve environmental and social benefits.

Moreover, the local farmers will be compensated due to land occupation by the project /39/.

### 4.9 Comments by Parties, Stakeholders and NGOs

The PDD (version 01 of 5 September 2008) was made publicly available on DNV's climate change website\* and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 9 September 2008 to 8 October 2008.

No comments were received.

---

\* [http://www.dnv.com/focus/climate\\_change/Projects/ProjectDetails.asp?ProjectId=2001](http://www.dnv.com/focus/climate_change/Projects/ProjectDetails.asp?ProjectId=2001)

## **APPENDIX A**

---

### **CDM VALIDATION PROTOCOL**



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

Requirement	Reference	Conclusion
<b>About Parties</b>		
The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3.	Kyoto Protocol Art.12.2	OK
The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC.	Kyoto Protocol Art.12.2.	OK
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 <del>CAR-1</del>
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 <del>CAR-1</del>
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
Parties participating in the CDM shall designate a national authority for the CDM.	CDM Modalities and Procedures §29	OK
The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol.	CDM Modalities §30/31a	OK
The participating Annex I Party's assigned amount shall have been calculated and recorded.	CDM Modalities and Procedures §31b	OK
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
<b>About additionality</b>		
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	Kyoto Protocol Art. 12.5c, CDM Modalities and Procedures §43	OK <del>CAR-3</del>

Requirement	Reference	Conclusion
anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity.		<del>CL2</del> <del>CL3</del> <del>CL4</del> <del>CL5</del> <del>CL7</del>
<b>About forecast emission reductions and environmental impacts</b>		
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
<b>For large-scale projects only</b>		
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
<b>About stakeholder involvement</b>		
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 <del>CL8</del>
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
<b>Other</b>		
The baseline and monitoring methodology shall be previously approved by the CDM Executive Board.	CDM Modalities and Procedures §37e	OK
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
The baseline methodology shall exclude to earn CERs for decreases in activity levels	CDM Modalities and Procedures §47	OK

Requirement	Reference	Conclusion
outside the project activity or due to force majeure.		
The project design document shall be in conformance with the UNFCCC CDM-PDD format.	CDM Modalities and Procedures Appendix B, EB Decision	OK
Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP.	CDM Modalities and Procedures §37f	OK <del>CL-6</del>

**Table 2: Requirements Checklist**

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<b>A. General Description of Project Activity</b> <i>The project design is assessed.</i>					
<b>A.1. Project Boundaries</b> <i>Project Boundaries are the limits and borders defining the GHG emission reduction project.</i>					
A.1.1. Are the project's spatial boundaries (geographical) clearly defined?	/1/ /6/	DR	Yes. The project is located in Kulun town, Chayou zhongqi, Wulan Chabu city, Inner Mongolia Autonomous Region, China. The geographical coordinates for the center of the project activity are east longitude 109°36' 5" and north latitude 41°43' 7" stated in the PDD.  But the coordinates are east longitude 109°36' 5" and north latitude 41°43' 7" at Page 1-16 and east longitude 112°36' 7" and north latitude 41°43' 5" at Page 2-1 in the FSR. The clarification is to be provided regarding the differences between them/6/.	CL1	OK
A.1.2. Are the project's system boundaries (components and facilities used to mitigate GHGs) clearly defined?	/1/ /8/ /28/	DR	Yes. The projects system boundaries are clearly defined through the description in the PDD that the proposed project power plant and all power plants within the NCPG which the proposed project power plant is connected to will be included in the spatial extent of the project boundary/28/. The North China Power Grid includes the grids of Beijing City, Tianjin City, Hebei Province,		OK

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
			Shanxi Province, Shandong Province and Inner Mongolia Autonomous Region, which will be documented and published by the DNA of China/8/.		
<b>A.2. Participation Requirements</b> <i>Referring to Part A, Annex 1 and 2 of the PDD as well as the CDM glossary with respect to the terms Party, Letter of Approval, Authorization and Project Participant.</i>					
A.2.1. Which Parties and project participants are participating in the project?	/1/	DR I	The host party involved in the project is China and the Annex-I participating Party is Sweden which is to be confirmed after the LoA of DNA of Sweden is received. Inner Mongolia Huadian Huitengxile Wind Power Co., Ltd. is the project participant from the Host Party (P. R. China). Carbon Asset Management Sweden AB is the other project participant.	<del>CAR-1</del>	OK
A.2.2. Have all involved Parties provided a valid and complete letter of approval and have all private/public project participants been authorized by an involved Party?	/1/ /2/ /3/	DR I	No. The letters of approval from the DNAs of China and Annex I Party have not been obtained.	<del>CAR-1</del>	OK
A.2.3. Do all participating Parties fulfil the participation requirements as follows: - Ratification of the Kyoto Protocol - Voluntary participation	/1/ /2/ /3/ /24/	DR	Yes. China ratified the Kyoto Protocol on 30 August 2002. Sweden ratified the Kyoto Protocol on 31 May 2002. But voluntary participation of them will be	<del>CAR-1</del>	OK

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
- Designated a National Authority			based on delivering of the letters of approval from the DNVs of China and Sweden. DNA of China is National Development and Reform Commission. DNA of Sweden is Ministry of the Environment.		
A.2.4. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance.	/1/ /6/	DR	Based on the proposed project approval from the government /6/, the total investment will be financed from the capital of the project owner for 20% and domestic bank loan for 80%. The validation did not reveal any information that indicates that the project can be seen as a diversion of official development assistance (ODA) funding towards China.		OK
<b>A.3. Technology to be employed</b> <i>Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used.</i>					
A.3.1. Does the project design engineering reflect current good practices?	/1/ /6/ /22/	DR	Yes. The project design engineering reflects the current good practice in China, because the wind power equipment is bought from the Sinovel Wind Co., Ltd./22/ which is one of main producers of wind power equipment in China.		OK
A.3.2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	/1/ /6/ /22/	DR	The 134 sets of wind turbines FL1500/70 with each of 1.5 MW capacity and impeller diameter of 70.4M will be used in the proposed project/22/.		OK

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			Annual net electricity generation is expected to be 496,530 MWh and the power load factor is 0.28 based on the wind turbines and generators in the project site. /6/ The wind turbines and generators are made by Sinovel Wind Co., Ltd./22/ which is one of most suppliers of domestic wind power equipments in China		
A.3.3. Does the project make provisions for meeting training and maintenance needs?	/1/	DR	No, the clarification is to be provided regarding personnel training and arrangement for meeting operation and maintenance needs of the proposed project.	CAR-2	OK
<b>A.4. Contribution to Sustainable Development</b> <i>The project's contribution to sustainable development is assessed.</i>					
A.4.1. Has the host country confirmed that the project assists it in achieving sustainable development?	/1/ /2/	DR	Not yet. The ideas from the host country that the project assists it in achieving sustainable development will be confirmed after the CAR 1 is closed	CAR-4	OK
A.4.2. Will the project create other environmental or social benefits than GHG emission reductions?	/1/ /6/ /7/	DR I	Yes, as a renewable energy project, the project may improve local minority resident area economic development and substitute for some coal fired power plant and decrease environmental pollution, and creating new job opportunities for the local people.		OK
<b>B. Project Baseline</b> <i>The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.</i>					

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<b>B.1. Baseline Methodology</b> <i>It is assessed whether the project applies an appropriate baseline methodology.</i>					
B.1.1. Does the project apply an approved methodology and the correct version thereof?	/1/ /4/	DR	Yes, the project correctly applies the methodology ACM0002 “Consolidated baseline methodology for grid-connected electricity generations from renewable sources” of version 07 approved by the EB 36.		OK
B.1.2. Are the applicability criteria in the baseline methodology all fulfilled?	/1/ /4/ /6/ /8/ /11/ /12/ /28/	DR	Yes. The project is a newly built wind power plant with the capacity addition from a renewable energy source whose power is delivered to North China Power Grid/28/, and does not involve on-site fuel switching from fossil fuels to a renewable source/6/. The geographic and system boundaries for the relevant electricity grid (NCPG) can be clearly identified /8/and information on the characteristics of the grid is available/11//12/.		OK
<b>B.2. Baseline Scenario Determination</b> <i>The choice of the baseline scenario will be validated with focus on whether the baseline is a likely scenario, and whether the methodology to define the baseline scenario has been followed in a complete and transparent manner.</i>					
B.2.1. What is the baseline scenario?	/1/ /4/ /18/ /28/	DR	As the project activity is setting up a new wind power plant, the baseline scenario as per the methodology ACM0002, is “electricity delivered to the grid by the		OK



<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
			project would have otherwise been generated by the operation of grid connected power plants and by addition of new generating sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system”. The grid the proposed project activity will be connected to is North China Power Grid The selected baseline scenario in the PDD is the same.		
B.2.2. What other alternative scenarios have been considered and why is the selected scenario the most likely one?	/1/ /4/	DR	For a renewable energy project of wind power, no other alternative scenarios are required in the methodology ACM0002.		OK
B.2.3. Has the baseline scenario been determined according to the methodology?	/1/ /4/	DR	Yes		OK
B.2.4. Has the baseline scenario been determined using conservative assumptions where possible?	/1/ /18/	DR	Yes. For CM calculation, the CO2 emission factors of the coal, oil and gas fuel-fired best technology for power generation in China is used as the CO2 emissions factors of the coal, oil and gas fuel-fired power plant for BM calculation.		OK
B.2.5. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	/1/	DR	Yes. The renewable energy law, sectoral policy and development trends in North China Power Grid have been taken into account.		OK
B.2.6. Is the baseline scenario determination compatible with the available data and are all literature and	/1/	DR	Yes.		OK

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
sources clearly referenced?					
B.2.7. Have the major risks to the baseline been identified?	/1/	DR	There are some risks to confirm CM for baseline emission determination during next crediting period since the constitution of low cost or must run power generation resources will be changed in North China Power Grid.		OK
<b>B.3. Additionality Determination</b> <i>The assessment of additionality will be validated with focus on whether the project itself is not a likely baseline scenario.</i>					
B.3.1. Is the project additionality assessed according to the methodology?	/1/ /4/ /6/ /17/ /19/ /20/ /25/ /29/ /31/	DR	The additionality of the project, is demonstrated by applying the “Tool for demonstration and assessment of additionality”, version 05.2./17/  Step 1. Identifying alternatives to the project: Four alternatives to the project were identified a) The proposed project itself, but not undertaken as a CDM project activity. b) Construction of a fossil fuel-fired power plant with equivalent installed capacity or annual electricity generation. c) Construction of a power plant using other renewable energy with equivalent installed capacity or annual electricity generation. d) Equivalent electricity service provided by the North China Power Grid  Among these, b) is not in compliance with the legislations of China/19//20/, as the		OK

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
			<p>capacity of the proposed project is equivalent to 96.66 MW thermal power plant based on the rated power operation hours ratio of 5136 hours for large thermal power plant /25/ and 2470 hours for the proposed project /6/. c) is the potential scenarios consisting of hydro, biomass or solar or geothermal power plant, among which hydro power alternative is not feasible due to lack of water resources in the location the project will be sited, but the data source referred is to be clarified due to location rationality of it. Other alternatives such as biomass, solar or geothermal power plants will be difficult to be operated without the support of policies or financial incentives/26/.</p> <p>Step 2. Investment analysis:</p> <p>The benchmark analysis with the internal rate of return of project as the indicator has been selected. The benchmark of 8% (<i>after tax</i>) for the project IRR has been selected and regarded as a benchmark for investments in hydropower plants, fossil fuel fired plants and wind farm projects/16/. Based on the data from the feasibility study report/6/, the project IRR without CER revenues is 5.53% /31/, which shows that the project is not financially attractive compared to the benchmark in the absence of CDM benefits.</p>	CL2	

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
			<p>In line with the EB guidance in EB38 minutes of meeting paragraph (54), DNV confirms that:</p> <p>a) The input parameters used in the financial analysis are taken from the Feasibility Study Report (FSR) developed by Inner Mongolia Exploration &amp; Design Institute in August 2007 and approved by National Development and Reform Commission on 14 December 2007 /6/. The input parameters used in the financial analysis can thus be considered information provided by independent and recognized sources.</p> <p>b) DNV has compared the input parameters for the financial analysis included in the PDD with the parameters stated in the FSR /6/ and was able to confirm that the values applied are consistent with the value stated in the FSR/6/. The tariff stated in the FSR is confirmed based on the tariff of wind farm at same location and condition where the compared project is installed with capacity of 201MW/6/. Since the approval letter from NDRC for the proposed project requires the tariff of the proposed project to be confirmed according to the tariff of the concession projects in Inner Mongolia/6/. The highest tariff of the concession projects in Inner Mongolia is 0.4656 RMB/kwh (incl.VAT) till</p>		

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
			<p>now/29/; so 0.47 RMB/kwh (incl.VAT) for the proposed project selected by FSR is considered to be reasonable.</p> <p>---The clarification is to be provided regarding the tariff of the proposed project after 30, 000 operation hours.</p> <p>---some calculations formulae such as O&amp;M cost and income tax and sales revenues are not included and broken down in the IRR spreadsheet and the some input parameters and data such as static investment and current capital etc. is not included in IRR.</p> <p>---the calculation of the scrap value of fixed assets is to be corrected and the data sources for the input data is not included in the IRR spreadsheet.</p> <p>---Since the starting date of the project is not justified to be reasonable in the PDD, so the data applied for financial analysis is not confirmed to be available when the decision to proceed with the project is made till CL 7 is clarified.</p> <p>c.) since the starting date of the project is not confirmed reasonably, the FSR is not considered as the basis of decision to proceed with the project till CL 7 is clarified.</p> <p>d.) For the proposed project, the investment per kW, the electricity tariff, PLF and percentage of O&amp;M costs relative to total</p>	<p><del>CL3</del></p> <p><del>CL7</del></p>	

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
			<p>investment costs are compared with other similar CDM wind projects in China. By in addition applying our sectoral competence, DNV was able to confirm that the input parameters used in the financial analysis are reasonable.</p> <p>A sensitivity analysis has been assessed with regards to critical parameters contributing more than 20% to the cost or revenue: the total investment, annual O&amp;M costs, on-grid tariff and annual output.</p> <p>---If the static investment decreases by 10%, the IRR of the proposed project would be 6.85% and not exceed the benchmark. As per PDD, the turbine equipment investment is main part of total investment; the price of turbine is increasing with booming of turbine need from market since the renewable energy laws was issued in 2006.</p> <p>It is to be detailed in the PDD regarding booming of market need for wind turbines and price change of wind turbines, based on data source referred.</p> <p>Based on the contract the turbine procurement price is 1,157,090,000 RMB for 134 sets of turbines and centre controlling system/22/, the difference is 258,910,000 RMB between the contract and FSR where the relevant price is 1,416,000,000 RMB/6/.</p>	CL4	

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
			<p>It is required to be clarified how this decrease is related to the sensitivity analysis regarding to the static investment.</p> <p>---It is also demonstrated that when the tariff of the project increases by 10%, the project IRR would be 6.8% and not exceed the benchmark.</p> <p>The tariff of the proposed project is identified based on the similar projects at same location and condition. As per the approval letter for the project issued by NDRC, the on-grid tariff of the project being according to policy of the tariff of concession projects in Inner Mongolia is fixed for 30,000 hours operation and after that the tariff will be on-grid tariff at that time in Inner Mongolia.</p> <p>The clarification is to be provided regarding the tariff after 30,000 hours operation and the effect of IRR thereof.</p> <p>---When the annual power generation is increased by 10%, the project IRR will also be 6.8% and not exceed the benchmark IRR.</p> <p>But the evidences for annual power generation being not increased and further description is to be made based on the references.</p> <p>---When the operation and maintenance cost is decreased by 10%, the project IRR will</p>	<p>CL4</p> <p>CL4</p> <p>CL4</p>	

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
			also be 5.84% and not exceed the benchmark IRR. ---the evidences for O&M increase analysis is to be provided and the current analysis for labour cost is influencing short time situation (about 3-5year) of labour price but not enough /30/and further description is to be made for the whole operation life time(about 23 years) ---the parameter or data analysis of variance which would result in the IRR benchmark being reached is to be provided. ---the sensitivity analysis spreadsheet is to be provided. Step 3. Barrier analysis: this step is not used for the proposed project investment analysis.  Step 4: Common practice analysis: The wind farm projects built before 2003 in China are in the demonstration period and the initial industrialization process with the support of the government/28/; the wind power projects built after 2003 in Inner Mongolia will be addressed for common practice analysis in the PDD. According to the 2007 statistics for wind power projects in China/23/, the additional installed capacity is 1054.3MW and new		



<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
			added sets are 1068 in 2007, the aggregated installed capacity is 1563.19MW and total sets are 1736 till 31 December 2007, which installation are completed before commissioning. ---It is to be added in the PDD regarding why to select Inner Mongolia as the scope of common practice analysis. ---It is to be clarified regarding the scope of the similar projects as the proposed project.	<del>CL5</del>	
B.3.2. Are all assumptions stated in a transparent and conservative manner?	/1/ /6/	DR	Ditto	<del>CL2</del> <del>CL3</del> <del>CL4</del> <del>CL5</del> <del>CL7</del>	OK
B.3.3. Is sufficient evidence provided to support the relevance of the arguments made?	/1/	DR	Ditto	<del>CL2</del> <del>CL3</del> <del>CL4</del> <del>CL5</del> <del>CL7</del>	OK
B.3.4. If the starting date of the project activity is before the date of validation, has sufficient evidence been provided that the incentive from the CDM was seriously considered in the decision to proceed with the project activity?	/1/ /6/ /21/	DR I	Provide evidence and further description in the PDD that the incentive from the CDM was seriously considered in the decision to proceed with the project activity; because the assumed starting date of the project activity in the PDD (25 December 2007) is before the date of validation (webhosting started dated 9 September 2008).	<del>CAR3</del>	OK

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>B.4. Calculation of GHG Emission Reductions – Project emissions</b> <i>It is assessed whether the project emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i>					
B.4.1. Are the calculations documented according to the approved methodology and in a complete and transparent manner?	/1/ /4/ /6/	DR	Project emission is regarded as zero as the project is a renewable energy (wind source) project, according to methodology ACM0002.		OK
B.4.2. Have conservative assumptions been used when calculating the project emissions?	/1/	DR	Ditto		OK
B.4.3. Are uncertainties in the project emission estimates properly addressed?	/1/	DR	Ditto		OK
<b>B.5. Calculation of GHG Emission Reductions – Baseline emissions</b> <i>It is assessed whether the baseline emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i>					
B.5.1. Are the calculations documented according to the approved methodology and in a complete and transparent manner?	/1/ /6/ /10/ /11/ /12/ /13/	DR	Yes. Baseline emissions are calculated as the net electricity delivered to the power grid times the NCPG emission factor. The grid emission factor is correctly calculated in line with the Tool to calculate		OK

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
	/14/ /15/		<p>the emission factor for an electricity system/18/ as a combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM).</p> <p>For the calculation of the OM emission factor, the simple OM emission factor calculation method is selected because low cost/must run power plants constitute less than 50% for 2002-2006 in North China Power Grid (0.89% in 2002, 0.86% in 2003, 0.76% in 2004, 0.75% in 2005, and 0.74% in 2006,) /11/and of which the total grid generation and data is not available for applying the dispatch data analysis.</p> <p>The aggregated generation and fuel consumption data are used as more disaggregated data are not available in the North China Power Grid Country specific data for the net calorific value (<math>NCV_i</math>) of each type of fossil fuel, which can be obtained from the China Energy Statistical Yearbook /12/, the IPCC 2006 default values /13/ for the oxidation factor and emission factor of each type of fossil fuel and the total electricity delivered to the NCPG selected are deemed reasonable. Vintage data for the years 2004, 2005 and 2006/11//12/ are used for the OM emission factor calculation, which are the most recent data available. The</p>		

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
			<p>OM is calculated to be 1.1169 tCO<sub>2</sub>/MWh as a generation-weighted average for the three years which can be verified with the spreadsheet for OM calculation from China NDRC. /9/</p> <p>Because plant specific fuel consumption and electricity generation data is not publicly available in China, the EB guidance on the request for deviation titled “Application of AM0005 and AMS-I.D in China” /14/ has been applied as follows:</p> <ul style="list-style-type: none"> <li>- The capacity additions from the year 2005 to 2006 is chosen and this represents 21.75% of total installed capacity /11/.</li> <li>- The installed capacity additions for thermal power plant are 95.64% of total installed capacity additions /11/.</li> <li>- The standard coal consumption of 329.94 gSCE/kWh and the standard oil or gas consumption of 252 gSCE/kWh are used to determine the BM emission factor, which is deemed conservative. The coal consumption of 329.94 gSCE/kWh and oil or gas consumption of 252 gSCE/kWh (equivalent to be efficiency of 37.28% and 48.81% respectively) are defined as the best technology commercially</li> </ul>		

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
			<p>available in China by the DNA of China /15/.</p> <ul style="list-style-type: none"> <li>- Country specific data for net calorie value of each kind of fuel from the China Energy Statistics Yearbook in 2007 /12/, the IPCC 2006 default value for emission factors of each kind of fuel and carbon oxidization factor/13/ are used to calculate the BM.</li> <li>- The BM is calculated as 0.8687 tCO<sub>2</sub>/MWh which can be verified with the spreadsheet for BM calculation from China NDRC /10/</li> </ul> <p>The resulting combined margin emission factor of 1.05485 tCO<sub>2</sub>e/MWh is fixed <i>ex-ante</i> for the first crediting period.</p> <p>Since the annual net power generation is 496,530 MWh,/6/, the baseline emission is calculated and expected to be 523 765 tCO<sub>2</sub>e.</p> <p>The parameters determined ex-ante are the parameters and data available at validation and not monitored throughout the crediting period but that are determined only once and thus remain fixed throughout the crediting period, which include the amount of fuel i consumption in year y for generation Fi,j,y, the electricity supplied to the grid except</p>		

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
			<p>low-cost or must-run operating power plant in year y <math>GEN_{i,y}</math>, the net calorific value per mass or volume unit of fuel i <math>NCV_i</math>, the oxidation factor of fuel i <math>OXID_y</math>, <math>CO_2</math> emission factor per unit of fuel i <math>EF_{CO_2,i}</math>, the efficiency of advanced thermal power plant <math>GENE_{best,coal}</math> and <math>GENE_{best,oil/gas}</math> respectively for the most advanced and commercialized coal fuel-fired and oil/gas fuel-fired power plant, the installed capacity of power plant category i of province j in NCPG in year y <math>CAP_{i,j,y}</math>.</p> <p>The amount of fuel i consumption in year y for generation <math>Fi_{j,y}</math> and net calorific value per mass or volume unit of fuel i <math>NCV_{i,y}</math> are derived from the china energy statistics yearbook 2005-2007 edition/12/ The electricity supplied to the grid except low-cost or must-run operating power plants included in NCPG in year y <math>GEN_{i,y}</math> and the installed capacity of power plant category i of province j in NCPG in year y <math>CAP_{i,j,y}</math> are derived from the china electric power yearbook 2003-2007/11/The oxidation factor of fuel i <math>OXID_y</math> and <math>CO_2</math> emission factor per unit of fuel i <math>EF_{CO_2,I}</math> are derived from IPCC 2006 default values/13/ the efficiency of advanced thermal power plant <math>GENE_{best,coal}</math> and <math>GENE_{best,oil/gas}</math></p>		

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			<p>respectively for the most advanced and commercialized coal fuel-fired and oil/gas fuel-fired power plant are derived from the announcement regarding emission factor of regional electric power grid issued by DNA of China/10/.</p> <p>The data and parameter sources are independent information sources and the input data are verified to be consistent with them and reasonable.</p>		
B.5.2. Have conservative assumptions been used when calculating the baseline emissions?	/1/ /10/	DR	Yes. The CO <sub>2</sub> emission factors of the coal, oil and gas fuel-fired best technology for power generation in China is used as the CO <sub>2</sub> emissions factors of the coal, oil and gas fuel-fired power plant for BM calculation.		OK
B.5.3. Are uncertainties in the baseline emission estimates properly addressed?	/1/	DR	No, there are no uncertainties in the baseline emission estimates required to be addressed.		OK
<b>B.6. Calculation of GHG Emission Reductions – Leakage</b> <i>It is assessed whether leakage emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i>					
B.6.1. Are the leakage calculations documented according to the approved methodology and in a complete and transparent manner?	/1/ /4/	DR	According to ACM0002, potential leakage effects, such as emissions arising from power plant construction and land inundation do not		OK

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
			need to be considered.		
B.6.2. Have conservative assumptions been used when calculating the leakage emissions?	/1/	DR	Ditto		OK
B.6.3. Are uncertainties in the leakage emission estimates properly addressed?	/1/	DR	Ditto		OK
<b>B.7. Emission Reductions</b> <i>The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.</i>					
B.7.1. Are the emission reductions real, measurable and give long-term benefits related to the mitigation of climate change.	/1/	DR	Yes, the total emission reductions from the project are estimated to be on the average 523 765 tCO <sub>2</sub> e per year over the selected 7-year renewable crediting period. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.		OK
<b>B.8. Monitoring Methodology</b> <i>It is assessed whether the project applies an appropriate monitoring methodology.</i>					
B.8.1. Is the monitoring plan documented according to the approved methodology and in a complete and transparent manner?	/1/ /4/	DR	The monitoring plan is documented according to the approved monitoring methodology ACM0002 “consolidated monitoring methodology for grid- connected electricity generation from renewable sources” (version 07).		OK



CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview		Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.8.2.	Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of CERs, for this project activity, whichever occurs later?	/1/	DR	No. All monitored data required for verification and issuance should be required to be kept for two years after the end of the crediting period or the last issuance of CERs, whichever occurs later.	<del>CL</del> 6	OK
<b>B.9. Monitoring of Project Emissions</b> <i>It is established whether the monitoring plan provides for reliable and complete project emission data over time.</i>						
B.9.1.	Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?	/1/ /4/	DR I	There are no emissions from the project activity to be collected and archived.		OK
B.9.2.	Are the choices of project GHG indicators reasonable and conservative?	/1/	DR	Ditto		OK
B.9.3.	Is the measurement method clearly stated for each GHG value to be monitored and deemed appropriate?	/1/	DR	Ditto		OK
B.9.4.	Is the measurement equipment described and deemed appropriate?	/1/	DR	Ditto		OK
B.9.5.	Is the measurement accuracy addressed and deemed appropriate? Are procedures in place on how to deal with erroneous measurements?	/1/	DR	Ditto		OK
B.9.6.	Is the measurement <i>interval</i> identified and	/1/	DR	Ditto		OK

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
deemed appropriate?					
B.9.7. Is the <i>registration, monitoring, measurement</i> and <i>reporting</i> procedure defined?	/1/	DR	Ditto		OK
B.9.8. Are procedures identified for <i>maintenance</i> of monitoring equipment and installations? Are the calibration intervals being observed?	/1/	DR	Ditto		OK
B.9.9. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	/1/	DR	Ditto		OK
<b>B.10. Monitoring of Baseline Emissions</b> <i>It is established whether the monitoring plan provides for reliable and complete baseline emission data over time.</i>					
B.10.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining baseline emissions during the crediting period?	/1/ /4/	DR	The project uses the <i>ex-ante</i> determination of emission factor for grid electricity. Only electricity supplied to the grid will be monitored and double checked with the receipts of electricity sold to the grid.		OK
B.10.2. Are the choices of baseline GHG indicators reasonable and conservative?	/1/ /4/	DR	The choice of baseline GHG indicators is in line with ACM0002.		OK
B.10.3. Is the measurement method clearly stated for each baseline indicator to be monitored and also deemed appropriate?	/1/ /4/ /33/	DR	The net electricity delivered to the Grid for baseline emission calculation will be selected to be monitored and measured hourly and recorded monthly.	CL6	OK

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
			But the issues such as monitoring equipment and its location, how to measure and record the parameter and data, calibration standard applied and responsible person etc. need to be addressed in the B7.1 as per the guideline for completing the PDD v7./33/		
B.10.4. Is the measurement <i>equipment</i> described and deemed appropriate?	/1/ /4/	DR	Ditto		
B.10.5. Is the measurement <i>accuracy</i> addressed and deemed appropriate? Are procedures in place on how to deal with erroneous measurements?	/1/ /4/	DR	The accuracy of the electricity meters is described as 0.5S or above. There are not procedures in place on how to deal with erroneous measurements.	<del>CL-6</del>	OK
B.10.6. Is the measurement <i>interval</i> for baseline data identified and deemed appropriate?	/1/ /4/	DR	The electricity supplied to the grid will be measured hourly and recorded monthly, in line with ACM0002.		OK
B.10.7. Is the registration, <i>monitoring</i> , <i>measurement</i> and <i>reporting</i> procedure defined?	/1/ /4/	DR	Yes. But the procedure for the registration, monitoring , measurement and reporting need to be described furtherly	<del>CL-6</del>	OK
B.10.8. Are procedures identified for <i>maintenance</i> of monitoring equipment and installations? Are the calibration intervals being observed?	/1/ /4/	DR	Yes. But the procedure for maintenance of monitoring equipment and installations is expected to be supplemented	<del>CL-6</del>	OK
B.10.9. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	/1/ /4/	DR	Yes.		OK

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<b>B.11. Monitoring of Leakage</b> <i>It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.</i>					
B.11.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	/1/ /4/	DR	Project participants do not need to consider leakage in applying this methodology.		OK
B.11.2. Are the choices of project leakage indicators reasonable and conservative?	/1/	DR	Ditto		OK
B.11.3. Is the measurement method clearly stated for each leakage value to be monitored and deemed appropriate?	/1/	DR	Ditto		OK
<b>B.12. Monitoring of Sustainable Development Indicators/ Environmental Impacts</b> <i>It is assessed whether choices of indicators are reasonable and complete to monitor sustainable performance over time.</i>					
B.12.1. Is the monitoring of sustainable development indicators/ environmental impacts warranted by legislation in the host country?	/1/ /7/	DR	Monitoring of sustainable development indicators is not required by the Chinese DNA. The environmental impacts are identified in the EIA that was approved on 12 March 2007.		OK
B.12.2. Does the monitoring plan provide for the collection and archiving of relevant data concerning environmental, social and economic impacts?	/1/ /7/	DR	Chinese DNA does not require collection and archiving of data related to environmental, social and economic impacts. The environmental impacts will be monitored by local environmental authority.		OK

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
B.12.3. Are the sustainable development indicators in line with stated national priorities in the Host Country?	/1/ /7/	DR	Ditto		OK
<b>B.13. Project Management Planning</b> <i>It is checked that project implementation is properly prepared for and that critical arrangements are addressed.</i>					
B.13.1. Is the authority and responsibility of overall project management clearly described?	/1/	DR	Yes. The authority and responsibility of overall project management is clearly described.		OK
B.13.2. Are procedures identified for training of monitoring personnel?	/1/	DR	According to PDD, the training department is set up and all staff responsible for monitoring job will be well trained before operation of project and periodically if needed. But the evidences is to be provided regarding personnel (including monitoring personnel) training and arrangement for meeting operation and maintenance needs of the proposed project.	CAR 2	OK
B.13.3. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1/	DR	No emergency situation which can cause unintended emissions is expected from the project.		OK
B.13.4. Are procedures identified for review of reported results/data?	/1/	DR	See B10.7 of this report table 2.	CL 6	OK
B.13.5. Are procedures identified for corrective actions in	/1/	DR	Yes.		OK

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
order to provide for more accurate future monitoring and reporting?					
<b>C. Duration of the Project/ Crediting Period</b> <i>It is assessed whether the temporary boundaries of the project are clearly defined.</i>					
C.1.1. Are the project's starting date and operational lifetime clearly defined and evidenced?	/1/ /22/	DR	The starting date of the project is defined as 25 December 2007 when the equipment contract was signed and the stated lifetime of the project is 23 years/22/. Both of them are to be clarified and evidence provided, and how to confirm the starting date of the project activity should be provided in the PDD.	<del>CL7</del>	OK
C.1.2. Is the start of the crediting period clearly defined and reasonable?	/1/	DR	The expected start date of the crediting period is 1 January 2009, which is not reasonable.	<del>CL6</del>	OK
<b>D. Environmental Impacts</b> <i>Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.</i>					
D.1.1. Has an analysis of the environmental impacts of the project activity been sufficiently described?	/1/ /7/	DR	Yes. The EIA has been properly described, which covers atmospheric, noise, solid waste environmental impact analysis.		OK
D.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	/1/ /7/	DR	Yes. The EIA has been approved by the local EPB on 12 March 2007.		OK

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
D.1.3. Will the project create any adverse environmental effects?	/1/ /7/	DR	As per the results of EIA and the reply from the approval of the local Environmental Protection Bureau, the impacts on the environment are not significant.		OK
D.1.4. Are transboundary environmental impacts considered in the analysis?	/1/ /7/	DR	The project being a wind power project will not have any transboundary effects.		OK
D.1.5. Have identified environmental impacts been addressed in the project design?	/1/ /6/ /7/	DR	Yes. The impacts are properly described in FSR.		OK
D.1.6. Does the project comply with environmental legislation in the host country?	/1/ /7/	DR	Yes.		OK
<b>E. Stakeholder Comments</b> <i>The validator should ensure that stakeholder comments have been invited with appropriate media and that due account has been taken of any comments received.</i>					
E.1.1. Have relevant stakeholders been consulted?	/1/ /32/	DR I	Yes. Local stakeholders were invited and required to provide comments in the way of questionnaires in January 2007.  Local stakeholders were included in the consultation such as Chayou Zhongqi Land and Resource Bureau, Chayou Zhongqi Wind Power Office, Chayou Zhongqi Development and Reform Commission, Chayou Zhongqi EPB and local residents.		OK
E.1.2. Have appropriate media been used to invite comments by local stakeholders?	/1/	DR I	It should be clarified for media used to invite comments by local stakeholders.	<del>CL</del> 8	OK

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
E.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	/1/	DR	For the renewable energy project as such wind power project, the stakeholder consultation process is not required by regulations or laws in China.		OK
E.1.4. Is a summary of the stakeholder comments received provided?	/1/ /32/	DR I	Yes. 30 questionnaires were spread out and 100% responses were collected. The summary of the stakeholder comments received is described in the PDD.		OK
E.1.5. Has due account been taken of any stakeholder comments received?	/1/	DR	Yes. No negative comments have been received on the proposed project. But the clarification is to be provided regarding the compensation problem.	<del>CL8</del>	OK



**Table 3: Resolution of Corrective Action and Clarification Requests**

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<p>CAR 1</p> <p>Letters of approval from China and Annex I country are missing.</p>	<p>A.2.2 A.2.1 A.2.3 A.4.1</p>	<p>They have been supplied to DOE</p>	<p>The LoA from Sweden is issued on 25 November 2008 and the LoA of China is issued in November 2008 and both of them are received /2//3/.</p> <p>This CAR is closed.</p>
<p>CAR 2</p> <p>The clarification is to be provided regarding personnel training and arrangement for meeting operation and maintenance needs of the proposed project.</p>	<p>A.3.3 B.13.2</p>	<p>Training plan will be supplied to DOE.</p>	<p>The training plan made in December 2008 is provided and the personnel will be trained in the future before operation of the project /36/.</p> <p>This CAR is closed.</p>
<p>CAR 3</p> <p>Provide evidence and further description in the PDD that the incentive from the CDM was seriously considered in the decision to proceed with the project activity, because the assumed starting date of the project activity (25 December 2007) is before the date of validation (webhosting started dated 9 September 2008).</p>	<p>B.3.4</p>	<p>The timeline of the project activity and relative CDM timeline have been listed in the section B.5 in the PDD. In fact, two years ago the project owner knew about the CDM project and their project “Huadian Inner Mongolia Huitengxile 100.25MW wind farm project” was registered as a CDM project in Mar. 29th, 2007 (reference number: 0823). In the feasibility study report, the IRR of the proposed project activity is lower than the benchmark of power industry, so the design institute suggested the project owner to apply for CDM revenues, just as the Huitengxile</p>	<p>The evidences showing that the incentives from the CDM was seriously considered in the decision to proceed with the project activity are as following:</p> <p>a) it is demonstrated in the feasibility study report (FSR) completed in August 2007 and approved on 14 December 2007 that the project IRR is 5.53% lower than the benchmark of 8% and the project developers is suggested to apply for CDM since the financial attractive for the project developers will be improved/6/.</p> <p>b) on 17 October 2007 held was the</p>

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		<p>project. Then in October 2007 the project owner held a board meeting to decide to invest on the proposed project activity considering the CDM revenues, although the proposed project activity is economically unattractive. In December 2007, the project owner signed the first contract with equipment provider, which is regarded as the start date of the proposed project as it is the earliest date according to CDM glossary term.. At the same time, the project owner was looking for CERs buyer, after comparing and negotiating with some CERs buyers, in January 2008 the project owner signed the letter of intention with Carbon Asset Management Sweden AB. At the same time, project owner started to sign contracts of other equipments for the project. After the Chinese Spring Festival, the project owner prepared and started construction in April 2008. In May 19<sup>th</sup> the ERPA was signed. From the above statement, we can conclude that CDM was seriously taken into account before start of the proposed project activity and CDM is essential</p>	<p>board meeting, the conclusion of which is that the project is difficult to develop and be approved without CDM, and the board decided the CDM application with the project implementation is prepared as soon as possible/40/..</p> <p>c) in the approval letter for FSR of the project on 14 December 2007, the CDM application is also mentioned/6/.</p> <p>d) the turbine procurement contract is signed on 25 December 2007, which is signaled for starting the decision to proceed with the project activity/22/.</p> <p>e) on 20 January 2008 the letter of intention was signed by project owner with Carbon Asset Management Sweden AB for information about CER transaction issues./41/</p> <p>f) on 2 February 2008 the China Huandian Group New Energy Development Co., Ltd. as a controlling company of the project owner has issued a permission letter of construction, which require the construction to start in April 2008./21/</p> <p>g) ERPA is signed on 19 May 2008/42/.</p> <p>From above-statement it is indicated</p>

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		<p>for the project owner to go ahead with the implementation of the project activity.</p> <p>Timeline of contracts signature is below and evidence has been provided to DOE:</p> <ul style="list-style-type: none"> <li>8) Contract of wind turbine (134 sets) on Dec. 25th 2007</li> <li>9) Contract of transformer (33 sets) in Jan. 3rd 2008, others are under negotiation.</li> <li>10) Contract of pylon (1) 17 sets in Sep. 5th 2008</li> <li>11) Contract of pylon (2) 18 sets in Oct. 30th 2008</li> <li>12) Contract of pylon (3) 34 sets in Oct. 22nd 2008</li> <li>13) Contract of pylon (4) 30 sets in Oct. 6th 2008</li> <li>14) Contract of pylon (5) 17 sets in Mar. 5th 2008</li> </ul> <p>Contract of pylon (6) 18 sets in Oct. 7th 2008.</p>	<p>that the starting date is 25 December 2007 when the first contract for project implementation is signed according to EB41 para 67. Before starting date the CDM revenues is considered in the FSR of August 2007 since the financial viability of the project is weak as 5.53% is lower than benchmark of 8%. After that, on 17 October 2007 the project owner held a board meeting to discuss the project implementation and CDM incentives so as to the conclusion of proceeding with project with support of CDM. After the wind equipment contract is signed on 25 December 2007, the letter of intent to sell CERs is signed with buyer on 20 January 2008 and ERPA on 19 May 2008. The construction of the project is started in April 2008. The validation is started on 9 September 2008. LoAs of both parties are received in November 2008. It is indicated by means of reliable evidences that continuing and real actions were taken to secure CDM status for the project in parallel with its implementation.</p>

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
			<p>Thus it is demonstrated by the evidences above stated that the incentives from the CDM was seriously considered in the decision to proceed with the project activity.</p> <p>This CAR is closed.</p>
<p>CL 1 The coordinates are east longitude 109°36' 5" and north latitude 41°43' 7" at Page 1-16 and east longitude 112°36' 7" and north latitude 41°43' 5" at Page 2-1 in the FSR. The clarification is to be provided regarding the differences between them/6/.</p>	A.1.1	<p>Center of the wind farm is longitude 112°36' 7" E and latitude 41°43' 5' N. Evidence will be submitted to DOE.</p>	<p>According to the clarifications from the Inner Mongolia Power Exploration and Design Institute on 3 November 2008/34/, the coordinates of the project is longitude 112°36' 7" E and latitude 41°43' 5' N.</p> <p>This CL is closed.</p>
<p>CL 2 Hydro power alternative is not feasible due to lack of water resources in the location the project will be sited, but the data source referred is to be clarified due to location rationality of it.</p>	B.3.1 B.3.2 B.3.3	<p>The evidence has been provided to the DOE and PDD has been revised. The project located in desert steppe zone with little raining. No surface runoff can be used for hydro power station construction near project site. Thus it is impossible to develop hydro project there.</p>	<p>Evidence regarding hydro lack argument is provided/37/.</p> <p>This CL is closed.</p>
<p>CL 3 a) The clarification is to be provided regarding the tariff of the proposed project</p>	B.3.1 B.3.2 B.3.3	<p>a) ① This project was approved by NDRC and tariff mechanism was</p>	<p>a) according to FSR approval letter /6/ the tariff of the proposed project should be defined by the price authorities based</p>

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<p>after 30, 000 operation hours.</p> <p>b.) some calculations formulae such as O&amp;M cost and income tax and sales revenues are not included and broken down in the IRR spreadsheet and the some input parameters and data such as static investment and current capital etc. is not included in IRR.</p> <p>c.) the calculation of the scrap value of fixed assets is to be corrected and the data sources for the input data are not included in the IRR spreadsheet.</p>		<p>defined in the Approval: before the operating hour reach 30,000 hours, tariff should be in line with latest approved tariff of concession projects; when operating hour reach 30,000 hours, tariff of the electricity generated afterwards shall be in line with average tariff of wind farm projects in local area at that time.</p> <p>②Tariff before 30,000 hours is fixed according to FSR approval, which is explained clearly in the PDD. For tariff after the operating hour reach 30,000 hours, tariff of the electricity generated afterwards shall be in line with <b>average tariff of wind farm projects</b> in local area at that time. But according to the tariff of projects in Inner Mongolia approved by NDRC from Jan. 2007 to Jul. 2008 which is approved at almost the same time with the proposed project, “when operating hour reach 30,000 hours, tariff of the electricity generated afterwards shall be in line with <b>average tariff</b> in local area at that time”, tariff of the proposed project shall also follow the <b>average tariff</b> just as the above projects. North China</p>	<p>on the local regional concession projects tariff before 30 000 hours and the tariff afterwards will be determined by the price authorities based on the average of wind farm projects in local region at that time.</p> <p>For the tariff of the proposed project after 30 000 operation hours, it is defined based on the average of local wind farm projects as per FSR approval/6/.</p> <p>According to some wind farm projects in Inner Mongolia approved by DNA from Jan.2007 and Jan. 2008,/43//44//45/, the tariff after 30 000 hours will be defined based on average tariff in local power plants at that time.</p> <p>North China Power Grid, the project will be connected, is mainly consisting of thermal power plants by checking the China Electric Yearbook,/11/ Thus the average tariff of local power plants is very close to the average tariff of thermal power plants.</p> <p>According to the tariff issued by local NDRC (NeiFaGaiJiaZi[2008]1121)/46/, the standard tariff of new thermal power plants is approved to be</p>

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		<p>Power Grid, in which the proposed project is located and connected, is dominated by thermal power plants. Average tariff is dominated by thermal power plants, a little higher but very close to tariff of thermal power plants. Based on the latest Notice on tariff of thermal power plants published by local DRC (NeiFaGaiJiaZi[2008]1121), tariff of newly commissioned desulfurization coal-fired units, who are the most advanced commercialized coal-fired power plants, is 0.2749 RMB/kWh. This tariff is much lower than 0.47 RMB/kWh that we adopted in FSR after 30,000 hours. Thus, it's conservative that we still adopt the same tariff as before in the PDD after operating hour reach 30,000 hours.</p> <p>b) IRR calculation spreadsheet will be submitted to DOE.</p> <p>c) Revised accordingly.</p>	<p>0.2749RMB/kWh. Thus it is considered to be conservative that the tariff after 30 000 hours in the PDD adopt 0.47RMB/kWh for the financial analysis. b) in the revised IRR spreadsheet, the additional data and formulae are added and verified. c) in the revised IRR spreadsheet, the additional data and data sources are added and verified.</p> <p>This CL is closed.</p>
<p>CL 4 Sensitivity analysis: a.) It is to be detailed in the PDD regarding booming of market need for wind turbines</p>	<p>B.3.1 B.3.2 B.3.3</p>	<p>a) According to FSR, page 14-4, CPI increased by 3.3% from 2004 to 2006 in China (data based on Statistical Bulletin published by</p>	<p>a) the additional descriptions by PP in the PDD is verified and demonstrated that the prices of wind turbine in the designing stage look like increasing</p>

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<p>and price change of wind turbines, based on data source referred.</p> <p>b.)Based on the contract the turbine procurement price is 1,157,090,000 RMB for 134 sets of turbines and centre controlling system/22/, the difference is 258,910,000 RMB between the contract and FSR where the relevant price is 1,416,000,000 RMB/6/.it is required to be clarified for this decrease</p> <p>c.)The clarification is to be provided regarding the tariff after 30,000 hours operation and the effect of IRR thereof.</p> <p>d.) the evidences for annual power generation being not increased and further description is to be made based on the references.</p> <p>e.) the evidences for O&amp;M variation analysis is to be provided and the current analysis for labour cost is influencing short time situation (about 3-5year) of labour price but not enough /30/and further description is to be made for the whole operation life time(about 23 years)</p> <p>f.) the analysis for changing of parameter or data which would lead IRR to benchmark is to be provided.</p> <p>g.) the sensitivity analysis spreadsheet is to be provided.</p>		<p>National Statistic Bureau).</p> <p>Investment budget for project owner of wind farms has increased by 5% compared to 2005 due to the increase of price of equipment and raw materials. Price of turbine increased by 8% while price of steel increased by 9% compared to year 2005.</p> <p>b) Price of 1,157,090,000 RMB from contract of the turbine just includes the price of wind turbine and some accessories while installation fee is excluded. Price of 1,416,000,000 RMB from the FSR includes the price of 134 sets of turbines, 134 sets of pylons, 134 sets of transformers. Also installation fee is included. Please refer to page 13-4 to 13-10 of FSR. Till November 2008, the contracts of pylons and part of the contracts of transformers have been signed. On the basis of the current contracts, the price of the 134 sets of pylons is 209,118,000 RMB. As for transformers, only 33 sets were bought until now and the average</p>	<p>trend as per FSR.</p> <p>b) by checking and verifying the contract of pylons and transformers provided by PP. the price of pylons and transformers is respectively 209,118,000 RMB for 134 sets of pylons and 263,000 RMB per transformer.</p> <p>The sum of equipment cost is get to be 1 401 450 670.00 RMB based on pylons and transformers and wind turbine generators and central controlling system contract.</p> <p>It is considered that the investment cost is little impact on the financial viability since the percentage of the difference between equipment cost assumed in FSR and actual cost of contracts is no more than 1%. Besides, considering the tariff of transformer is possible to increase since 3.0% and 3.1% industry product price up respectively for 2006 and 2007/50/and the 101 sets of transformer is not bought till the date of validation, it is considered that the actual investment cost may be more than assumption of investment cost from FSR.</p>

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		<p>price is 263,000 RMB. For price of industrial products are keeping on rising, the project owner said that the price of the left transformers might be higher than 263,000 RMB per unit, so we predict the total 134 sets of transformers based on the average price 263,000 RMB, the total price is 35,242,000 RMB, which is conservative. Adding all the price of turbine, pylon and transformer together with a conservative manner, total investment on the main equipments will be 1,401,450,670 RMB. The relative price difference with FSR is 14,549,330 RMB. As the total investment of the proposed project in the FSR is 1,842,200,000 RMB, the percentage of the difference is only 0.8%, which would not greatly impact the economical situation. Furthermore, as the project owner said, the price of the other equipments would be higher than the value in the FSR, hence the IRR of the project will not exceed the benchmark of 8%. All evidence has</p>	<p>c) According to the Approval by NDRC, the tariff for first 30,000 operating hours should be in line with approved tariff of concession projects and fixed/6/; when operating hour reach 30,000 hours, the tariff of the electricity generated afterwards shall be in line with average tariff of wind farm projects in local area at that time. the sensitivity analysis on the tariff after 30,000 hours is done. As explained as responses to CL3 the tariff after 30 000 hours is adopted to be 0.47 RMB/kWh for conservative. If the IRR of project is cross the benchmark of 8%, electricity tariff after 30,000 hours, i.e., 12 years later, shall rise to be 0.75 RMB/kWh i.e. the average tariff is to be increased by 60% from 0.47 to 0.75 after 12 years. According to the statistics result published by National Bureau of Statistics of China/49/, average tariff from 1980 to 1994 is increased from about index 100 to about 140 level and the tariff from 1994 to 1999 is decreased from about 140 to about 100 level, from 2000 to 2006 is basically not changed and same as about index 100</p>



Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		<p>been provided to DOE.</p> <p>c) PDD is updated. Please refer to part B.5 of PDD.</p> <p>d) According to chapter 2 of FSR, quality of wind source of the project has been expounded. Data was mainly based on the record of Chayouzhongqi Weather Station, the nearest weather station to project site from 1967 to 2006. Wind speed from 1967 to 2006 is 4.0m/s and speed from 1987 to 2006 is 3.4m/s. Wind speed has decreased to 3.3m/s from 1997 to 2006 which shows a decrease trend of wind quality during the recent 40 years. Thus the annual power generation is impossible to increase much during the whole operation life time.</p> <p>e) According to sensitivity analysis, IRR of the project can reach benchmark only when the O&amp;M cost decreased to 85%. Based the statistic data published by National Bureau of Statistics of China, price of industrial products in Inner Mongolia never drooped so much</p>	<p>level. Thus it is considered that it would be impossible for the tariff of the proposed project to be increased to 0.75RMB/kWh to lead IRR to cross the benchmark.</p> <p>d) based on the feasibility study report/6/, the electricity generation amount is analyzed and concluded based on the data of the Chayouzhongqi weather station which is at the nearest to the project site over 40 years' wind resources in the project site from 1967 to 2006. From 1967 to 2006, average wind speed is 4.0m/s, the one for the time from 1977 to 2006 is 3.6m/s, the one from 1987 to 2006 is 3.4m/s and the one from 1997 to 2006 is 3.3m/s that is the wind resources has been dropped continuously from 1967 to 2006. Thus the annual power generation is impossible to increase during the whole operation life time.</p> <p>e) The evidences for O&amp;M variation analysis is provided and verified that the price index of industrial products in Inner Mongolia/51/ is basically not decreased from 1996 to 2006 based on the statistics data published by National</p>

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		<p>since 1987. According to the statistic data published by National Bureau of Statistics of China, total income of Chinese residents has dramatically increased from <math>568.9 \times 10^8</math> to <math>23265.9 \times 10^8</math> from year 1978 to year 2006. Thus it's impossible for the O&amp;M cost to decrease 85% to reach benchmark IRR.</p> <p>f) Revised accordingly. Sensitivity analysis spreadsheet will be submitted to DOE.</p>	<p>Bureau of Statistics of China and the labour cost is increasing since 1978/52/. f) in the revised PDD, the analysis for the investment, operation cost and tariff and power generation fluctuation lead to benchmark are made, where the investment increased by 18%, tariff or power generation increased by 23% and operation cost decreased by 85% would lead to benchmark of IRR. g) the sensitivity analysis spreadsheet is received.</p> <p>This CL is closed.</p>
<p>CL 5</p> <p>a.) It is to be added in the PDD regarding why to select Inner Mongolia as the scope of common practice analysis.</p> <p>b.) It is to be clarified regarding the scope of the similar projects as the proposed project.</p>	<p>B.3.1 B.3.2 B.3.3</p>		<p>a) as a big country, the policies and regulations for the tariff of power plant in China are different for different provinces due to different investment average cost and wind resource situation for each province/44//45/ and the wind resources of the different provinces are different/47/, thus it is reasonable that Inner Mongolia is selected to be geographical area for the project.</p> <p>b) Since a significant reform in the electric power sector since 2002/48/, the investment climate was different after</p>

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
			<p>2002. Since the proposed project is constructed since April 2008/21/, the wind power projects commissioned after 2002 are chosen for common practice analysis.</p> <p>Since the proposed project activity is 201MW wind project/6//22/, which is a large project, the similar scale for common practice analysis is defined as the operational wind project with the capacity larger than 15MW which is standard capacity to separate the project scale by EB requirement.</p> <p>This CL is closed.</p>
<p>CL 6</p> <p>a.) all monitored data required for verification and issuance will not be required to be kept for two years after the end of the crediting period or the last issuance of CERs, whichever occurs later.</p> <p>b.) But the issues such as monitoring equipment and its location, how to measure and record the parameter and data, calibration standard applied and responsible person etc. need to be addressed in the B7.1 as per the guideline for completing the PDD v7.</p>	<p>B.8.2 B.10.3 B.10.5 B.10.7 B.10.8 B.13.2 C.1.2</p>	<p>a) Revised accordingly. b) Revised accordingly. c) Monitoring manual will be supplied. d) Monitoring manual will be supplied. e) Monitoring manual will be supplied. f) Revised accordingly.</p>	<p>a) All the electronic and paper documents shall be archived during the crediting period or the last issuance of CERs and two years after, described in the PDD. b) the location of electricity meter and calibration standard is not included in the B7.1 but described in the monitoring manuals /35/. c) d) and e) are included in the monitoring manual dated 10 September 2008 provided by PP /35/. f) the starting date is revised as</p>

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<p>c.) There are no procedures in place on how to deal with erroneous measurements.</p> <p>d.) But the procedure for the registration, monitoring, measurement and reporting will be expected to be described further.</p> <p>e.) But the procedure for maintenance of monitoring equipment and installations is expected to be supplemented.</p> <p>f.) The expected start date of the crediting period is 1 January 2009, which is not reasonable.</p>			<p>01/03/2009 or date of registration whichever is later.</p> <p>This CL is closed.</p>

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<p>CL 7</p> <p>a.) The starting date of the project is defined as 25 December 2007 when the equipment contract was signed and the stated lifetime of the project is 23 years. Both of them are to be clarified and evidence provided, and how to confirm the starting date of the project activity should be provided in the PDD.</p> <p>b.) Since the starting date of the project is not justified to be reasonable in the PDD, so the data applied for financial analysis is not confirmed to be available when the decision to proceed with the project is made till CL 7 is clarified.</p> <p>c.) since the starting date of the project is not confirmed reasonably, the FSR is not considered as the basis of decision to proceed with the project till CL 7 is clarified.</p>	<p>C.1.1 B.3.1 B.3.2 B.3.3</p>	<p>a) Equipment purchase agreement was signed on 25 December 2007 while construction started in April 2008. First phase financing was finished in August 2008.</p> <p>According to the clarification in EB41 report, starting date of project was defined as “the date on which the project participant has committed to expenditures related to the implementation or related to the construction of the project activity”. Date of Equipment purchase agreement is the earliest date of “expenditures related to the implementation”, thus starting date of the project is defined as 25 December 2007.</p> <p>b) Starting date is confirmed.</p> <p>c) Starting date is confirmed.</p>	<p>a) the starting date of the project activity is defined to be 25 December 2007 as the earliest date when the contract of the turbine purchasing agreement was signed according to EB 41 meeting requirements regarding the confirmation for starting date of the project activity. And the project operation lifetime is revised as 20 years in the PDD.</p> <p>b) DNV has compared the input parameters for the financial analysis included in the PDD with the parameters stated in the FSR /6/ and was able to confirm that the values applied are consistent with the value stated in the FSR/6/. Since the starting date of the proposed project is 25 December 2007/22/, the electricity tariff and other data for financial analysis (14 December 2007) /6/ was available at the time when decision to proceed with the project was made (25 December 2007)/22/.</p> <p>c) since the starting date of the project (25 December 2007) /22/ is no far than the date of FSR approval(14 December 2007)/6/, it is considered that the FSR is</p>

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
			<p>basis of decision to proceed with the project activity.</p> <p>This CL is closed.</p>
<p>CL 8</p> <p>a.) It should be clarified how, when and what media used to invite comments by local stakeholders.</p> <p>b.) the clarification is to be provided regarding the compensation problem.</p>	<p>E.1.2</p> <p>E.1.5</p>	<p>a) The project site located in remote area of Inner Mongolia. Put a poster on the wall of local government is the most popular and effective way to notify residents. Thus a poster was attached and any stakeholders who interested in this project can get questionnaire easily. Besides, broadcasting was made in the town near the wind farm.</p> <p>b) Evidence will be submitted to DOE.</p>	<p>a) The stakeholder consultation process was invited by the project owner in January 2007. Residents from local residents and local government which is nearby project site were invited through notice/38/. 30 questionnaires were distributed to participants/32/. All of these questionnaires were collected back. The investigated people are at different ages, with different education background, and in different careers. Thus they have sufficient representativeness.</p> <p>b) the compensation contract is delivered and verified/39/.</p> <p>This CL is closed.</p>

## **APPENDIX B**

---

### **CERTIFICATES OF COMPETENCE**



## CERTIFICATE OF COMPETENCE

***Jian Dong Ma***

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

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

Høvik, 9 January 2009

*Michael Lehmann*

Michael Lehmann  
Technical Director, Climate Change Services





# CERTIFICATE OF COMPETENCE

***zhi Ang (Walter) Tang***

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

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

Høvik, 9 January 2009

*Michael Lehmann*

Michael Lehmann  
Technical Director, Climate Change Services



## CERTIFICATE OF COMPETENCE

**Weidong Yang**

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

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

Høvik, 9 January 2009

*Michael Lehmann*

Michael Lehmann  
Technical Director, Climate Change Service