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# VALIDATION REPORT

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## GANSU GUAZHOU GANHEKOU No.8 WIND FARM PROJECT IN CHINA

REPORT No. 2010-9187

REVISION No. 01

DET NORSKE VERITAS



VALIDATION REPORT

Date of first issue: 2010-08-03		ConCert Project No.: PRJC-238968-2010-CCS-CHN	
Recommended for approval by: Hendrik W. Brinks	Approved by Hendrik W. Brinks	Organisational unit: DNV Climate Change and Environmental Services	
Client: United Carbon Credits Limited		Client ref.: Ta-wei Chang	

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Summary:  
**Project Name:** Gansu Guazhou Ganhekou No.8 Wind Farm Project  
**Country:** China  
**Methodology:** ACM0002 **Version:** 11  
**GHG reducing Measure/Technology:** Grid-connected electricity generation from wind power  
**ER estimate:** 411 927 tCO<sub>2</sub>e per year during the first renewable crediting period of 7 years  
**Size**  
☒ Large Scale ☐ Small Scale  
**Validation Phases:**  
☒ Desk Review  
☒ Follow up interviews  
☒ Resolution of outstanding issues  
**Validation Status**  
☐ Corrective Actions Requested ☐ Clarifications Requested  
☒ Full Approval and submission for registration ☐ Rejected

In summary, it is DNV’s opinion that the project activity “Gansu Guazhou Ganhekou No.8 Wind Farm Project” in China, as described in the PDD, version 2.0 of 5 August 2010, meets all relevant UNFCCC requirements for the CDM and all relevant host Party criteria and correctly applies the baseline and monitoring methodology ACM0002, version 11. Hence DNV requests the registration of the project as a CDM project activity.

Report No.: 2010-9187		Subject Group: Environment	
Report title: Gansu Guazhou Ganhekou No.8 Wind Farm Project in China			
Work carried out by: Yanju Xue; Jianrong Zhou; Zhiang Tang			
Work verified by: Andrea Leiroz			
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## ***Abbreviations***

BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction(s)
CL	Clarification request
CM	Combined Margin
CO <sub>2</sub>	Carbon dioxide
CO <sub>2</sub> e	Carbon dioxide equivalent
DNV	Det Norske Veritas
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
EIA	Environmental Impact Assessment
ER	Emission Reductions
ERPA	Emission Reduction Purchase Agreement
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
LoA	Letter of approval
NCV	Net Caloric Value
NDRC	National Development and Reform Commission
NWCPG	Northwest China Power Grid
NGO	Non-governmental Organisation
ODA	Official Development Assistance
OM	Operating Margin
PDD	Project Design Document
PLF	Plant Load Factor
RMB	Renminbi, Chinese Currency (Yuan)
tCO <sub>2</sub> e	Tonnes of CO <sub>2</sub> equivalents
UK	United Kingdom of Great Britain and Northern Ireland
UNFCCC	United Nations Framework Convention on Climate Change
VAT	Value-added tax



## 1 EXECUTIVE SUMMARY – VALIDATION OPINION

*Det Norske Veritas Certification AS (DNV) has performed a validation of the project activity “Gansu Guazhou Ganhekou No.8 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 United Kingdom of Great Britain and Northern Ireland. Both Parties fulfil the participation criteria and have approved the project and authorized the project participants. The DNA from China confirmed that the project assists in achieving sustainable development.*

*The project correctly applies the baseline and monitoring methodology ACM0002, version 11 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”.*

*Gansu Guazhou Ganhekou No.8 Wind Farm Project will partly displace electricity in the Northwest China Power Grid by generating renewable energy. As a result, the project results in reductions of CO<sub>2</sub> emissions that is real, measurable and gives long-term benefits to the mitigation of climate change. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. The monitoring methodology ACM0002, version 11 has been applied correctly.*

*The total emission reductions from the project are estimated to be on the average 411 927 tCO<sub>2</sub>e per year over the selected 7 years 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 plan provides for the monitoring of the project’s emission reductions.*

*In summary, it is DNV’s opinion that the project activity “Gansu Guazhou Ganhekou No.8 Wind Farm Project” in China, as described in the PDD, version 2.0 dated 5 August 2010, meets all relevant UNFCCC requirements for the CDM and all relevant host Party criteria and correctly applies the baseline and monitoring methodology ACM0002, version 11. Hence, DNV requests the registration of the project as a CDM project activity.*

Beijing and Oslo, 2010-11-08

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## 2 INTRODUCTION

United Carbon Credits Limited has commissioned Det Norske Veritas Certification AS (DNV) to perform a validation of the Gansu Guazhou Ganhekou No.8 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 /22/. The validation was based on the recommendations in the Validation and Verification Manual /21/.

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



### 3 METHODOLOGY

The validation consisted of the following three phases:

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

The following sections outline each step in more detail.

#### 3.1 Desk review of the project design documentation

The following tables list the documentation that was reviewed during the validation.

##### 3.1.1 Documentation provided by the project participants

- /1/ United Carbon Credits Limited: *CDM-PDD for project activity "Gansu Guazhou Ganhekou No.8 Wind Farm Project" in China*, version 1.0 dated 10 March 2010 and version 2.0 dated 5 August 2010.
- /2/ Northwest Hydro Consulting Engineers, CHECC: *Feasibility Study Report (FSR) of Gansu Guazhou Ganhekou No.8 Wind Farm Project*, dated December 2008.  
National Development and Reform Commission: *FSR approval letter of Gansu Guazhou Ganhekou No.8 Wind Farm Project*, Fagainengyuan [2009] No.1005, dated 21 April 2009.
- /3/ Northwest Research Institute of Mining and Metallurgy: *Environmental Impact Assessment (EIA) of Gansu Guazhou Ganhekou No.8 Wind Farm Project*, dated 11 May 2008.  
Gansu Environment Protection Bureau: *EIA approval letter of Gansu Guazhou Ganhekou No.8 Wind Farm Project*, dated 6 August 2008.
- /4/ Gansu Guazhou Xiehe Wind Power Co., Ltd. and Xi'an XD Transformer Co., Ltd.: *Main transformer purchase agreement*, 13 December 2009.
- /5/ CIECC Engineering Construction Project Management Corporation: *Construction permission of Gansu Guazhou Ganhekou No.8 Wind Farm Project* dated 11 April 2010.
- /6/ Gansu Guazhou Xiehe Wind Power Co., Ltd. and Sinovel Wind Group Co., Ltd: *Wind turbines and towers purchase contract* dated 31 May 2010.
- /7/ United Carbon Credits Limited: *IRR calculation spreadsheet of Gansu Guazhou Ganhekou No.8 Wind Farm Project* dated 11 June 2010, revised on 21 September 2010 and finalized on 20 October 2010.
- /8/ United Carbon Credits Limited: *ER calculation spreadsheet of Gansu Guazhou Ganhekou No.8 Wind Farm Project* dated 11 June 2010.
- /9/ Gansu Guazhou Xiehe Wind Power Co., Ltd.: *CDM prior consideration notification to the Chinese DNA, National Development and Reform Commission*, dated 24 December 2009.  
It was confirmed by the Chinese DNA on 11 January 2010.
- /10/ Gansu Guazhou Xiehe Wind Power Co., Ltd.: *CDM prior consideration notification to*





UNFCCC dated 22 December 2009.

It was confirmed by the UNFCCC on 22 December 2009:

<http://cdm.unfccc.int/Projects/PriorCDM/notifications/index.html>.

- /11/ Gansu Guazhou Xiehe Wind Power Co., Ltd.: *Minutes of board meeting which indicates that the project owner decided to develop the proposed project with the CDM assistance*, dated 20 February 2009.
- /12/ Gansu Guazhou Xiehe Wind Power Co., Ltd.: *59 copies of consultation questionnaires for the stakeholder comments*, dated December 2009.
- /13/ Gansu Guazhou Xiehe Wind Power Co., Ltd. and United Carbon Credits Limited: *CDM emission reduction purchase agreement* dated 8 June 2009.
- /14/ Gansu Guazhou Xiehe Wind Power Co., Ltd. and International Finance Corporation: *Loan agreement for the project activity "Gansu Guazhou Ganhekou No.8 Wind Farm Project"* dated 30 June 2010.
- /15/ State Grid Corporation of China: *Northwest China Power Grid connection approval letter of Gansu Guazhou Ganhekou No.8 Wind Farm Project* dated 5 February 2009.
- /16/ Gansu Guazhou Xiehe Wind Power Co., Ltd. and Jilin Xiehe Power Engineering Construction Corporation: *Construction contract of civil engineering and installation of mechanical and electrical equipment* dated 10 April 2010.
- /17/ Lanzhou Morning Post: *Public opinions or suggestions invitation of Gansu Guazhou Ganhekou No.8 Wind Farm Project* dated 23 December 2009.
- /18/ Gansu Guazhou Xiehe Wind Power Co., Ltd.: *The coordinates for each wind turbine of Gansu Guazhou Ganhekou No.8 Wind Farm Project*, dated 28 July 2010.

### 3.1.2 Letters of approval

- /19/ National Development and Reform Commission (DNA of China): *Letter of approval for the project activity "Gansu Guazhou Ganhekou No.8 Wind Farm Project"*, dated 13 July 2010.

It is confirmed by: <http://cdm.ccchina.gov.cn/web/NewsInfo.asp?NewsId=4620>.

- /20/ Department of Energy & Climate Change (DNA of United Kingdom of Great Britain and Northern Ireland): *Letter of approval for the project activity "Gansu Guazhou Ganhekou No.8 Wind Farm Project"*, dated 17 August 2010.

It is confirmed by the email involving the delivery of LoA from the DNA of United Kingdom of Great Britain and Northern Ireland.

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

- /21/ CDM Executive Board: *Clean Development Mechanism Validation and Verification Manual*, version 1.2, EB 55 Annex 1, dated 30 July 2010.  
[https://cdm.unfccc.int/Reference/Manuals/accr\\_man01.pdf](https://cdm.unfccc.int/Reference/Manuals/accr_man01.pdf).
- /22/ CDM Executive Board: *Approved methodology ACM0002, Consolidated baseline methodology for grid-connected electricity generation from renewable sources*, version 11.
- /23/ CDM Executive Board: *Tool to calculate the emission factor for an electricity system*, version 2.
- /24/ CDM Executive Board: *Tool for the demonstration and assessment of additionality*,





version 5.2.

- /25/ CDM Executive Board: *Guidance for request for deviation titled "Application of AM0005 and AMS-I.D in China"*, <http://cdm.unfccc.int/Projects/deviations/87512>.
- /26/ CDM Executive Board: *Guidelines for the reporting and validation of plant load factors*, version 1, EB 48 Annex 11.
- /27/ CDM Executive Board: *Guidelines on the assessment of investment analysis*, version 3.1, EB 51 Annex 58. [http://cdm.unfccc.int/Reference/Guidclarif/reg/reg\\_guid03.pdf](http://cdm.unfccc.int/Reference/Guidclarif/reg/reg_guid03.pdf)
- /28/ CDM Executive Board: *Information note on the highest tariff applied by the EB in its decision on registration of projects in the People's Republic of China*, issued in EB54, Para 53. [http://cdm.unfccc.int/Reference/Notes/reg\\_note07.pdf](http://cdm.unfccc.int/Reference/Notes/reg_note07.pdf).

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

- /29/ National Development and Reform Commission: *Guidance for the determination of grid boundaries and emission factors* dated 2 July 2009.  
[http://qhs.ndrc.gov.cn/qjzjz/t20090703\\_289357.htm](http://qhs.ndrc.gov.cn/qjzjz/t20090703_289357.htm).
- /30/ General Office of the State Council: *Notice of the General Office of the State Council concerning the Strict Prohibition for Construction of Thermal Power Plants with the Capacity of less than 135 MW* dated 15 April 2002.  
[http://www.gov.cn/gongbao/content/2002/content\\_61480.htm](http://www.gov.cn/gongbao/content/2002/content_61480.htm).
- /31/ Earth Resources Museum website: *Water resources in China*, which indicates that Guazhou County, Jiuquan City, Gansu Province where the proposed project located in is lack of water. [http://amuseum.cdstm.cn/AMuseum/diqiuziyuan/wr0\\_4.html](http://amuseum.cdstm.cn/AMuseum/diqiuziyuan/wr0_4.html)
- /32/ China Electric Power News Net: *Solar PV project suffers from high cost and difficult to develop in China* dated 6 January 2009.  
[http://www.wefweb.com/news/200916/1413073809\\_0.shtml](http://www.wefweb.com/news/200916/1413073809_0.shtml)
- /33/ China new energy and sustainable development information website: Due to technology barriers and high temperature geothermal resources distribution, geothermal resources utilization for power generation is limited in south Tibet, west Sichuan and south Yunnan in China, dated 31 January 2008.  
<http://www.crein.org.cn/view/viewnews.aspx?id=20080131103909265>
- /34/ State Power Corporation of China: *Interim Rules on Economic Assessment of Electric Engineering Retrofit Projects (trial)* dated March 2003.
- /35/ State Electricity Regulatory Commission: *China Electricity Price Executive Report 2008* issued in October 2009.
- /36/ Shi Pengfei: *China Wind Farms Capacity Statistics in 2007*, dated 28 February 2008.  
<http://www.cwea.org.cn/upload/20080324.pdf>.
- /37/ Tencent website: The prices of the requirement equipment, materials and commodities have been increasing in recent years, dated 17 November 2008.  
<http://finance.qq.com/a/20081117/003288.htm>
- /38/ Li Junfeng: *China Wind Power Report 2008*, pressed in October 2008.  
<http://www.wwfchina.org/wwfpress/publication/climate/2008Chinawindpower.pdf>
- /39/ National Bureau of Statistics of China website: *Consumer Price Indices and Retail*



- Price Indices by Region* (data from China Statistical Yearbook 2008):  
<http://www.stats.gov.cn/tjsj/ndsj/2008/indexeh.htm>.
- /40/ IPCC: *2006 IPCC Guidelines for National Greenhouse Gas Inventories Reference Manual*, 2006.
- /41/ The Compiling Committee of China Electric Power Yearbook: *China Electric Power Yearbook 2004~2008*, pressed by China Electric Power Press.
- /42/ Department of Energy Statistics, National Bureau of Statistics and Department of General Affairs, National Energy Administration of China: *China Energy Statistical Yearbook 2006~2008*, pressed by China Statistics Press.
- /43/ Standing Committee of the seventh National People's Congress: *Environmental Protection Law of the People's Republic of China*, voted through and valid since 26 December 1989. [http://www.law-lib.com/law/law\\_view.asp?id=6229](http://www.law-lib.com/law/law_view.asp?id=6229)
- /44/ Standing Committee of the ninth National People's Congress: *Law of the People's Republic of China on Evaluation of Environmental Effects*, voted through 28 October 2002 and valid from 1 September 2003.  
[http://news.xinhuanet.com/zhengfu/2002-10/29/content\\_611415.htm](http://news.xinhuanet.com/zhengfu/2002-10/29/content_611415.htm)
- /45/ State Economic and Trade Commission: *National industry standard of the Technical Administrative Code of Electric Energy Metering (DL/T448-2000)*, issued on 3 November 2000 and valid since 1 January 2001.
- /46/ National Development and Reform Commission:  
1. *Notice on the on-grid tariff management policy for wind power generation from NDRC of China*, Fagaijiage [2009] No.1906, issued on 20 July 2009 and valid since 1 August 2009:  
[http://www.sdpc.gov.cn/zcfb/zcfbtz/2009tz/t20090727\\_292827.htm](http://www.sdpc.gov.cn/zcfb/zcfbtz/2009tz/t20090727_292827.htm)  
2. *Notification of electricity tariff for wind power projects*, Fagaijiage [2008] No.1876 dated 23 July 2008.  
[http://jgs.ndrc.gov.cn/zcfg/t20080813\\_230722.htm](http://jgs.ndrc.gov.cn/zcfg/t20080813_230722.htm)  
3. *Notification of electricity tariff for wind power projects*, Fagaijiage [2007] No.3303 dated 3 December 2007.  
[http://jgs.ndrc.gov.cn/zcfg/t20080218\\_193011.htm](http://jgs.ndrc.gov.cn/zcfg/t20080218_193011.htm)  
4. *Notification of electricity tariff for wind power projects*, Fagaijiage [2007] No.1260 dated 9 June 2007.  
[http://www.hebwj.gov.cn/upfiles/xy\\_col32gjc\\_20070718164220007126.htm](http://www.hebwj.gov.cn/upfiles/xy_col32gjc_20070718164220007126.htm)  
5. *Notice on tariff management of wind power projects*, Fagaijiage [2006] No. 2908 dated 22 December 2006.
- /47/ Gansu Province Price Bureau: *Notice on the on-grid tariff for wind projects in Gansu Province*, Ganjiadianli [2009] No. 197, dated 26 August 2009.
- /48/ State Council: *Approval and implementation of Power industry system reform in China* dated 11 April 2002. [http://www.ndrc.gov.cn/xwfb/t20050708\\_28096.htm](http://www.ndrc.gov.cn/xwfb/t20050708_28096.htm).
- /49/ National Development and Reform Commission: *Management Regulations for Electricity Generation from Renewable Energy*, Fagainengyuan [2006] No.13 dated 5 January 2006. [http://www.sdpc.gov.cn/nyjt/nyzywx/t20060206\\_58766.htm](http://www.sdpc.gov.cn/nyjt/nyzywx/t20060206_58766.htm)
- /50/ National Development and Reform Commission: *"Explanation regarding the issue for discount of theoretical annual generation of wind power in China"*, dated 2 June 2009.



- <http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File2278.pdf>
- /51/ State Council: *Decision on the revision of the “Provisional Regulations of Levying Education Surtax” from the Stated Council*, issued on 20 August 2005 and valid since 1 October 2010.  
[http://www.law-lib.com/law/law\\_view1.asp?id=99771](http://www.law-lib.com/law/law_view1.asp?id=99771)
- /52/ State Council: *Implementation Rules for Law of the People's Republic of China on Enterprise Income Tax*, Promulgated by Decree No. 512 of the State Council of the People's Republic of China dated 6 December 2007 and valid since 1 January 2008.  
[http://www.gov.cn/zwggk/2007-12/11/content\\_830645.htm](http://www.gov.cn/zwggk/2007-12/11/content_830645.htm)
- /53/ State Council: *Provisional Regulations of the People's Republic of China on Value Added Tax*, issued 13 December 1993, revised on 10 November 2008 and valid since 1 January 2009: [http://www.gov.cn/flfg/2008-11/14/content\\_1149549.htm](http://www.gov.cn/flfg/2008-11/14/content_1149549.htm).
- /54/ State Council: *Provisional Regulations of the People's Republic of China on Value Added Tax*, State Council [1993] No.134, issued on 13 December 1993 and valid since 1 January 1994.
- /55/ Ministry of Finance & State Administration of Taxation: *Notice of policies regarding the value added tax on partialness comprehensive utilization of resources and other products*, [repealed], issued on 1 December 2001 and effective on 1 January 2001.  
<http://www.dxtax.com/tax/cs01-198.htm>
- /56/ Ministry of Finance & State Administration of Taxation: *Notice of policies regarding the value added tax on comprehensive utilization of resources and other products*, Caishui [2008] No.156, issued on 9 December 2008 and valid since 1 January 2009.  
[http://www.gov.cn/ztlz/kdnx/content\\_1176455.htm](http://www.gov.cn/ztlz/kdnx/content_1176455.htm)
- /57/ State Council: *Provisional Regulations on Urban Maintenance and Construction Tax*, valid since 1985. <http://www.chinatax.gov.cn/n480462/n480513/n480919/index.html>
- /58/ The tenth National People's Congress: *Law of the People's Republic of China on Enterprise Income Tax*, [2007] No.63, voted through 16 March 2007 and valid since 1 January 2008. [http://www.gov.cn/flfg/2007-03/19/content\\_554243.htm](http://www.gov.cn/flfg/2007-03/19/content_554243.htm)
- /59/ Standing Committee of the tenth National People's Congress: *Law of the People's Republic of China on Renewable Energy*, voted through 28 February 2005, valid since 1 January 2006. [http://www.gov.cn/ziliao/flfg/2005-06/21/content\\_8275.htm](http://www.gov.cn/ziliao/flfg/2005-06/21/content_8275.htm).
- /60/ Gold Standard website: *Gansu Anxi Wind Farm Project is under the assistance of carbon finance (GS-VER)*.  
<https://gs1.apx.com/mymodule/ProjectDoc/EditProjectDoc.asp?id1=554>
- /61/ UNFCCC website link for detailed input parameters information of registered wind farm projects in Gansu Province.
1. Ref. 1081: <http://cdm.unfccc.int/Projects/DB/DNV-CUK1176356451.51/view>;
  2. Ref. 2109: <http://cdm.unfccc.int/Projects/DB/DNV-CUK1218548297.8/view>;
  3. Ref. 2193: <http://cdm.unfccc.int/Projects/DB/TUEV-SUED1218655051.51/view>;
  4. Ref. 2680: <http://cdm.unfccc.int/Projects/DB/DNV-CUK1244612185.44/view>;
  5. Ref. 2766: <http://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1247703700.0/view>;
  6. Ref. 2883: <http://cdm.unfccc.int/Projects/DB/TUEV-SUED1249417862.09/view>;
  7. Ref. 2916: <http://cdm.unfccc.int/Projects/DB/BVQI1250066972.19/view>;
  8. Ref. 3241: <http://cdm.unfccc.int/Projects/DB/DNV-CUK1261995235.23/view>.



/62/ National Development and Reform Commission and Ministry of Construction:  
*Economic Evaluation Code and Parameters for Construction Project*, Version 03, 2006

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

1. The project IRR without the CER revenues was changed from 4.97% to 5.86% (as shown in the PDD of version 2.0 dated 5 August 2010), because of the VAT deduction policy was taken into consideration according to the revised “*Provisional Regulations of the People's Republic of China on Value Added Tax*” /53/;
  2. The sensitive analysis has been revised in accordance with the responses provided to CL 4 and CL 5 in the table 3 of Appendix A;
  3. The common practice analysis has been revised in accordance with the responses provided to CL 6 in the table 3 of Appendix A;
  4. The monitoring plan has been revised in accordance with the responses provided to CL 7 CL 8 and CL 9 in the table 3 of Appendix A;
  5. The stakeholders’ comments has been revised in accordance with the responses provided to CL 10 in the table 3 of Appendix A;
  6. Changes in accordance with the responses provided to the CARs and CLs in the table 3 of Appendix A.
  7. The starting date of the first crediting period has been changed to be 10 March 2011.
- After reviewing the revised PDD, version 2.0 dated 5 August 2010, DNV issued this final validation report and opinion.

### 3.2 Follow-up interviews with project stakeholders

The project is a newly built wind farm project; through relevant background documents /1-/ /16/ DNV can confirm the project design, monitoring plan and baseline scenario information.

During the desk review, the relevant documents including the PDD /1/, FSR and FSR approval /2/, EIA and EIA approval /3/, IRR calculation spreadsheet /7/, ER calculation spreadsheet /8/, main transformer purchase agreement /4/, wind turbines purchase contract /6/, construction permission /5/, minutes of boarding meeting /11/, stakeholder questionnaires /12/, ERPA /13/, loan agreement /14/, grid connection approval /15/, construction contract /16/, CDM prior consideration notification forms /9/ /10/ were provided and assessed. Based on the documents provided, DNV could check the project design, construction, monitoring plan and all baseline scenario information. In addition, according to EIA /3/ no migration was involved in this project. The construction starting date of the proposed project is 11 April 2010 /5/, which is 2 months before the start date of validation (22 June 2010); hence no further issues could be assessed through on site visit in July 2010. Thus, DNV can justify that a physical site visit for this project was not necessary during the validation process according to the paragraph 62 of VVM and a follow-up interview was held at DNV Beijing office.

The representatives of the project owner, Gansu Guazhou Xiehe Wind Power Co., Ltd. and the project consultant United Carbon Credits Limited were interviewed in DNV Beijing office on 26 July 2010 by Ms. Xue Yanju and Mr. Zhou Jianrong, to resolve the issues identified during the desk review.



Table below provides the information regarding the issues discussed during the follow-up interview:

	Date	Name	Organization	Topic
/63/	2010-07-26	Ms. Zhu Qingrong  Mr. Sun Rui	United Carbon Credits Limited (CER buyer and CDM consultant)	<ul style="list-style-type: none"><li>➤ Baseline determination of the project</li><li>➤ Applicability of selected methodology ACM0002</li><li>➤ Issues related to the additionality</li><li>➤ Common practice analysis</li><li>➤ Emission reductions calculation</li><li>➤ Emission reduction monitoring plan and project management</li></ul>
/64/	2010-07-26	Mr. Du Shuyao  Mr. Shi Zizhi	Gansu Guazhou Xiehe Wind Power Co., Ltd. (project owner)	<ul style="list-style-type: none"><li>➤ Information of project construction</li><li>➤ The development of wind power project in Gansu Province</li><li>➤ The approval status (incl. EIA approval, the feasibility study report approval, CDM project approval)</li><li>➤ Project management</li><li>➤ Emission reduction monitoring plan</li><li>➤ Consulting process for stakeholder's comments</li><li>➤ Investment risks and barriers</li></ul>

3.3 Resolution of outstanding issues

The objective of this phase of the validation was to resolve any outstanding issues which needed be clarified prior to DNV’s positive conclusion on the project design. In order to ensure transparency a validation protocol was customised for the project. The protocol shows in a transparent manner the criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

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

The validation protocol consists of four tables. The different columns in these tables are described in the figure below. The completed validation protocol for the project activity “Gansu Guazhou Ganhekou No.8 Wind Farm Project” in China is enclosed in Appendix A to this report.





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

- (a) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
- (b) The CDM requirements have not been met;
- (c) There is a risk that emission reductions cannot be monitored or calculated.

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

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



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

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

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

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

Figure 1: Validation protocol tables





3.4 Internal quality control

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

3.5 Validation team

Role	Last Name	First Name	Country	Type of involvement						
				Administrative	Desk review	Site visit / Interviews	Reporting	Supervision of work	Technical review	Sectoral competence
Project manager	Xue	Yanju	China	✓						
Technical team leader (CDM validator)	Xue	Yanju	China		✓	✓	✓	✓		✓
GHG auditor	Zhou	Jianrong	China		✓	✓	✓			
Person with sectoral competence	Tang	Zhiang	China		✓		✓			✓
Technical reviewer	Leiroz	Andrea	Brazil						✓	✓

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



## 4 VALIDATION FINDINGS

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

The final validation findings relate to the project design as documented and described in the revised and resubmitted project design documentation version 2.0 dated 5 August 2010 /1/.

### 4.1 Participation requirements

The project participants are Gansu Guazhou Xiehe Wind Power Co., Ltd. of China and United Carbon Credits Limited of United Kingdom of Great Britain and Northern Ireland. The host Party (China) and the Annex I Party (United Kingdom of Great Britain and Northern Ireland) meet all relevant participation requirements /19/ /20/.

A letter of approval (LoA) was issued by DNA of China on 13 July 2010, authorizing Gansu Guazhou Xiehe Wind Power Co., Ltd. as project participant and confirming that the project assists in achieving sustainable development /19/.

A letter of approval (LoA) was issued by DNA of United Kingdom of Great Britain and Northern Ireland on 17 August 2010, authorizing United Carbon Credits Limited as project participant /20/.

DNV has received the LoAs from the project participants issued by the DNAs of China and United Kingdom of Great Britain and Northern Ireland on 13 July 2010 /19/ and 17 August 2010 /20/, respectively. During the course of the validation, by checking the website link from Chinese DNA /19/ and the e-mail involving the LoA delivery from the DNA of United Kingdom of Great Britain and Northern Ireland /20/, DNV confirmed the authenticity of the LoAs provided by the project participants and considers that the LoAs comply with the paragraphs 45-48 of the CDM Validation and Verification Manual /21/.

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

### 4.2 Project design

The project involves installation and operation of 134 wind turbines with total installed capacity of 201 MW in Guazhou County, Jiuquan City, Gansu Province of China. The center geographical coordinates of the project are east longitude 95°18'45" and north latitude 40°38'23" /2/. The coordinates for each wind turbine /18/ have been provided and verified by the validation team.

The installed capacity of each turbine is 1.5 MW. The wind turbines are supplied by Sinovel Wind Group Co., Ltd /6/ who is one of the most advanced wind turbines suppliers and the technology adopted by the proposed project reflects current good practices in China /38/. There is no technology transferred from other countries involved in this project activity.

The expected lifetime of the project activity is 20 years of operation (one third of the 134 turbines will be put into operation during the third year) /2/, which is reasonable for wind projects in China. The plant load factor is 25.17% and the expected net power supplied to the grid is 443 278 MWh per year based on the feasibility study report (FSR) /2/, which was



prepared by Northwest Hydro Consulting Engineers, CHECC in December 2008 and approved by National Development and Reform Commission on 21 April 2009 /2/. DNV was able to verify that the annual electricity generation and the full load annual operation hours were derived from the FSR, which took into consideration fluctuation of wind speed /50/.

The project's electricity generation will be delivered to Northwest China Power Grid, under grid connection approval issued by State Grid Corporation of China dated 5 February 2009 /15/, which is dominated by coal-fired power plants. Thus, the project's system boundaries are clearly defined as the site of the project activity and all power plants connected physically to the Northwest China Power Grid, which is in line with the delineation of the grid boundaries regulated by DNA of China /29/.

The date of signing main transformer purchase agreement is 13 December 2009 /4/ which is defined as the project's starting date due to it is the earliest financial commitment for the project.

A renewable crediting period of 7 years has been chosen for the project, starting from 10 March 2011 or the registration date of this project, whichever is later. The chosen crediting starting date is deemed to be reasonable. The emission reduction are estimated to be 411 927 tCO<sub>2</sub>e per year and 2 883 489 tCO<sub>2</sub>e over the seven-year renewable crediting period.

DNV considers the project description of the project contained in the PDD to be complete and accurate. The PDD complies with the relevant forms and guidance for completing the PDD.

### 4.3 Application of selected baseline and monitoring methodology

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

The applicability of this methodology is justified as it has been demonstrated that:

1. The proposed project is a wind farm project with installation capacity of 201 MW, which has been confirmed from the FSR /2/ and the turbine procurement contract /6/.
2. The project is connected to the NWCPG /15/ of which the geographical and system boundaries are clearly identified and information on the characteristics of this grid is available.
3. The project does not involve switching from fossil fuel to renewable energy at the site of the project activity. DNV was able to confirm through the FSR /2/.

DNV has verified the relevant documents, and confirm the applied methodology ACM0002 version 11 is reasonable or applicable.

### 4.4 Project boundary

The spatial extent of the project boundary is defined as the site of the project and all power plants connected physically to the NWCPG, including Shanxi, Gansu, Qinghai, Ningxia and Xinjiang power grid /29/. This is in line with the grid connection approval of Gansu Guazhou Ganhekou No.8 Wind Farm Project which was approved by State Grid Corporation of China on 5 February 2009 /15/. There are no significant transmission constraints amongst the power plants of the NWCPG, nor with the proposed project. It is DNV's opinion that the project boundary of Gansu Guazhou Ganhekou No.8 Wind Farm Project is clearly defined.



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>Main emission source in NWCPG.</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 and no backup power existed at the project site.</i>
<i>Leakage</i>	<i>N/A</i>	<i>There are no leakages that need to be considered in applying this methodology /22/.</i>

The identified boundary and selected sources and gases are justified for the project activity. The validation of the project activity did not reveal other greenhouse gas emissions occurring within the proposed CDM project activity boundary as a result of the implementation of the proposed project activity which are expected to contribute more than 1% of the overall expected average annual emission reduction, which are not addressed by ACM0002 (version 11).

4.5 Baseline determination

Since the project has demonstrated additionality, cf. Section 4.6, the baseline is in accordance with ACM0002 version 11 that the electricity delivered to the grid by the project activity would otherwise have been generated by the operation of grid-connected power plants in NWCPG and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system”.

According to ACM0002 version 11 /22/, baseline emissions are equal to power generated by the project delivered to the NWCPG, multiplied by the baseline emission factor. The grid emission factor has been determined *ex-ante* based on the most recent information available at the time of the PDD was web-hosted and will be fixed for the entire first crediting period /23/. This is reflected in the combined margin (CM) - the weighted average of the operating margin (OM) emission factor and the build margin (BM) emission factor. The weighting is set to be 75% and 25% respectively, which are the default values stipulated for wind farm projects by “Tool to calculate the emission factor for an electricity system” /23/.

DNV considers the selected baseline to be applicable and in line with the methodology ACM0002 version 11 /22/. The application of the baseline methodology is transparent and conservative.

4.6 Additionality

The additionality of the project has been established using the “Tool for the demonstration and assessment of additionality” version 5.2, approved by the CDM Executive Board /24/.



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

The project activity starting date is the date of the main transformer purchase agreement signed between Xi'an XD Transformer Co., Ltd. and Gansu Guazhou Xiehe Wind Power Co., Ltd. on 13 December 2009 /4/. DNV has reviewed the following evidence to validate the starting date of the project activity:

- The main transformer purchase agreement between Xi'an XD Transformer Co., Ltd. and Gansu Guazhou Xiehe Wind Power Co., Ltd. was signed on 13 December 2009 /4/.
- The construction contract of civil engineering and installation of mechanical and electrical equipment was signed on 10 April 2010 /16/.
- Construction permission of Gansu Guazhou Ganhekou No.8 Wind Farm Project was issued on 11 April 2010 /5/.
- Wind turbines purchase agreement between Sinovent Wind Group Co., Ltd and Gansu Guazhou Xiehe Wind Power Co., Ltd., dated 31 May 2010 /6/.

DNV was able to confirm that the main transformer purchase agreement (13 December 2009) /4/ is the earliest commitment to expenditures related to the implementation or related to the construction of the project activity.

The commencement notification letter for Gansu Guazhou Ganhekou No.8 Wind Farm Project was sent by Gansu Guazhou Xiehe Wind Power Co., Ltd. to the Chinese DNA on 24 December 2009 /9/. It has been confirmed by NDRC dated 11 January 2010 /9/. Then Gansu Guazhou Xiehe Wind Power Co., Ltd. sent the prior consideration of the CDM Form to UNFCCC on 22 December 2009 /10/, which is within 6 months of the project starting date i.e. 13 December 2009 /4/. It has been confirmed by UNFCCC secretariat on its website dated 22 December 2009 /10/. CDM was therefore seriously considered in the decision to proceed with the project activity.

In addition, the FSR of Gansu Guazhou Ganhekou No.8 Wind Farm Project was finished in December 2008 /2/. It had been clearly indicated in the FSR that the project IRR below the benchmark of 8% and the CDM revenue should be considered /2/. Then the project owner, Gansu Guazhou Xiehe Wind Power Co., Ltd. held a board meeting deciding to develop the proposed project with the CDM assistance on 20 February 2009 /11/. The FSR was approved by National Development and Reform Commission on 21 April 2009 /2/. Gansu Guazhou Xiehe Wind Power Co., Ltd. and United Carbon Credits Limited issued CDM emission reduction purchase agreement on 8 June 2009 /13/.

Gansu Guazhou Ganhekou No.8 Wind Farm Project is a new built wind project /2/ and the starting date of the project activity (13 December 2009) is after 2 August 2008. The project participants started the global stakeholder consultation (22 June 2010) six months after the starting date of the project activity (13 December 2009). To the consideration of DNV, this shows sufficient actions to secure CDM status in parallel with the physical implementation of the project.

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

#### 4.6.2 Identification of alternatives to the project activity

The alternative baseline scenarios for the project activity have been suitably identified as:



1) The proposed project itself, but not undertaken as a CDM project activity, i.e. the construction of a new wind power plant with an installed capacity of 201 MW connected to the local grid.

2) Construction of a fossil fuel-fired power plant with equivalent annual power output.

3) Construction of a power plant using other renewable energy, such as hydro, biomass and solar PV with equivalent annual electricity generation.

4) Equivalent electricity service provided by the NWCPG.

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

Alternative 2): In 2007, the average operation time of thermal power plant in Gansu Province is 6 231 hours /41/, and the effective operation time of proposed project is 2 205 hours and an average annual generation of 443 278 MWh /2/. To provide the same output as the proposed project, the alternative thermal power plant will have the capacity of 71.14 MW. Thus, alternative 2 is not consistent with the regulation “Notice of the General Office of the State Council concerning the Strict Prohibition for Construction of Thermal Power Plants with the Capacity of less than 135 MW within the Grid Connected Area” /30/. It also has been observed by DNV that the non-compliance of the mandatory laws and regulations related to the implementation of fossil fuel power plants is not a common practice in China. Hence, the alternative 2 can be eliminated.

Alternative 3): The project region belongs to water resource shortage area in Guazhou County, Jiuquan City, Gansu Province, and no economically exploitable water resources which can provide same electricity generation output exist in project site /31/. There are not enough biomass resources in the extreme drought desert area where the proposed project is located in /2/. Furthermore, solar PV project suffers from high cost, barriers and difficult to develop /32/. Due to geothermal resources and technology barriers /33/, it is impossible for geothermal utilization projects to achieve equivalent output in Jiuquan City, Gansu Province where the proposed project is located in. Therefore, other sources of renewable energy are not feasible and have been excluded.

Based on above discussion, alternative 2) and 3) are not realistic and credible alternatives and can be exempted from further consideration. It has been adequately demonstrated that alternative 1) and 4) are the alternatives consistent with current laws and regulations as potential alternatives and thus will be discussed at the next steps.

#### 4.6.3 Investment analysis

##### Choice of approach

As the proposed project generates financial and economic benefits other than CDM related income through the sales of electricity justified for conducting the investment analysis.

##### Benchmark selection

According to the *Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects* /34/, in China a project-IRR of 8% (after tax) is regarded as a benchmark for investing in large scale wind farm projects. The benchmark of 8% (after tax) is therefore appropriate for this project. DNV was able to confirm this is suitable and reasonable as following:

1. This benchmark was determined by the national administration of this industry in China /34/;





- 2. This benchmark is for project-IRR and after tax and the investment analysis for this project will be for project and after tax also;
- 3. This Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects is referred to the risk premiums of large scale wind farm power project /34/.

**Input parameters**

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

The VAT used in the financial analysis adopted the the new VAT regulations /56/ for conservative and other input parameters used in the financial analysis of this project activity are all taken from the FSR developed by Northwest Hydro Consulting Engineers, CHECC in December 2008 /2/ and approved by National Development and Reform Commission on 21 April 2009 /2/, which can thus be considered as information provided by an independent and recognized source.

DNV compared the input parameters (excluding VAT) used in the financial analysis included in the PDD /1/ with the parameters stated in the FSR /2/ and was able to confirm that the values applied are consistent with the values stated in the FSR /2/.

The FSR was approved on 21 April 2009 by National Development and Reform Commission /2/, thus only 8 months prior to the project starting date which was on 13 December 2009 /4/. Given this short period of time between approval of the FSR and the decision to proceed with the project activity, it is unlikely in the context of the project that the input values would have materially changed. It is thus reasonable to assume that the FSR has been the basis of the decision to proceed with the investment in the project.

Furthermore, the input parameters used in the financial analysis were compared with the data reported for other similar registered CDM projects developed in Gansu province (as presented in Table 2 below), by comparing the investment costs per kW, percentage of O&M costs relative to total investment costs, other costs, depreciation and residual rate, as shown in the following table. All compared projects had been registered CDM projects /61/ and the source of input parameters are all from UNFCCC website which can be considered transparent and traceable.

*Table 2: Comparison of investment cost per kW, percentage of annual O&M costs relative to total investment, other costs, depreciation and residual rate amongst the registered wind power CDM projects in Gansu province*

Project name	Installed capacity (MW)	UNFCCC Ref. No.	Depreciat ion period (years)/ Depreciat ion rate	Residual rate	Investment cost (RMB/kW)	Other costs (RMB/ kW)	Annual O&M costs/ investm ent
Gansu Datang Yumen 49MW Wind Power Project	49.3	1081	-	--	9 243	-	2.8%
Gansu Yumen Sanshilijingzi Wind Power Project	49.3	2193	12.5/8%	--	8 829	25	2.1%





CGN Gansu Anxi Daling 49.5MW	49.5	2109	12.5/8%	--	9 366	35	2.5%
Gansu Bayin Pingchuan Jiancaitang 45MW Wind Farm Concession Project	45	2883	14/7%	3%	9 445	40	2.6%
Gansu Yumen Diwopu Wind Power Project	49.5	2680	17/6%	--	9 134	25	2.1%
Gansu Jingtai 45MW Wind Power Project	45	2766	16/6.5%	--	8 844	25	2.2%
Gansu Guazhou Daliangxi Wind Power Project	49.5	2916	20/4.75 %	5%	9 582	25	2.2%
Huadian Gansu Guazhou Ganhekou No. 7 Wind Farm Project	201	3241	16/6.2%	4%	9 722	25	2.3%
Proposed project	201		12/8%	5%	9 731	25	2.1%

Electricity generation

Annex 11 of CDM-EB 48<sup>th</sup> meeting report /26/ gives a guideline for validation of plant load factor for renewable energy. One option is to use plant load factor provided to the government while applying the project activity for implementation approval. The FSR has this purpose and hence according to the current CDM regulation, the checking that the value is in line with the FSR should be considered sufficient for validation of plant load factor. This was the case for this project.

According to the FSR /2/, the annual electricity output is based on the long term meteorological data of the wind resource in the local area over 30 years (from 1978 to 2007) and onsite wind resources measurement (from 18 June 2007 to 18 June 2008) /2/. The professional software WAsP was used to select the rich wind source area, and then using software WindFarmer to optimize the location of each turbine for maximize power generation /2/. The yearly data was then processed in professional software to calculate the annual theoretical power generation, from which the annual effective power generation was obtained through discount by considering factors such as air density, trailing stream, wind turbine efficiency etc. Subsequently, the plant load factor of the proposed project is determined.

It is DNV’s opinion that the determination of plant load factor of the proposed project is appropriate and conservative. The plant load factor of 25.17% for the proposed project is derived from the FSR /2/ and DNV was able to confirm that the assumed annual grid connected output from the FSR is appropriate and acceptable.

Electricity tariff

Table 3: Wind power projects in Gansu Province after Year 2002

No.	Project name	Installed capacity, MW	Tariff source	Tariff approval time	Tariff * (Incl. VAT), RMB/KWh	Note
Concessional projects in Gansu Province						
1	Gansu Anxi Wind Farm Project	100.5	China Wind Power Report 2008 /49/	2005-08-16	0.4616	GS-VER
2	Huadian Gansu Guazhou Ganhekou No. 7 Wind Farm Project	201	Fagainengyuan [2009] 1005 /2/	2009-04-21	0.5206	Ref. 3241
3	Gansu Datang Changma Wind Power Project	201	Fagainengyuan [2009] 1005 /2/	2009-04-21	0.5206	Ref. 3512
4	Gansu Guazhou Ganhekou No 1 Wind Farm	201	Fagainengyuan	2009-	0.5206	Under



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	Project		[2009] 1005 /2/	04-21		validation
5	Gansu Guazhou Qiaowan Wind Farm Project	201	Fagainengyuan [2009] 1005 /2/	2009-04-21	0.5206	Under validation
6	Huaneng Gansu Guazhou Ganhekou No.3 Wind Farm	201	Fagainengyuan [2009] 1005 /2/	2009-04-21	0.5206	Under validation
7	Gansu Guazhou Ganhekou Fourth Wind Farm Power Generation Project	201	Fagainengyuan [2009] 1005 /2/	2009-04-21	0.5206	Under validation
8	Gansu Guazhou Beidaqiao Wind Power Project	201	Fagainengyuan [2009] 1005 /2/	2009-04-21	0.5206	Under validation
9	Huaneng Gansu Guazhou Ganhekou No.2 Wind Farm	201	Fagainengyuan [2009] 1005 /2/	2009-04-21	0.5206	Under validation
Commercial projects in Gansu Province						
10	Gansu Datang Yumen 49MW Wind Power Project	49.3	Fagaijiage [2007] 1260 /46/	2007-06-09	0.54	Ref. 1081
11	Gansu Yumen Sanshilijingzi Wind Power Project	49.3	Fagaijiage [2006] 2908 /46/	2006-12-22	0.5599	Ref. 2193
12	CGN Gansu Anxi Daliang 49.5MW	49.5	Fagaijiage [2006] 2908 /46/	2006-12-22	0.518	Ref. 2109
13	Gansu Anxi Xiangyang Wind Power Project	49.5	Fagaijiage [2006] 2908 /46/	2006-12-22	0.506	Under validation
14	Gansu Bayin Pingchuan Jiancaitang 45MW Wind Farm Concession Project	45	Fagaijiage [2008]1876 /46/	2008-7-23	0.54	Ref. 2883
15	Gansu Yumen Diwopu Wind Power Project	49.5	Fagaijiage [2007] 1260 /46/	2007-06-09	0.54	Ref. 2680
16	Gansu Jingtai 45MW Wind Power Project	45	Fagaijiage [2008] 1876 /46/	2008-7-23	0.54	Ref. 2766
17	Gansu Guazhou Daliangxi Wind Power Project	49.5	Ganjiadianli [2009]197 /47/	2009-08-26	0.54	Ref. 2916
18	Gansu Yumen Diwopu Phase II Wind Power Project	49.5	Ganjiadianli [2009] 197 /47/	2009-08-26	0.54	Ref. 3167
19	Gansu Guazhou Xiangyang Phase II Wind Power Project	49.5	Ganjiadianli [2009] 197 /47/	2009-08-26	0.54	Under correction

\* The approved tariffs are used for the first 30 000 operating hours and after 30 000 operating hours, the average tariff of local grid tariff should be used.

The tariff applied in the investment analysis of the proposed project was derived from the FSR which was prepared by Northwest Hydro Consulting Engineers, CHECC in December 2008 and approved by NDRC, Fagainengyuan [2009] No.1005 on 21 April 2009 /2/. In the approval document Fagainengyuan [2009] No.1005, the project was approved with the tariff of 0.5206 RMB/kWh (incl. VAT) prior to 30 000 operation hours and the local grid tariff i.e. Gansu Province average tariff should be used after 30 000 operating hours /2/.

The National Development and Reform Commission issued the “*Notice on the on-grid tariff management policy for wind power generation from NDRC of China*”, Fagaijiage [2009] No.1906, on 20 July 2009 /46/. It is stated in the tariff document Fagaijiage [2009] No.1906 /46/ that there are four wind resource regions in China based on the analysis of wind energy resources and standards for engineering construction. In this document, it is clear that the tariff for wind projects in Jiuquan City, Gansu Province should be 0.54 RMB/kWh (incl. VAT) for commercial projects since 1 August 2009; for wind projects which approved before 1 August 2009, the approved tariff will be implemented /46/. Then the State Electricity Regulatory Commission issued *China Electricity Price Executive Report 2008* in October 2009, which indicates that the average executive tariff in Gansu Province is 0.24901



RMB/kWh (incl. VAT) /35/. Thus they could be considered as the latest available tariff towards the project starting date i.e. 13 December 2009 when the main transformer purchase agreement was signed /4/. The average tariff for the proposed project is 0.4469 RMB/kWh (incl. VAT), if applying the tariff of 0.54 RMB/kWh (incl. VAT) prior to 30 000 operation hours and the local grid average tariff of 0.24901 RMB/kWh (incl. VAT) after 30 000 operating hours.

Hence, DNV was able to verify that the tariff applied for the proposed project (0.5206 RMB/kWh incl. VAT through the whole operational lifetime) is conservative; the applied tariff was approved on 21 April 2009 /2/ which is before 1 August 2009, and thus the approved tariff could be recognized as the most recent available tariff prior to the starting date of 13 December 2009.

In China, the electric power system reform /48/ was implemented by the State Council in 2002 which led to a diversification in the ownership of power generation and the tariff reform. After the reform, power companies and grid companies were separated to be more market oriented.

CDM Executive Board issued the “Information note on the highest tariff applied by the EB in its decision on registration of projects in the People’s Republic of China” in EB 54 Para 53, which states that the highest tariff for wind power project in Gansu Province is 0.585 RMB/kWh (incl. VAT) /28/. This tariff may refer to Gansu Jieyuan Yumen wind Farm Phase I. However, the detailed information on the tariff on this project is not public available, but the website link from Yumen City Science and Technology Division indicated that Gansu Yumen Jieyuan wind project began to construct in 1997 and partly (phase I) put into operation since March 2001, i.e. before the electricity reform. Even if applying this highest tariff through the operational life of the proposed project, the project-IRR changes from 5.86% to 7.57% which is still below the benchmark of 8%.

It is DNV’s opinion that the tariff implemented in the PDD is reasonable and conservative.

### ***Total Investment cost***

The investment costs used in the financial analyses were compared with the data reported for other similar registered CDM projects in Gansu Province. The investment costs per kW of 9 731 RMB/kW was found to be a little higher than the range (8 829 to 9 722 RMB/kW) of the registered wind projects listed in the table 2. It is due to the keeping increase of CPI (Customer Price Index) in China during recent years and the increasing costs on the raw materials and employment /39/. In addition, even if apply the average investment costs per kW of 9 270 RMB/kW from the registered wind projects in Gansu Province as shown in table 2 above, the project-IRR will change from 5.86% to 6.56%. Hence, the investment costs for this project are considered reasonable.

The assumed investment costs in the FSR were further cross-checked against the contracts. At the time of validation, two more contracts i.e. wind turbines /6/, and construction & installation contract /16/ were in place. These contracts take the main part of the total investment (87.01% of the total investment costs), according to the FSR /2/. Compared to the corresponding estimated in the FSR /2/, the real costs are 0.66% higher, which indicates that the FSR investment cost estimate was reasonable at the time. DNV could confirm that the investment cost applied in the financial analysis is deemed to be appropriate and conservative.

### ***Annual operating and maintenance costs***



The annual O&M costs for wind power projects may vary by site location, conditions for transportation, applied technology and number of turbines. As shown in the Table 2, the percentage of annual O&M costs relative to total investment of 2.1% for the proposed project is at the lower end of the range of 2.1% to 2.8% for similar wind power projects located in the same region in Gansu Province. Thus, DNV could confirm that the annual O&M costs is reasonable.

**Other costs**

The other costs for the proposed project consist of the other manufacture expenses, general administrative expenses and operating expenses /2/ and found to be consistent with “Economic Evaluation Code and Parameters for Construction Project” /62/. DNV could confirm that the composition of other costs is deemed to be appropriate.

It can be seen from the Table 2 that the other costs of 25 RMB/kW for the proposed project is at the lower end of the range (25 RMB/kW – 40 RMB/kW) of other costs for similar wind power projects in Gansu Province. Even when removing this part of the O&M costs, the project-IRR changes from 5.86% to 6.19% which is below the benchmark of 8%. Hence, the other costs of the proposed project are deemed reasonable by DNV.

**Taxes**

The taxes and depreciation rate applied in the project financial assessment are shown in the following table:

Table 4 Tax Rates involved in the project

Value added tax (VAT)	17%
Income tax	25%
Rate of residual value	5%
Depreciation period (years)	12
Educational surtax (of the VAT)	3%
Urban maintenance and construction tax (of the VAT)	5%

(a)VAT for equipment

17% VAT is paid as usual for purchased goods. According to revised “Provisional Regulations of People's Republic of China on Value Added Tax” /53/, the equipment VAT can be credited over the operation period against the tariff VAT until the VAT from the equipment VAT is fully recovered. For the proposed project, this happens in the 10<sup>th</sup> year (7<sup>th</sup> year of operation period).

(b) VAT on tariff

The VAT rate on the tariff of 17% applied to the financial analysis is substantiated by the following arguments.

- i) “Provisional Regulations of People's Republic of China on Value Added Tax” was issued on 13 December 1993 and became effective on 1 January 1994 /54/. In this Regulation, the VAT occurred on the sales of electricity was stipulated to be 17% /54/.
- ii) “Notice of the Ministry of Finance and the State Administration of Taxation about policies regarding the value added tax on products made through comprehensive utilization of resources and other products” was issued on 1 December 2001 and become effective on 1 January 2002 /55/. The payable value added tax should be half levied for sales of electricity generated from the wind power /55/. Based on the documents introduced above, the VAT rate



involved in the wind power projects with the commission dates after 2002 is 8.5%, i.e. half of 17%.

iii) “Notice of the Ministry of Finance and the State Administration of Taxation about policies regarding the value added tax on comprehensive utilization of resources and other products” issued on 9 December 2008 /56/, in which VAT refund half upon levy shall be applicable for selling the electricity generation from wind power etc. The regulation entered into force on 1 January 2009 and the former regulation /55/ was repealed simultaneously.

Based on the document introduced above, the VAT rate adopted by the proposed project is 17%. The equipment VAT has been totally deducted against the tariff VAT. Half of the VAT incurred by the electricity sales has been annually recovered from the 10<sup>th</sup> year to 23<sup>rd</sup> year after the equipment VAT is fully recovered.

#### (c) Income tax

The income tax rate (25%) is derived from the FSR /2/, which is in line with the “Law of the People’s Republic of China on Enterprise Income Tax” /58/.

According to the guidance of CDM-EB 51 Annex 58 /27/, the interest payable should be taken into account of the income tax calculation in cases where the benchmark applied in the investment analysis is post tax. As for the proposed project, the IRR benchmark of 8% is post tax and the interest tax payable has been verified to be included in the calculation of the income tax /1/ /7/.

#### (d) Depreciation

The depreciation rate of 8% and the rate of residual rate of 5% are derived from the FSR /2/ and thus the depreciation period is 12 years. The residual value is recovered at the last year of operation period in the project IRR calculation spreadsheet /7/. According to the “Implementation Rules for Law of the People's Republic of China on Enterprise Income Tax” /52/, the minimum number of years for computing depreciation of fixed assets is 10 years for the manufacturing and business operations. The depreciation period of 12 years adopted by the proposed project is considered to be reasonable.

In addition, as shown in the table 2 above, the depreciation period of 12 years is lower than the range of 12.5 to 20 years; the residual rate of 5% is in the range of 3% to 5% for the registered wind projects in Gansu Province. Thus, DNV could confirm that the depreciation is reasonable.

#### (e) Educational Surtax and Urban Maintenance and Construction Tax

The educational surtax of 3% (of the VAT) is consistent with the ‘Decision on the revision of the “Provisional Regulations of Levying Education Surtax” from the Stated Council’ /51/. The urban maintenance and construction tax (of the VAT) of 5% is consistent with the “Provisional Regulations on Urban Maintenance and Construction Tax” /57/.

Therefore, DNV confirms that all the tax rates used in the financial analysis of the proposed project are in line with the relevant regulations of the tax rates.

In conclusion, based on our local and sectoral expertise, DNV was able to confirm that the input parameters used in the financial analysis are reasonable and are likely to adequately represent the economic situation of the project.

### Calculation and conclusion

The project-IRR calculations over 20 years of operation were provided in a spreadsheet /7/.





The calculations were verified and found to be in line with CDM-EB’s guidance on investment analysis /27/. The assumptions used in the calculations were deemed to be corrected. The project-IRR without CDM revenues is 5.86%, which confirms that the project in the absence of CDM benefits and compared to the benchmark of 8% is not financially attractive. With CER revenues, the project-IRR increases to be 9.01% which is above the benchmark /7/.

**Sensitivity analysis**

A sensitivity analysis has been carried out for parameters contributing more than 20% to revenues or costs to check the robustness of the financial analysis. Reasonable variations of the static investment, annual O&M costs, expected tariff and annual electric output were checked by calculating the variation necessary to reach the benchmark and then discussing the likelihood for that to happen. None of the parameters in the sensitivity analysis are considered to have any significant positive correlation.

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

Total Static Investment	Annual O&M Costs	Tariff	Annual Electric output
-13.50%	-225.00%	+15.65%	+15.65%

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

**1) Total static investment:**

DNV was able to confirm that a 13.50% decrease in investment costs is unlikely to happen, as a large part of the total investment of the proposed project goes toward purchase and installation of equipments (including wind turbines and towers) /6/ /16/. The total static investment is not expected to be reduced, due to the increasing prices of the requirement equipment, materials and commodities /37/. Compared to the estimations in the FSR, the real costs according to the contracts for the main equipment are 0.66% more than the values in the FSR /2/, which indicates that the actual investment cost could not decrease. Hence, the total investment cost is unlikely to decrease by 13.50%.

**2) Annual O&M cost:**

The annual O&M costs consists of maintenance costs, salary, insurance premium, material costs and other costs. Faced with the increase of CPI (Customer Price Index) during recent years and the increasing costs on the raw materials and employment in China /39/, it is impossible that the O&M costs will decrease by 225.00%.

**3) Electricity tariff:**

The electricity tariff of 0.5216 RMB/kWh including VAT is derived from the FSR /2/ and found to be consistent with the approved tariff for the proposed project and similar projects in the project FSR approval document from NDRC on 21 April 2009 /2/. As discussed in the section ‘Input Parameters’ above, the tariff implemented in the PDD is reasonable. Even if applying the highest historical tariff of 0.585 RMB/kWh (incl. VAT) in Gansu province /28/ through the whole operational life of the proposed project, the project IRR will change from 5.86% to 7.57% which is still below the benchmark. Therefore, it is deemed unlikely that the tariff can increase by 15.65% to make the project IRR reach the benchmark.



#### 4) Annual output delivered to the grid:

Annual electric output is limited by wind resources on the project site. In the FSR /2/, the determination of installed capacity and operation hours were discussed sufficiently in relation to the wind resources. The annual output is based on meteorological data of the wind resource in the local area over 30 years (from 1978 to 2007) and onsite wind resources measurement (from 18 June 2007 to 18 June 2008) /2/. Moreover, the annually average wind speed trend of the project site is stable and the power load factor would fluctuate only within a small range. It is highly unlikely for the output to increase by 15.65%.

The sensitive analysis above shows that very unrealistic favorable circumstances would be needed for the IRR to reach the benchmark.

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

##### 4.6.4 Common practice analysis

In China, most policies are promulgated in provincial level by combining the national policy with the region's condition. Hence, it is reasonable that Gansu Province is selected as scope for common practice analysis. Furthermore, only projects developed after 2002 are chosen for the common practice analysis, since 2002 is a threshold for economic reform in electricity sector /48/. The comparing capacity is defined as the large projects which have installation capacity larger than 50 MW. Project developer has properly considered the wind power projects built after 2002 with installed capacity no less than 50 MW in Gansu Province.

DNV was able to verify that some other wind power projects developed at the similar scale since 2002 in Gansu Province /36/. Evidence provided clearly demonstrates that most of the wind power projects in the selected range have applied for CDM projects except for one project: Gansu Anxi Wind Farm Project. However, DNV was able to verify that Gansu Anxi Wind Farm Project has also applied for carbon finance (GS-VER) /60/ and therefore the project can not be considered comparable to the proposed project. Thus, it can be concluded that the proposed project activity i.e. wind power projects without CDM revenues is not a common practice in Gansu Province.

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

#### 4.7 Monitoring

The project applies the approved monitoring methodology ACM0002 “Consolidated *baseline methodology for grid-connected electricity generation from renewable sources*” version 11 /22/. The selected monitoring methodology is applicable for the project activity as it involves grid-connected renewable power generation using wind energy.

The project monitoring plan is in compliance with the monitoring methodology ACM0002 (version 11). The monitoring plan will give opportunity for real measurements of achieved emission reductions.

Monitoring of sustainable development indicators is not required by the Chinese DNA /19/. The environmental impacts are considered minor and will be monitored by the local environmental authority during the project lifetime /3/.





It is DNV’s opinion, that the project participants are able to implement the monitoring plan.

**4.7.1 Parameters determined ex-ante**

The combined margin emission factor is determined *ex-ante* based on the most recent information available at the time the PDD was submitted for validation i.e. IPCC 2006 /40/, China Electric Power Yearbook 2004 to 2008 /41/, China Energy Statistical Yearbook 2006 to 2008 /42/; the detailed calculations of the combined margin emission factor are described in the following section 4.8. The parameters are listed in below table:

<i>Data and Parameters</i>	<i>Unit</i>	<i>Ex-ante Determined Value</i>
Operating margin of NWCPG (OM)	tCO <sub>2</sub> /MWh	1.0246
Build Margin of NWCPG (BM)	tCO <sub>2</sub> /MWh	0.6433
Emission factor of NWCPG (CM)	tCO <sub>2</sub> /MWh	0.92928

**4.7.2 Parameters monitored ex-post**

The parameter monitored ex-post is the net electricity generation (EG<sub>facility,y</sub>) from the proposed project activity. The metering equipments of main meter M1 and backup meter will continuously measure the electricity export (EG<sub>export,y</sub>) to the grid and import (EG<sub>import,y</sub>) from the grid through 330 kV transmission line at Ganhekou West Transformer Station, while the metering equipment M2 will continuously measure the electricity import (EG<sub>auxiliary line,y</sub>) from the grid through the 35 kV/400 V auxiliary line. The net electricity generation from the proposed project activity will be calculated as EG<sub>facility,y</sub>= EG<sub>export,y</sub>- EG<sub>import,y</sub> -EG<sub>auxiliary line,y</sub>, which is deemed reasonable. The meters will be calibrated annually by a qualified third party according to the national regulations. The on-grid electricity will be continuously measured and recorded on a monthly basis. This data will be verified against the sales receipt from the grid. Data will be archived for at least 2 years after the end of the last crediting period by means of electronic and paper backup. The project owner, Gansu Guazhou Xiehe Wind Power Co., Ltd., will be responsible for the overall monitoring and reporting and will keep all the data and material:

- In case of emergencies or the proposed project could not produce sufficient power for self use, the project will import electricity through 330 kV transmission line at Ganhekou West Transformer Station (EG<sub>import,y</sub>) or from local 35 kV/400 V auxiliary line (EG<sub>auxiliary line,y</sub>).
- The accuracy of the M1 and backup meter of M1 will be 0.2s, while the accuracy of the metering equipment M2 shall be 0.5s.

**4.7.3 Management system and quality assurance**

The project’s monitoring plan includes:

- A description of the responsibilities and authorities for project management;
- Procedures for training;
- A description of the installation of metering equipment;
- Procedures for the calibration of metering equipment;



- Monitoring of the net electricity delivered to the NWCPG;
- Data quality control;
- Data management system;
- Reporting and verification.

Detailed procedures have been elaborated in the PDD section B.7.2 /1/. These will be maintained and implemented to enable subsequent verification of emission reductions.

The application of the monitoring methodology is transparent and DNV considers the project participants able to implement the monitoring plan.

#### 4.8 Algorithms and/or formulae used to determine emission reductions

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

- 1) Baseline emissions: baseline emissions ( $BE_y$  in  $tCO_2$ ) are the product of the grid emission factor ( $EF_{grid,CM,y}$  in  $tCO_2/MWh$ ) times the electricity supplied by the project activity to the grid ( $EG_y$  in  $MWh$ ).
- 2) Project emissions: There are no emissions from the project which is a renewable energy project (wind power).
- 3) Leakage: No leakage has to be considered for the proposed project activity.

The PDD was published on 22 June 2010, and the calculation of the grid emission factor is the latest data which was available at the commencement of validation. The data used in the EF calculation is in accordance with data in the China Electric Power Yearbook from 2004 to 2008 /41/ and the China Energy Statistical Yearbook from 2006 to 2008 /42/ which is confirmed by DNV.

The grid emission factor of the Northwest China Power Grid is determined *ex-ante* for the first 7 years renewable crediting period following “Tool to calculate the emission factor for an electricity system”, version 2 /23/, based on the most recent information available at the time when the PDD was web-hosted on 22 June 2010. It has been calculated as the weighted average ( $w_{OM} = 0.75$ ;  $w_{BM} = 0.25$ ) of the operating margin and the build margin as prescribed for wind projects by the “Tool to calculate the emission factor for an electricity system” /23/.

**Operating Margin:** Simple OM was chosen and this is justified since the low cost/must run resources constitute less than 50% of total grid generation the method (18.8% in 2003, 19.9% in 2004, 25.4% in 2005, 24.7% in 2006, and 23.2% in 2007) /41/.

Aggregated generation and fuel consumption data are used due to the fact that more disaggregated data are not available in the Northwest China Power Grid, the total electricity delivered to the Northwest China Power Grid has been used which are obtained from the China Electric Power Yearbook from 2006 to 2008 /41/. Country specific data for net calorific value of each type of fossil fuel are obtained from the China Energy Statistical Yearbook from 2006 to 2008 /42/ and the IPCC 2006 default values /40/ for the emission factors of each type of fossil fuel are deemed reasonable.



The OM is calculated to be 1.0246 tCO<sub>2</sub>/MWh. The sources and calculation has been verified by DNV.

**Build Margin:** Build margin was determined *ex-ante*. Because plant specific fuel consumption and electricity generation data are not publicly available in China, the guidance requested by DNV from the CDM Executive Board for a deviation of the baseline methodology of AM0005 has been applied for calculation of the build margin (BM) emission factor for this project /25/:

- Use of capacity additions from the years 2005 to 2007 is chosen and reaches 25.54% of the total installed capacity /41/.
- Use of weights estimated using installed capacity in place of annual electricity generation. Thermal power plant accounts for 78.74% of the total installed capacity additions in this period. Since specific data for each technology is not available, the fraction of fuels (coal 98.14%; natural gas 1.77%; oil 0.08%) was estimated from the CO<sub>2</sub> intensity for the fuels used in NWCPG /41/.
- Efficiencies of 38.10% for coal power plants and 49.99% for oil or gas power plants are defined as the best technology commercially available in China by the DNA of China /29/.

Country specific net calorific value of each kind of fuel from the China Energy Statistics Yearbook in 2008 /42/, and IPCC 2006 default values /40/ for emission factors of each kind of fuel are used to calculate the BM in the NWCPG The official supporting documentation has been verified.

The BM is calculated as 0.6433 tCO<sub>2</sub>e/MWh which was verified from the BM calculation spreadsheet /8/.

The resulting combined margin emission factor is 0.92928 tCO<sub>2</sub>e/MWh is fixed *ex-ante* for the first crediting period. The annual electricity delivered to the NWCPG is expected to be 443 278 MWh /1/. The expected annual baseline emissions of the project are 411 927 tCO<sub>2</sub>e /1/. The baseline emission estimate can be replicated using the data and parameter values provided in the PDD and supporting files for validation. No other project emission or leakage sources contributing more than 1% and not mentioned by the methodology have been found. The data sources mentioned have been verified by DNV.

Based on the calculations and results presented in the sections above the implementation of the project activity will result in an average *ex-ante* estimation of emission reduction conservatively calculated to be 411 927 tCO<sub>2</sub>e per year for the selected crediting period.

All assumptions and data used by the project participants are listed in the PDD and/or supporting documents, including their references and sources. All documentation used by the project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PDD. All values used in the PDD are considered reasonable in the context of the proposed CDM project activity. The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions. All estimates of the baseline, project and leakage emissions can be replicated using the data and parameter values provided in the PDD.



## 4.9 Environmental impacts

An Environmental Impact Assessment (EIA) of the project activity has been conducted by Northwest Research Institute of Mining and Metallurgy in 11 May 2008 /3/ and the potential environmental impacts, such as noise, air pollution, waste water, solid waste and ecological environment, have been sufficiently identified. No significant environmental impacts are expected from the project activity. Gansu Environment Protection Bureau approved the EIA on 6 August 2008 /3/.

## 4.10 Comments by local stakeholders

Besides the stakeholder consultation process required by Chinese EIA regulation, the project owner Gansu Guazhou Xiehe Wind Power Co., Ltd. conducted a public survey to invite comments from local stakeholders by means of questionnaires /12/ and also collected the public suggestions by an invitation notification on Lanzhou Morning Post (main local newspaper) /17/ in December 2009. In the survey, 59 questionnaires were distributed to local stakeholders and 59 questionnaires were returned giving a 100% response rate /12/. The notification involving the invitation of public suggestions has been provided /17/. DNV verified that the notification contains the introductions of the proposed project, basic knowledge of CDM and also the available access of the project owner's contact information. No negative comments were received from the local stakeholders through questionnaires survey /12/ and no comments had been received through e-mail or the telephone on the proposed project due to the notification in the newspaper dated 23 December 2009.

The proposed project is located in the Gobi which is 56.5 km away from the northwest of Guazhou county seat; there are few residents who live near the project site and are impacted by the proposed project, and there are no farmlands according to the approved FSR /2/ and EIA /3/. DNV thus considers the 59 questionnaires are reasonable to represent all local stakeholders near the project site.

The survey showed that the proposed project received support from the local stakeholders, which was confirmed by verifying the questionnaires by DNV /12/.

DNV considers the local stakeholder consultation carried out adequately.

## 4.11 Comments by Parties, stakeholders and NGOs

The PDD version 1.0 dated 10 March 2010, was made publicly available on the CDM website (<http://cdm.unfccc.int/Projects/Validation/DB/UONS52HO8KGHZ16C5QBQBWBVT49QJ/view.html>) and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 22 June 2010 to 21 July 2010. No comments were received in this period.

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**APPENDIX A**

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**CDM VALIDATION PROTOCOL**

**Table 1 Mandatory requirements for Clean Development Mechanism (CDM) project activities**

Requirement	Reference	Conclusion
<b>About Parties</b>		
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3.	Kyoto Protocol Art.12.2	<del>CAR-1</del> OK
2. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC.	Kyoto Protocol Art.12.2.	<del>CAR-1</del> OK
3. The project shall have the written approval of voluntary participation from the designated national authority of each Party involved.	Kyoto Protocol Art. 12.5a, CDM Modalities and Procedures §40a	<del>CAR-1</del> OK
4. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof.	Kyoto Protocol Art. 12.2, CDM Modalities and Procedures §40a	<del>CAR-1</del> OK
5. In case public funding from Parties included in Annex I is used for the project activity, these Parties shall provide an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of these Parties.	Decision 17/CP.7, CDM Modalities and Procedures Appendix B, § 2	<del>CAR-1</del> OK
6. Parties participating in the CDM shall designate a national authority for the CDM.	CDM Modalities and Procedures §29	OK
7. The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol.	CDM Modalities §30/31a	OK
8. The participating Annex I Party's assigned amount shall have been calculated and recorded.	CDM Modalities and Procedures §31b	OK
9. The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7.	CDM Modalities and Procedures §31b	OK
<b>About additionality</b>		
10. Reduction in GHG emissions shall be additional to any that would occur in the absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those	Kyoto Protocol Art. 12.5c, CDM Modalities and Procedures §43	<del>CL-4</del> <del>CL-5</del>



Requirement	Reference	Conclusion
that would have occurred in the absence of the registered CDM project activity.		OK
<b>About forecast emission reductions and environmental impacts</b>		
11. The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.	Kyoto Protocol Art. 12.5b	<del>CL-4</del> <del>CL-5</del> OK
<b>For large-scale projects only</b>		
12. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out.	CDM Modalities and Procedures §37c	OK
<b>About stakeholder involvement</b>		OK
13. Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received.	CDM Modalities and Procedures §37b	<del>CL-10</del> OK
14. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available.	CDM Modalities and Procedures §40	OK
<b>Other</b>		OK
15. The baseline and monitoring methodology shall be previously approved by the CDM Executive Board.	CDM Modalities and Procedures §37e	OK
16. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances.	CDM Modalities and Procedures §45c,d	OK
17. The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure.	CDM Modalities and Procedures §47	OK
18. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP.	CDM Modalities and Procedures §37f	OK

**Table 2      Requirements checklist**

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
<b>A General description of project activity</b>					
<b>A.1 Title of the project activity (VVM para 55-57)</b>					
A.1.1 Does section A.1 of the PDD include a clearly identifiable project title, version number of the PDD and date of the PDD?	/1/	DR	<input checked="" type="checkbox"/> Clearly identifiable title of the project activity <input checked="" type="checkbox"/> Version number of the PDD is included <input checked="" type="checkbox"/> Date of the PDD is included.		OK
A.1.2 Is the PDD is in accordance with the applicable requirements for completing PDDs?	/1/	DR	<input checked="" type="checkbox"/> Yes <i>If no, list where the PDD is not in accordance:</i>		OK
<b>A.2 Description of the project activity (VVM para 58-64)</b>					
A.2.1 How was the design of the project assessed?	/1/ /2/ /3/ /5/	DR I	<i>What type is the project?</i> <input type="checkbox"/> Project in existing facility or utilizing existing equipment(s) <input type="checkbox"/> Large scale project <input type="checkbox"/> bundled small scale projects, each with emission reductions not exceeding 15 000 tCO <sub>2</sub> e per year <input type="checkbox"/> individual small scale project activity with emission reductions not exceeding 15 000 tCO <sub>2</sub> e per year <input checked="" type="checkbox"/> Greenfield project The proposed project is a greenfield project, which was verified against the FSR and FSR approval /2/. <i>How was the design of the project assessed?</i> <input type="checkbox"/> Physical site inspection		OK

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

Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
				<input checked="" type="checkbox"/> Reviewing available designs and feasibility studies <i>If a physical site inspection is not undertaken, justify why no site visit was undertaken:</i> The proposed project was permitted to start wind farm road construction on 11 April 2010 /5/. So there will be few issues could be verified during physical site visit in July 2010. According to the relevant documents including FSR /2/ and EIA /3/ provided and assessed, Gansu Guazhou Ganhekou No.8 Wind Farm Project is located in the gobi which is 56.5 km away from northwest of Guazhou County and no migration was involved in this project. Meanwhile, the PDD and other additional background documents relating to the project design are effective on this project /1/-/58/. Hence, DNV can justify that a physical site visit for this project was not arranged during the validation process.		
A.2.2	If a greenfield project, describe the physical implementation of the project when the validation was commenced.	/1/ /5/	DR I	Gansu Guazhou Ganhekou No.8 Wind Farm Project was permitted to start wind farm road construction on 11 April 2010 /5/ and was still under construction when the validation was commenced in June 2010.		OK
A.2.3	If physical site visits were performed based on sampling (only applicable for bundled small scale projects, each with emission reductions not exceeding 15 000 tCO <sub>2</sub> e per year), justify the sampling through a statistical analysis:	/1/	DR	Not applicable.		OK
A.2.4	Is the description of the proposed CDM project activity as contained in the PDD sufficiently covers all relevant elements, is accurate and that it provides the reader with a clear understanding of the nature of the proposed CDM	/1/	DR	Yes. The description in the PDD covers all relevant elements, like the location, installed capacity and provides a clear understanding of the nature of the proposed CDM project activity.		OK

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

Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
project activity?						
A.2.5	Does the project activity involve alteration of existing installations? If so, have the differences between pre-project and post-project activity been clearly described in the PDD?	/1/ /2/	DR I	Gansu Guazhou Ganhekou No.8 Wind Farm Project is a new built project and there is no alternation which can also be confirmed by the approved FSR /2/.		OK
A.2.6	Does the project design engineering reflect current good practices?	/1/ /6/	DR I	All 134 turbines will be supplied by Sinovel Wind Group Co., Ltd according to the wind turbines purchase contract /6/. However, it needs to clarify whether the technology reflects current good practices or not.	<del>CL-1</del>	OK
A.2.7	Would the technology result in a significantly better performance than any commonly used technologies in the host country? Is any transfer of technology from any Annex-I Party involved?	/1/ /6/	DR I	The 134 sets of 1 500 kW turbines will be supplied by the Sinovel Wind Group Co., Ltd /6/. However, it needs to clarify whether there is any transfer of technology from any Annex-I Party involved or not.	<del>CL-1</del>	OK
<b>A.3 Participation requirements (VVM para 51-54, 125-127)</b>						
A.3.1	Do all participating Parties fulfil the participation requirements as follows:  a) Party has ratified the Kyoto Protocol b) Party has designated a Designated National Authority c) The assigned amount has been determined	/1/	DR	The LoA from United Kingdom of Great Britain and Northern Ireland needs to be provided.	<del>CAR-1</del>	OK
		China (host)		United Kingdom of Great Britain and Northern Ireland		
		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
A.3.2	Do the letters of approval meet the following requirements?	<input checked="" type="checkbox"/> NA		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
A.3.2	Do the letters of approval meet the following requirements?	/1/ /19/ /20/	DR I	The LoA from United Kingdom of Great Britain and Northern Ireland needs to be provided.	<del>CAR-1</del>	OK
		China (host)		United Kingdom of Great Britain and		

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
<b>A.4 Technical description of the project activity (VVM para 58-64)</b>					
A.4.1 Is the project's location clearly defined?	/1/ /2/ /18/	DR I CC	Yes. Gansu Guazhou Ganhekou No.8 Wind Farm Project is located in Guazhou County, Jiuquan City, Gansu Province of China. The geographical coordinates of the proposed project is between the east longitude 95°17'00"E~95°20'30"E and the north latitude 40°36'16"N~40°40'29"N. The center geographical coordinates of the project are 95°18'45"E and 40°38'23"N. The coordinates for each wind turbine /18/ have been provided to validation team.		OK
<b>A.5 Public funding of the project activity</b>					
A.5.1 In case public funding from Parties included in Annex I is used for the project activity, have these Parties provided an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of these Parties?	/1/	DR I	The LoA from United Kingdom of Great Britain and Northern Ireland is pending.	<del>CAR-1</del>	OK
<b>B Application of a baseline and monitoring methodology</b>					
<b>B.1 Methodology applied (VVM para 65-76)</b>					
B.1.1 Does the project apply an approved methodology and the correct version thereof?	/1/ /22/	DR	Yes. The approved methodology ACM0002 "Consolidated <i>baseline methodology for grid-connected electricity generation from renewable sources</i> " version 11 is used for this project /22/.		OK



Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
<b>B.2</b>	<b>Applicability of methodology (and tools) (VVM para 65-76)</b> <i>Approved methodology ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable source” version 11;</i> <i>Tool for the demonstration and assessment of additionality, Version 5.2;</i> <i>Tool to calculate the emission factor for an electricity system, Version 02.</i>					
B.2.1	How was it validated that project complies with the following applicability criteria: The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit?	/1/ /2/	DR I	Gansu Guazhou Ganhekou No.8 Wind Farm Project is a new built wind power project which is confirmed by the FSR and its approval /2/.		OK
B.2.2	How was it validated that project complies with the following applicability criteria: Project activities that not involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site?	/1/ /2/	DR I	Gansu Guazhou Ganhekou No.8 Wind Farm Project is the project that uses wind to generate electricity. So there is no fossil fuel switch in this project. This situation was confirmed by the project design in the approved FSR /2/.		OK
B.2.3	How was it validated that project complies with the following applicability criteria: Not a biomass fired power plants?	/1/ /2/	DR I	Gansu Guazhou Ganhekou No.8 Wind Farm Project is the project that uses wind to generate electricity not by using biomass. This situation was confirmed by the project design in the approved FSR /2/.		OK
B.2.4	Is the selected baseline on of the baseline(s) described in the methodology and this hence confirms the applicability of the methodology?	/1/ /22/	DR	Yes. The selected baseline is directly determined by the approved methodology ACM0002 Version 11 /22/ and confirms the applicability of the		OK

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Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
				methodology.		
<b>B.3 Project boundary (VVM para 78-80)</b>						
B.3.1	What are the project's system boundaries (components and facilities used to mitigate GHGs)? Are they clearly defined and in accordance with the methodology?	/1/ /22/ /29/	DR I	The project boundary is defined as the site of the project activity and all power plants connected physically to the Northwest China Power Grid as per ACM0002 version 11 /22/. Northwest China Power Grid includes Shanxi, Gansu, Qinghai, Ningxia and Xinjiang power grid, according to the grid boundary published by National Development and Reform Commission in July 2009 /29/.		OK
B.3.2	Which GHG sources are identified for the project? Does the identified boundary cover all possible sources linked to the project activity? Give reference to documents considered to arrive at this conclusion.	/1/ /22/ /29/	DR	The major emission source of Gansu Guazhou Ganhekou No.8 Wind Farm Project is CO <sub>2</sub> and this is in line with the approved methodology ACM0002 /22/. The project boundary is defined as the site of the project activity and all power plants connected physically to the Northwest China Power Grid. NWCPG includes Shanxi, Gansu, Qinghai, Ningxia and Xinjiang power grid /29/. This boundary covers all possible sources linked to the project activity.		OK
B.3.3	Does the project involve other emissions sources not foreseen by the methodologies that may question the applicability of the methodology? Do these sources contribute with more than 1% of the estimated emission reductions of the project?	/1/	DR	There is no other emission sources involved in Gansu Guazhou Ganhekou No.8 Wind Farm Project. And there is also no other sources contribute more than 1% of the estimated emission reductions of the project.		OK
<b>B.4 Baseline scenario determination (VVM para 81-88, 103-105)</b>						
B.4.1	Which baseline scenarios have been identified? Is the list of baseline scenarios complete?	/1/ /24/	DR	Yes. The identified baseline scenarios are: 1) The proposed project not undertaken as a CDM project activity; 2) The thermal power plant with the same		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			annual electricity output as the proposed project; 3) Other renewable energy project with the same annual electricity output as the proposed project; 4) To provide the same electricity output by NWCPG. The baseline scenarios mentioned above is listed completely, according to “ <i>Tool for the demonstration and assessment of additionality</i> ” version 5.2 /24/.		
B.4.2 How have the other baseline scenarios been eliminated in order to determine the baseline?	/1/ /2/ /7/ /22/ /30/ /34/ /41/	DR I CC	The baseline scenario is indentified directly according to the methodology ACM0002 version 11 /22/. Then four alternative baseline scenarios to the project have been identified and discussed: 1) The proposed project not undertaken as a CDM project activity; 2) The thermal power plant with the same annual electricity output as the proposed project; 3) Other renewable energy project with the same annual electricity output as the proposed project; 4) To provide the same electricity output by NWCPG. Alternative 1) This scenario is not a realistic and credible alternative, as discussed in the benchmark analysis in the PDD. In fact the IRR of total investment is 5.86% /7/ which is lower than the benchmark IRR 8% for electrical engineering project /34/. Alternative 2) In 2007, the average operation time of thermal power plant in Gansu Province is		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			<p>6 231 hours /41/, and the effective operation time of proposed project is 2 205 hours and an average annual generation of 443 278 MWh /2/. To provide the same output as the proposed project, the alternative thermal power plant will has the capacity of 71.14 MW. The thermal power plant with capacity less than 135 MW is forbidden to build in China according to the law “<i>Notice of the General Office of the State Council concerning the Strict Prohibition for Construction of Thermal Power Plants with the Capacity of less than 135 MW within the Grid Connected Area</i>” /30/. So alternative 2) conflicts with Chinese regulations and not a realistic option.</p> <p>Alternative 3) It needs to substantiate how to eliminate the alternative 3) while determining the baseline scenario, i.e. using the renewable sources, such as hydro power, biomass, PV and geothermal power to generate equivalent electricity.</p> <p>Alternative 4) “Provide the same electricity output by Northwest China Power Grid” is a realistic alternative consistent with current laws and regulations, which is also economically feasible.</p>	CL-2	
B.4.3 What is the baseline scenario?	/1/ /22/	DR	<p>The baseline scenario of Gansu Guazhou Ganhekou No.8 Wind Farm Project is indentified directly according to the methodology ACM0002 version 11 /22/:</p> <p><i>Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-</i></p>		OK

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				<p><i>connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system”</i></p> <p>It is in line with ACM0002 version 11.</p>		
B.4.4	Is the determination of the baseline scenario in accordance with the guidance in the methodology?	/1/ /22/	DR	Yes. The baseline scenario of Gansu Guazhou Ganhekou No.8 Wind Farm Project is indentified directly according to the methodology ACM0002 version 11 /22/.		OK
B.4.5	Has the baseline scenario been determined using conservative assumptions where possible?	/1/ /22/	DR	Yes. The baseline scenario of Gansu Guazhou Ganhekou No.8 Wind Farm Project is indentified directly according to the methodology ACM0002 version 11 /22/.		OK
B.4.6	Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	/1/ /49/ /59/	DR CC	Yes. The renewable energy law /59/, sectoral policies /49/ and development trends in the Northwest China Power Grid /49/ have been taken into account.		OK
B.4.7	Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced?	/1/ /22/	DR I	It needs to substantiate how to eliminate the alternative 3) while determining the baseline scenario, i.e. using the renewable sources, such as hydro power, biomass, PV and geothermal power to generate equivalent electricity.	<del>CL-2</del>	
B.4.8	<p>Is the baseline determination adequately documented in the PDD?</p> <ul style="list-style-type: none"> <li>All assumptions and data used by the project participants are listed in the PDD and related document to be submitted for registration. The data are properly referenced.</li> <li>All documentation is relevant as well as correctly quoted and interpreted.</li> </ul>	/1/ /2/ /7/ /22/ /30/ /34/ /41/	DR I CC	<p>The baseline scenario is indentified directly according to the methodology ACM0002 version 11 /22/.</p> <p>Then four alternative baseline scenarios to the project have been identified and discussed:</p> <p>1) The proposed project not undertaken as a CDM project activity;</p> <p>2) The thermal power plant with the same</p>		OK

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<ul style="list-style-type: none"><li>Assumptions and data can be deemed reasonable</li><li>Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD.</li><li>The methodology has been correctly applied to identify what would occurred in the absence of the proposed CDM project activity</li></ul>			<p>annual electricity output as the proposed project;</p> <p>3) Other renewable energy project with the same annual electricity output as the proposed project;</p> <p>4) To provide the same electricity output by NWCPG.</p> <p>Alternative 1) This scenario is not a realistic and credible alternative, as discussed in the benchmark analysis in the PDD. In fact the IRR of total investment is 5.86% /7/ which is lower than the benchmark IRR 8% for electrical engineering project /34/.</p> <p>Alternative 2) In 2007, the average operation time of thermal power plant in Gansu Province is 6 231 hours /41/, and the effective operation time of proposed project is 2 205 hours and an average annual generation of 443 278 MWh /2/. To provide the same output as the proposed project, the alternative thermal power plant will has the capacity of 71.14 MW. The thermal power plant with capacity less than 135 MW is forbidden to build in China according to the law “<i>Notice of the General Office of the State Council concerning the Strict Prohibition for Construction of Thermal Power Plants with the Capacity of less than 135 MW within the Grid Connected Area</i>” /30/. So alternative 2) conflicts with Chinese regulations and not a realistic option.</p> <p>Alternative 3) It needs to substantiate how to eliminate the alternative 3) while determining the baseline scenario, i.e. using the renewable sources, such as hydro power, biomass, PV and geothermal power to generate equivalent</p>	<div>CL-2</div>	

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			electricity. Alternative 4) “Provide the same electricity output by Northwest China Power Grid” is a realistic alternative consistent with current laws and regulations, which is also economically feasible.		
<b>B.5    Additionality determination (VVM para 94-121)</b>					
B.5.1    What approach/tool does the project use to assess additionality? Is this in line with the methodology?	/1/ /22/ /24/	DR	The tool used to assess additionality is “ <i>Tool for the demonstration and assessment of additionality</i> ” version 5.2 /24/.  Yes. All the process of analyzing the additionality in the PDD is in line the methodology ACM0002 version 11 /22/.		OK
B.5.2    Have the regulatory requirements correctly been taken into account to evaluate the project activity and the alternatives?	/1/ /2/ /30/ /41/	DR I CC	In 2007, the average operation time of thermal power plant in Gansu Province is 6 231 hours /41/. The effective operation time of proposed project is 2 205 hours /2/. To provide the same output as the proposed project, the alternative thermal power plant will has the capacity of 71.14 MW. The thermal power plant with capacity less than 135 MW is forbidden to build in China according to the law “ <i>Notice of the General Office of the State Council concerning the Strict Prohibition for Construction of Thermal Power Plants with the Capacity of less than 135</i> ” /30/. So the alternative 2) conflicts with Chinese regulations.  It needs to substantiate how to eliminate the alternative 3) while determining the baseline scenario, i.e. using the renewable sources, such as hydro power, biomass, PV and geothermal power to generate equivalent electricity.	<del>CL-2</del>	OK

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Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
B.5.3	Is sufficient evidence provided to support the relevance of the arguments made?	/1/	DR I	It needs to substantiate how to eliminate the alternative 3) while determining the baseline scenario, i.e. using the renewable sources, such as hydro power, biomass, PV and geothermal power to generate equivalent electricity.	<del>CL-2</del>	OK
B.5.4	What is the project additionality mainly based on (Investment analysis or barrier analysis)?	/1/	DR	The project additionality is mainly based on the investment analysis /1/.		OK
Prior consideration of CDM (VVM para 98-103)						
B.5.5	What is the evidence for serious consideration of CDM prior to the time of decision to proceed with the project activity?	/1/ /4/ /5/ /6/ /9/ /10/ /11/ /13/	DR CC	The chosen project starting date is 13 December 2009 which is the date of the main transformer purchase agreement signed /4/. This project starting date is after 2 August 2008. 1. Project owner held the managing director's office meeting and decided to develop the proposed project with the CDM assistance, 20 Feb 2009 /11/. 2. The main transformer purchase agreement dated 13 December 2009 /4/. 3. The construction of the proposed project was permitted on 11 April 2010 /5/. 4. The project owner signed Wind Turbines Purchase Agreement dated 31 May 2010 /6/. 5. Prior Consideration of the CDM Form was sent to NDRC of the commencement of Gansu Guazhou Ganhekou No.8 Wind Farm Project and the intention to seek CDM status dated 24 Dec 2009 /9/. 6. Prior Consideration of the CDM Form was sent to UNFCCC with the intention to seek CDM status on 22 Dec 2009 /10/. DNV can verify that the project owner seriously		OK

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Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
				considered CDM prior the time of decision to proceed with the project activity.		
B.5.6	If the starting date is after 2 August 2008 and before the global stakeholder consultation, has the DNA and UNFCCC confirmed that the project participants have informed in writing of the project's intention to seek CDM status?	/1/ /4/ /9/ /10/	DR I	Yes. The chosen project starting date is 13 December 2009 which is the date of the main transformer purchase agreement signed /4/. This project starting date is after 2 August 2008. The project owner informed Chinese DNA and UNFCCC with Prior Consideration of the CDM Form in Dec 2009 /9/ /10/. Chinese DNA confirmed it on 11 Jan 2010 /9/ and the UNFCCC confirmed it through the link on its website ( <a href="http://cdm.unfccc.int/Projects/PriorCDM/notifications/index_html?s=2400">http://cdm.unfccc.int/Projects/PriorCDM/notifications/index_html?s=2400</a> ), on 22 Dec 2009 /10/.		OK
<b>Continuous efforts to secure CDM status</b> (only to be completed if starting date is before 2 August 2008)						
B.5.7	What initiatives were taken by the project participants from the starting date of the project activity to the start of validation in parallel with the physical implementation of the project activity?	/1/	DR	N/A		OK
B.5.8	When did the construction of the project activity start?	/1/	DR	N/A		OK
B.5.9	When was the project commissioned?	/1/	DR	N/A		OK
B.5.10	Does the timeline of the project confirm that continuous actions in parallel with the implementation were taken to secure CDM status?	/1/	DR	N/A		OK
<b>Investment analysis (VVM para 108-114)</b> <i>The list of questions below must be adjusted to the parameters in the investment analysis relevant to the project under validation.</i>						
B.5.11	Does the project activity or any of the remaining alternatives generate revenues apart from CDM? Is this reflected in the	/1/ /2/	DR	Yes. The only source of generating revenue is from the sales of electricity apart from CDM.		OK

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Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
PDD?		/7/		This is reflected in the PDD /1/. It can be confirmed by the FSR /2/ and IRR spreadsheet /7/.		
B.5.12	Do any of the alternatives to the project activity involve investment? Is this reflected in the PDD?	/1/	DR	The alternatives to the project activity do not involve any investment and it is reflected in the PDD.		OK
B.5.13	Is the choice of benchmark analysis, investment comparison or simple cost analysis correct?	/1/ /24/	DR	Yes. As the proposed project generates financial and economic benefits other than CDM related income through the sales of electricity and the alternative for the baseline scenario of the proposed project is not a similar investment project, a benchmark analysis (option III) is justified for conducting the investment analysis .The choice is in line with <i>Tool for the demonstration and assessment of additionality</i> version 5.2 /24/.		OK
B.5.14	Is the benchmark/discount rate the latest available at the time of decision?	/1/ /34/	DR	According to <i>Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects (trial)</i> /34/, in China an IRR of 8% (after tax) of a project is regarded as a benchmark for investing in large scale hydropower plants, fossil fuel fired plants as well as wind farm projects. The benchmark of 8% (after tax) is therefore appropriate for this project. DNV was able to confirm this is suitable and reasonable as following:  1. This benchmark was determined by the national administration of this industry in China; 2. This benchmark is for project-IRR and after tax and the investment analysis for this project will be for 'project and after tax' also;		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			3. <i>Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects (trial)</i> /34/ refers to the risk premiums of wind farm power project, and this file is still valid.		
B.5.15 What is the financial indicator? Is it on equity/project basis? Before/after tax? Is the financial indicator in correspondence with the benchmark?	/1/ /7/ /34/	DR	The financial indicator is project IRR after tax. The IRR calculations were provided in a spreadsheet /7/. The financial indicator is in correspondence with the benchmark /34/.		OK
B.5.16 Are the underlying assumptions appropriate, e.g. what is considered as waste in the baseline is considered to have zero value?	/1/	DR	It is not applicable.		OK
B.5.17 Does the income tax calculation take depreciation into account? Is the depreciation year in accordance with normal accounting practice in the host country?	/1/ /2/ /7/	DR I	The income tax calculation takes depreciation into account /2/ /7/. However, it needs to elaborate why choose the depreciation of 12 years with the fixed residual rate 8%.	<del>CL-3</del>	OK
B.5.18 Is the time period of the investment analysis and operating time of the project realistic? Has salvage value been taken into account? Is working capital returned in the last year of operation?	/1/ /2/ /7/ /58/	DR I	The operation time period is 20 years for Gansu Guazhou Ganhekou No.8 Wind Farm Project which is derived from the FSR /2/. The rate of residual value of fixed assets is 5%. The working capital returned as income in the last year of operation /7/. However, it needs to elaborate why choose the depreciation of 12 years with depreciation rate 8%. According to revised “ <i>Provisional Regulations of the People's Republic of China on Value Added Tax</i> ” /58/, the VAT incurred by the purchase of equipments can be credited over the operation period against the VAT for electricity sales until the VAT from the equipment is fully recovered. It is requested to clarify how this policy, <i>Provisional Regulations of the People's Republic</i>	<del>CL-3</del>  <del>CL-4</del>	OK

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			<i>of China on Value Added Tax</i> was considered for the proposed project.		
B.5.19 When a feasibility study report or similar approved by the government is used as the basis for the investment analysis: Can it be confirmed that the values used in the PDD are fully consistent with the FSR and is the period of time between finalization of the FSR and the investment decision adequate?	/1/ /2/ /7/	DR I	The FSR of Gansu Guazhou Ganhekou No.8 Wind Farm Project was finished in December 2008 and it was approved by National Development and Reform Commission on 21 April 2009 /2/. Thus it is one year prior to the project construction permission which is 11 April 2010 /5/. Given this relative short period of time between approval of the FSR and the decision to proceed with the project activity, it is unlikely in the context of the project that the input values would have materially changed and that it is thus reasonable to assume that the FSR has been the basis of the decision to proceed with the investment in the project.		OK
B.5.20 How was the amount of output (e.g. sales of electricity) assessed? Remember to include all the data sources used and list all the projects that have been used for cross-checking in accordance with VVM paragraph 95.	/1/ /2/ /26/	DR I	<input checked="" type="checkbox"/> The plant load factor provided to banks and/or equity financiers while applying the project activity for project financing, or to the government while applying the project activity for implementation approval <input checked="" type="checkbox"/> The plant load factor determined by a third party contracted by the project participants (e.g. an engineering company) <input type="checkbox"/> Other approach. <i>Provide details on how the load factor was validated:</i> Annex 11 to CDM-EB 48 <sup>th</sup> meeting report /26/ gives a guideline for validation of plant load factor for renewable energy. One option is to use plant load factor provided to the government while applying the project activity for		OK



Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			implementation approval. The FSR has this purpose and hence according to the current CDM regulation, the checking that the value is in line with the FSR should be considered sufficient for validation of plant load factor. This estimated electricity generation used in the PDD is for the project in line with the FSR /2/.		
B.5.21 How was the output price (e.g. electricity price) assessed? Were the data available and valid at the time of decision? Remember to include all the data sources used and list all the projects that have been used for cross-checking in accordance with VVM paragraph 95.	/1/	DR I CC	<input type="checkbox"/> Cross-check against third-party or publicly available sources (e.g. invoices or price indices) <input checked="" type="checkbox"/> Review of feasibility reports, public announcements and annual financial reports related to the project and the project participants <i>Provide details on how the output price was validated:</i> It needs to justify the validity and suitability of the electricity tariff with sufficient evidence documents.	<del>CL-5</del>	OK
B.5.22 How were the investment costs assessed? Were the data available and valid at the time of decision? Remember to include all the data sources used and list all the projects that have been used for cross-checking in accordance with VVM paragraph 95.	/1/	DR I	<input type="checkbox"/> Cross-check against third-party or publicly available sources (e.g. invoices or price indices) <input checked="" type="checkbox"/> Review of feasibility reports, public announcements, contracts and annual financial reports related to the project and the project participants <i>Provide details on how the investment costs were validated:</i> The total investment costs per kW applied in the project financial analysis should be justified by cross-checking or other appropriate manner with the similar wind power projects in Gansu Province.	<del>CL-5</del>	OK
B.5.23 How were the O&M costs assessed? Were the data available and valid at the time of decision? Remember to include all	/1/	DR	<input type="checkbox"/> Cross-check against third-party or publicly	<del>CL-5</del>	OK

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the data sources used and list all the projects that have been used for cross-checking in accordance with VVM paragraph 95.		I	available sources (e.g. invoices or price indices) <input checked="" type="checkbox"/> Review of feasibility reports, public announcements and annual financial reports related to the project and the project participants <i>Provide details on how the O&amp;M costs were validated:</i> It needs to justify the validity and suitability of annual O&M costs in financial analysis with sufficient evidence documents.		
B.5.24 Describe the assessment of the other input parameters. Were the data available and valid at the time of decision? Remember to include all the data sources used and list all the projects that have been used for cross-checking in accordance with VVM paragraph 95.	/1/	DR I	<input type="checkbox"/> Cross-check against third-party or publicly available sources (e.g. invoices or price indices) <input checked="" type="checkbox"/> Review of feasibility reports, public announcements and annual financial reports related to the project and the project participants <i>Provide details on how other input parameters were validated:</i> It needs to justify the validity and suitability of taxes in financial analysis with sufficient evidence documents.	<del>CL-5</del>	OK
B.5.25 Was the financial calculation spreadsheet verified and found to be correct?	/1/	DR	The conclusion will be given at the final report.	<del>CL-3</del> <del>CL-4</del> <del>CL-5</del>	OK
B.5.26 Sensitivity analysis: Have the key parameters contributing to more than 20% of the revenue/costs during operating or implementation been identified? Has possible correlation between the parameters been considered?	/1/ /7/	DR	Yes. A sensitivity analysis was carried out for parameters contributing more than 20% to revenue or costs in order to check the robustness of the financial analysis. It covers the variation – 10% to +10% of the total investment, on-grid tariff, electricity generation and annual O&M costs /7/ and were checked by calculating the variation necessary to reach the benchmark and then discussing the likelihood for that to happen		OK

Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
				/1/. None of the parameters in the sensitivity analysis are considered to have any significant positive correlation.		
B.5.27	Sensitivity analysis: Is the range of variations is reasonable in the project context?	/1/	DR	Yes. The sensitive analysis contains the variation -10% to +10% and also the variation to the benchmark.		OK
B.5.28	Have the key parameters been varied to reach the benchmark and the likelihood of this to happen been justified to be small?	/1/ /7/	DR	Yes. The static total investment, on-grid tariff, electricity generation and annual O&M costs have been varied to reach the benchmark /1/ /7/ and the likelihood of this to happen been justified to be small in sensitivity analysis.		OK
<b>Barrier analysis (VVM para 115-118)</b>						
B.5.29	Are the barriers identified complimentary to a potential investment analysis? Does the barrier have a clear impact on the financial returns so that it can be assessed in an investment analysis? Each barrier is discussed separately.	/1/	DR	NA		OK
B.5.30	How were the <u>investment barriers</u> assessed to be real? Are the investment barriers substantiated by a source independent of the project participants?	/1/	DR	NA		OK
B.5.31	How does CDM alleviate the investment barriers?	/1/	DR	NA		OK
B.5.32	Is the project activity prevented by the investment barriers and at least one of the possible alternatives to the project activity is feasible under the same circumstances?	/1/	DR	NA		OK
B.5.33	How were the <u>technological barriers</u> assessed to be real? Are the technological barriers substantiated by a source independent of the project participants?	/1/	DR	NA		OK
B.5.34	How does CDM alleviate the technological barriers?	/1/	DR	NA		OK
B.5.35	Is the project activity prevented by the technological barriers and at least one of the possible alternatives to the project activity is feasible under the same circumstances?	/1/	DR	NA		OK
B.5.36	How were the <u>barriers due to prevailing practise</u> assessed to	/1/	DR	NA		OK

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Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
	be real? Are the barriers due to prevailing practise substantiated by a source independent of the project participants?					
B.5.37	How does CDM alleviate the barriers due to prevailing practise?	/1/	DR	NA		OK
B.5.38	Is the project activity prevented by the barriers due to prevailing practise and at least one of the possible alternatives to the project activity is feasible under the same circumstances?	/1/	DR	NA		OK
B.5.39	How were the <u>other barriers</u> assessed to be real? Are the other barriers substantiated by a source independent of the project participants?	/1/	DR	NA		OK
B.5.40	How does CDM alleviate the other barriers?	/1/	DR	NA		OK
B.5.41	Is the project activity prevented by the other barriers and at least one of the possible alternatives to the project activity is feasible under the same circumstances?	/1/	DR	NA		OK
<b>Common practice analysis (VVM para 119-121)</b>						
B.5.42	What is the geographical scope of the common practice analysis? Is this justified?	/1/ /48/	DR	Yes. The geographical scope of the common practice analysis is Gansu Province after 2002. Gansu Province is where the proposed project located in and the projects in the same region have the similar wind resource, grid structure, geological and transportation conditions.  In April 2002, China implemented power sector reform /48/, market conditions for wind power projects development has changed significantly since then.  Hence the chosen geographical scope of the common practice analysis is reasonable.		OK
B.5.43	What is the scope of technology and size (e.g. capacity of power plant) for the common practice analysis and how has	/1/ /49/	DR	The scope of technology and size for the common practice analysis is wind power project with		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
this been justified?			capacity of more than 50 MW. According to “ <i>Management Regulations for Electricity Generation from Renewable Energy</i> ” /49/, wind farm projects with the installed capacity of or more than 50MW should get the FSR approval letter from National Development and Reform Commission instead of provincial development and reform commission. It is DNV’s opinion that the scope of technology and size or the common practice analysis is reasonable.		
B.5.44 What is the data source(s) used for the common practice analysis?	/1/	DR I	The data sources used for the common practice of the referred compared projects need to be specified and available to access.	<del>CL-6</del>	OK
B.5.45 How many similar non-CDM-projects exist in the region within the scope?	/1/	DR I	There is one similar non-CDM project exists in Gansu Province within the scope: Gansu Anxi Wind Farm Project. However, the data sources used for the common practice of the referred compared projects need to be specified and available to access.	<del>CL-6</del>	OK
B.5.46 How were possible essential distinctions between the project activity and similar activities assessed?	/1/	DR I	The data sources used for the common practice of the referred compared projects need to be specified and available to access.	<del>CL-6</del>	OK
B.5.47 What is the conclusion of the common practice analysis?	/1/	DR	The conclusion will be provided at the final report.	<del>CL-6</del>	OK
<b>Conclusion</b>	/1/				
B.5.48 What is the conclusion with regard to the additionality of the project activity?	/1/	DR	The conclusion will be generated as soon as the above CARs/CLs resolved.	<del>CL-2</del> <del>CL-3</del> <del>CL-4</del> <del>CL-5</del> <del>CL-6</del>	OK

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Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
<b>B.6 Calculations of GHG emission reductions</b>						
<b>Data and parameters that are available at validation and that are not monitored (VVM para 199-203)</b>						
B.6.1	How was the insert parameter available at validation verified?	/1/ /29/ /40/ /41/ /42/	DR	The values will be available at validation from 2006 IPCC Guidelines for National Greenhouse Gas Inventories Reference Manual /40/, China Electric Power Yearbook 2004~2008 /41/, China Energy Statistical Yearbook 2006~2008 /42/ and Guidance for the determination of grid boundaries and emission factors /29/. All these data used in the PDD are verified and confirmed by DNV.		OK
<b>Baseline emissions (VVM para 89-93)</b>						
B.6.2	Are the calculations documented according to the approved methodology and in a complete and transparent manner?	/1/ /8/ /29/	DR	The emission reduction calculation process is documented in a transparent manner /8/ and it is cross-checked by the published data from National Development and Reform Commission /29/ that all the data and calculation in the provided calculation sheet /8/ is correct.		OK
B.6.3	Have conservative assumptions been used when calculating the baseline emissions?	/1/ /23/ /25/	DR	Yes. All the used assumptions are in line with the “Tool to calculate the emission factor for an electricity system” version 2 /23/ and Guidance for request for deviation titled “Application of AM0005 and AMS-I.D in China” from EB /25/.		OK
B.6.4	Are uncertainties in the baseline emission estimates properly addressed?	/1/ /22/	DR	There are no significant uncertainties in baseline emission according to ACM0002 version 11 /22/.		OK
<b>Project emissions (VVM para 89-93)</b>						
B.6.5	Are the calculations documented according to the approved methodology and in a complete and transparent manner?	/1/ /22/	DR	There is no need to consider project emissions according to the approved methodology ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from		OK

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Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
				<i>renewable sources</i> ” version 11 /22/.		
B.6.6	Have conservative assumptions been used when calculating the project emissions?	/1/ /22/	DR	There is no need to consider project emissions according to the approved methodology ACM0002 “Consolidated <i>baseline methodology for grid-connected electricity generation from renewable sources</i> ” version 11 /22/.		OK
B.6.7	Are uncertainties in the project emission estimates properly addressed?	/1/ /22/	DR	There is no need to consider project emissions according to the approved methodology ACM0002 “Consolidated <i>baseline methodology for grid-connected electricity generation from renewable sources</i> ” version 11 /22/.		OK
<b>Leakage (VVM para 89-93)</b>						
B.6.8	Are the leakage calculations documented according to the approved methodology and in a complete and transparent manner?	/1/ /22/	DR	There is no need to consider leakage according to the methodology ACM0002 version 11 /22/.		OK
B.6.9	Have conservative assumptions been used when calculating the leakage emissions?	/1/ /22/	DR	There is no need to consider leakage according to the methodology ACM0002 version 11 /22/.		OK
B.6.10	Are uncertainties in the leakage emission estimates properly addressed?	/1/ /22/	DR	There is no need to consider leakage according to the methodology ACM0002 version 11 /22/.		OK
<b>Emission Reductions (VVM para 89-93)</b>						
B.6.11	Algorithms and/or formulae used to determine emission reductions: <ul style="list-style-type: none"> <li>All assumptions and data used by the project participants are listed in the PDD and related document submitted for registration. The data are properly referenced</li> <li>All documentation is correctly quoted and interpreted.</li> <li>All values used can be deemed reasonable in the context of the project activity</li> <li>The methodology has been correctly applied to calculate the emission reductions and this can be replicated by the</li> </ul>	/1/ /2/ /3/ /7/ /23/ /29/ /40/ /41/ /42/	DR	<ul style="list-style-type: none"> <li>Yes. EIA was approved by Gansu Environment Protection Bureau dated 6 August 2008 /3/, and FSR was approved by National Development and Reform Commission dated 21 April 2009 /2/, and all other document used to determine emission reductions can be verified, the data can be deemed.</li> <li>Yes. According to the reference list, all documents /29/ /40/ /41/ /42/ used to determine emission reductions were</li> </ul>		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
data provided in the PDD and supporting files to be submitted for registration.			<p>correctly quoted and interpreted.</p> <ul style="list-style-type: none"><li>• Yes. All values used can be deemed reasonable in the context of the project activity.</li><li>• Yes. The description of baseline emission in the PDD needs to be updated according to the approved “<i>Tool to calculate the emission factor for an electricity system</i>” version 02 /23/.</li></ul> <p>The calculation of emission factors was verified to be based on the most recent data available at the time of submission of the PDD to the DOE for validation and also cross-checked by the figures issued by NDRC /29/.</p>		
<b>B.7 Monitoring plan (VVM para 122-124)</b>					
<b>Data and parameters monitored</b>					
B.7.1 Do the means of monitoring described in the plan comply with the requirements of the methodology?	/1/ /22/	DR	Yes. The means of monitoring description in the PDD are according to the approved methodology ACM0002 “Consolidated <i>baseline methodology for grid-connected electricity generation from renewable sources</i> ” version 11 /22/ and are in a complete and transparent manner.		OK
B.7.2 Does the monitoring plan contains all necessary parameters, and are they clearly described?	/1/ /22/	DR I	<p>The only parameter needs to be monitored is the net electricity generation supplied (<math>EG_{\text{facility},y}</math>) by Gansu Guazhou Ganhekou No.8 Wind Farm Project according to the approved monitoring methodology ACM0002 /22/.</p> <p>It stated in the PDD that <math>EG_{\text{export},y}</math>, <math>EG_{\text{import},y}</math> and <math>EG_{\text{backupline},y}</math> will be monitored. It needs to further explain the relationship of <math>EG_{\text{import},y}</math> and <math>EG_{\text{backupline},y}</math>, and how to define the net electricity</p>	CL-7	OK

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Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
				supplied to the grid by the proposed project.		
B.7.3	In case parameters are measured, is the measurement equipment described? Describe each relevant parameter.	/1/	DR	The net electricity supplied to the grid by the proposed project will be measured by electricity meters installed, from which the exported and imported electricity can be measured, and the net electricity generation can be calculated.		OK
B.7.4	In case parameters are measured, is the measurement accuracy addressed and deemed appropriate? Describe each relevant parameter.	/1/	DR I	It stated in Section B.7.2 in the PDD that the accuracy of the meters will be no less than 0.5. It needs to justify the accuracy with sufficient evidence documents.	<del>CL-8</del>	OK
B.7.5	In case parameters are measured, are the requirements for maintenance and calibration of measurement equipment described and deemed appropriate? Describe each relevant parameter.	/1/	DR	Yes. The meters will be operated and maintained by the project owner. The meters will be calibrated annually by an independent third party according to relevant national standards.		OK
B.7.6	Is the monitoring frequency adequate for all monitoring parameters? Describe each parameter.	/1/ /22/	DR	Yes. It stated in the PDD that the net electricity generated will be measured continuously. This is in line with the approved monitoring methodology ACM0002 version 11 /22/ and adequate.		OK
B.7.7	Is the recording frequency adequate for all monitoring parameters? Describe each parameter.	/1/ /22/	DR	Yes. It stated in the PDD that the net electricity generated will be monthly recorded. This is in line with the approved monitoring methodology ACM0002 version 11 /22/ and adequate.		OK
<b>Ability of project participants to implement monitoring plan</b>						
B.7.8	How has it been assessed that the monitoring arrangements described in the monitoring plan are feasible within the project design?	/1/	DR I	The monitoring arrangements have been assessed during the interview. The only monitored parameter is the net generated electricity by Gansu Guazhou Ganhekou No.8 Wind Farm Project. The monitor equipment, electrical meter, is a part of the project design.		OK

Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
				The project owner will have a CDM management organization to be in charge of the CDM issues. The calibration of meters, data recording, emergency procedures and QA/QC process will all be in place as the description in the PDD.		
B.7.9	Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)?	/1/	DR I	The procedures for day-to-day records handling needs to be described in the PDD.	<del>CL-9</del>	OK
B.7.10	Are the data management and quality assurance and quality control procedures sufficient to ensure that the emission reductions achieved by/resulting from the project can be reported ex post and verified?	/1/ /22/	DR I	Yes. All monitoring data and records will be archived in electronic document and paper document. The project owner will also keep copies of sales receipts and prepare a monitoring report when necessary, which includes the net electricity generation, the calibration records, the emission reductions calculation.		OK
B.7.11	Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of CERs, for this project activity, whichever occurs later?	/1/ /22/	DR	Yes. All data collected as part of monitoring will be archived electronically and be kept at least for 2 years after the end of the last crediting period, which is in line with the approved methodology ACM0002 “Consolidated <i>baseline methodology for grid-connected electricity generation from renewable sources</i> ” version 11 /22/.		OK
<b>Monitoring of sustainable development indicators/ environmental impacts</b>						
B.7.12	Is the monitoring of sustainable development indicators/ environmental impacts warranted by legislation in the host country?	/1/	DR	Neither ACM0002 version 11 nor the Chinese DNA requires collection and archiving of relevant data concerning environmental, social and economic impacts.		OK
B.7.13	Does the monitoring plan provide for the collection and archiving of relevant data concerning environmental, social and economic impacts?	/1/	DR	The indicators of environmental impacts will be stipulated by local environmental authority.		OK

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Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
B.7.14	Are the sustainable development indicators in line with stated national priorities in the host country?	/1/	DR	Yes. This will be on local authority decision.		OK
<b>C Duration of the project activity / crediting period</b>						
<b>Start date of project activity (VVM para 99-100, 104)</b>						
C.1.1	How has the starting date of the project activity been determined? What are the dates of the first contracts for the project activity? When was the first construction activity?	/1/	DR	<p>The main transformer purchase date 13 December 2009 is chosen as the starting date.</p> <ul style="list-style-type: none"> <li>● The main transformer purchase agreement signed on 13 December 2009 /4/.</li> <li>● The Construction Contract of Civil Engineering and Installation of Mechanical and Electrical Equipment signed on 10 Apr 2010 /16/.</li> <li>● The construction of the proposed project was permitted on 11 April 2010 /5/.</li> <li>● The project owner signed Wind Turbines Purchase Agreement dated 31 May 2010 /6/.</li> </ul> <p>Thus the starting date chosen is reasonable as per the earliest financial commitment.</p>		OK
C.1.2	Is the stated expected operational lifetime of the project activity reasonable?	/1/ /2/	DR	The expected operation lifetime of Gansu Guazhou Ganhekou No.8 Wind Farm Project is 20 years which is in line with data in the FSR /2/ and it is reasonable.		OK
C.1.3	Is the start date, the type (renewable/fixed) and the length of the crediting period clearly defined and reasonable?	/1/	DR	The chosen crediting period is seven years renewable crediting period /1/. It stated in the PDD, version 2.0, dated 5 August 2010 that the crediting starting date is chosen as 10 March 2011 or the date of registration, whichever is		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			later /1/. The crediting period is clearly defined in the PDD and reasonable.		
<b>D Environmental Impacts (VVM para 131-133)</b>					
D.1.1 Are there any host country requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved? Does the approval contain any conditions that need monitoring?	/1/ /3/	DR I	Yes. The EIA of Gansu Guazhou Ganhekou No.8 Wind Farm Project was completed by Northwest Research Institute of Mining and Metallurgy dated July 2008 /3/.  The EIA of Gansu Guazhou Ganhekou No.8 Wind Farm Project was approved by Gansu Environment Protection Bureau on 6 August 2008 /3/.  There is no special condition that needs monitoring according to the EIA and the approval of EIA for the proposed project /3/.		OK
D.1.2 Does the project comply with environmental legislation in the host country?	/1/ /3/	DR I	Yes. The EIA of Gansu Guazhou Ganhekou No.8 Wind Farm Project was approved by Gansu Environment Protection Bureau, on 6 August 2008 /3/.		OK
D.1.3 Will the project create any adverse environmental effects?	/1/ /3/	DR I	The project will have no significant impacts on the local environment according to the EIA /3/.		OK
D.1.4 Have identified environmental impacts been addressed in the project design?	/1/	DR	Yes. It clearly states the environmental impacts in the PDD, which covers air impact, waste water, solid waste, and impact of land disturb.		OK
D.1.5 Has an analysis of the environmental impacts of the project activity been sufficiently described?	/1/	DR	Yes. The analysis of the environmental impacts has been sufficiently described in the PDD.		OK
D.1.6 Are transboundary environmental impacts considered in the analysis?	/1/	DR	There is no need to consider transboundary environmental impacts.		OK



Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
<b>E Stakeholder Comments (VVM para 128-130)</b>					
E.1.1 Have relevant stakeholders been consulted?	/1/ /12/	DR I CC	The project owner conducted a public survey to invite comments from local stakeholders in Dec 2009 /12/. Local stakeholders were invited through questionnaires to provide comments on the proposed project. However, it needs to clarify how the questionnaires distributed.	<del>CL</del> 40	OK
E.1.2 Have appropriate media been used to invite comments by local stakeholders?	/1/ /17/	DR I	The project owner has used local newspaper (Lanzhou Morning Post) to invite the public suggestions on 23 December 2009 /17/.		OK
E.1.3 If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	/1/ /43/	DR	Yes. The stakeholder consultation process is in accordance with Chinese EIA regulations /43/.		OK
E.1.4 Is a summary of the stakeholder comments received provided?	/1/ /12/ /17/	DR I CC	The summary of the stakeholder comments received is described in the PDD /1/. However, it needs to update the summary descriptions in the PDD according to the received 59 stakeholder questionnaires /12/ and summarize the public suggestions received through the invitation of the Lanzhou Morning Post dated 23 Dec 2009 /17/.	<del>CL</del> 40	OK
E.1.5 Has due account been taken of any stakeholder comments received?	/1/ /12/	DR I	As addressed in the PDD, it shows all of the investigated are supportive to the project activity. The project owner took full consideration of the comments and suggestions given by stakeholders during the implementation and operation period.		OK

**Table 3      Resolution of corrective action requests and clarification requests**

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
<p>CAR 1</p> <p>The LoA from United Kingdom of Great Britain and Northern Ireland needs to be provided.</p>	<p>A.3.1</p> <p>A.3.2</p> <p>A.3.3</p> <p>A.5.1</p>	<p>The LoA from United Kingdom of Great Britain and Northern Ireland has been provided.</p>	<p>OK.</p> <p>A letter of approval (LoA) /20/ was issued by DNA of United Kingdom of Great Britain and Northern Ireland on 17 August 2010, authorizing United Carbon Credits Limited as project participant.</p> <p>DNV verified the authenticity of LoA by checking the e-mail involving the delivery information of LoA from DNA of United Kingdom of Great Britain and Northern Ireland.</p> <p>DNV has received the LoAs from the project participants issued by the DNAs of the United Kingdom of Great Britain and Northern Ireland and China on 17 August 2010 /20/ and 13 July 2010 /19/, respectively. During the course of the validation, DNV has not found elements to question the authenticity of the letters provided by the project participants and considers that the letters comply with the paragraphs 45-48 of the Validation and Verification Manual /21/.</p> <p>The validation did not reveal any information that indicates the project can be seen as a diversion of official development assistance funding towards China.</p> <p>CAR 1 is closed.</p>
<p>CL 1</p> <p>It needs to clarify whether the technology reflects current good practices, and whether there is</p>	<p>A.2.6</p> <p>A.2.7</p>	<p>All these information have been added in the updated PDD.</p>	<p>OK.</p> <p>All the 134 wind turbines will be supplied by Sinovel Wind Group Co., Ltd who is one of the advanced local wind turbines manufactory and</p>

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
any transfer of technology from any Annex-I Party involved or not.			contributes 20% of newly installed capacity in 2007 in China /38/. The SL 1500/82 wind turbine is a megawatt level variable speed constant frequency wind power set. The technology reflects current good practices and there is no transfer of technology from any Annex-I Party involved. CL 1 is closed.
CL 2 It needs to substantiate how to eliminate the alternative 3) while determining the baseline scenario, i.e. using the renewable sources, such as hydro power, biomass, PV and geothermal power to generate equivalent electricity.	B.4.2 B.4.7 B.4.8 B.5.2 B.5.3 B.5.48	It has substantiated how to eliminate the alternative 3), and the relevant information have been added in the updated PDD.	OK. The project region belongs to water resource shortage area in Guazhou County, Jiuquan City, Gansu Province, and no economically exploitable water resources which can provide same electricity generation output exist in project site /31/. There are no enough biomass resources in the extreme drought desert area where the proposed project located in /2/. Furthermore, Solar PV project suffers from high cost, barriers and difficult to develop /32/. Due to technology barriers and the high cost /33/, it is impossible for geothermal utilization projects to achieve equivalent output in Jiuquan City, Gansu Province where the proposed project is located in. Therefore, other sources of renewable energy are not feasible and have been excluded. All relevant evidences were referenced in the PDD and have been verified by DNV. CL 2 is closed.
CL 3 It needs to elaborate why choose the depreciation of 12 years with depreciation rate 8%.	B.5.17 B.5.18 B.5.25 B.5.48	According to the “Economic Evaluation Method and Parameters for Construction Projects (Version 3)”, the depreciation period of fixed assets should be determined by the enterprise in the scope of tax	OK. The depreciation rate of 8% and the rate of residual rate of 5% are derived from the FSR /2/ and thus the depreciation period is 12 years. The residual

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
		<p>law. According to the Enterprise Income Tax Law of the People's Republic of China<sup>1</sup>, the depreciation period should be 10 years at least, so the depreciation period 12 years of the proposed project is credible. Furthermore, the depreciation life of 12 years and the depreciation rate 8% applied in the PDD are derived from the approved FSR which was compiled by Northwest Hydro Consulting Engineers, CHECC. (Accredited A level consulting company by the National Development and Reform Commission). And, the institute has issued a letter of the presentation about the 'Depreciation period', 'Depreciation rate' and 'rate for the residual value' which declare that "Depreciation period", and 'Depreciation rate' were estimated based on "Economic Evaluation Method and Parameters for Construction Projects (Version 3)", Implementation Regulations of the Enterprise Income Tax Law of the People's Republic of China and of the actual situation of nearby operated wind farms and the characteristics of the project.</p>	<p>value is recovered at the last year of operation period in the project IRR calculation spreadsheet /7/. According to the "<i>Implementation Rules for Law of the People's Republic of China on Enterprise Income Tax</i>" /52/, the minimum number of years for computing depreciation of fixed assets is 10 years for the manufacturing and business operations. The depreciation period of 12 years adopted by the proposed project is considered to be reasonable.</p> <p>In addition, as shown in the table 2 in Section 4.6.3 in the validation report, the depreciation period of 12 years and the depreciation rate per year of 8% for the proposed project is in the range of other similar CDM projects. Thus, DNV could confirm that the depreciation is reasonable.</p> <p>CL 3 is closed.</p>
<p>CL 4</p> <p>According to the revised "Provisional Regulations of the People's Republic of China on Value Added Tax", the VAT incurred by the purchase of equipments can be credited over the operation period against the VAT for electricity sales until the VAT from the equipment is</p>	<p>B.5.18</p> <p>B.5.25</p> <p>B.5.48</p>	<p>According to revised "<i>Provisional Regulations of the People's Republic of China on Value Added Tax</i>", the deduction of VAT incurred by the purchase of equipments has been considered in the updated IRR calculation sheet.</p>	<p>OK.</p> <p>The updated PDD /1/ and IRR calculation spreadsheet /7/ have been provided to DNV.</p> <p>According to the new regulations /54/ /56/, the equipment VAT was credited over the operation period against the tariff VAT until the VAT from the equipment VAT is fully recovered. For the proposed project, this happens in the 10<sup>th</sup> year. Half of the VAT incurred by the electricity sales has been annually recovered from the 10<sup>th</sup> year to 23<sup>rd</sup></p>

<sup>1</sup> <http://www.chinaacc.com/new/63/67/81/2007/12/wa1443216131112170023480-0.htm>

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
fully recovered. It is requested to clarify how the new VAT regulations were considered for the proposed project.			year after the equipment VAT is fully recovered. The project IRR changed from 4.97% to 5.86% /1/ /7/ which is still below the benchmark of 8%. DNV was able to verify that the VAT deduction and drawback policy has been seriously considered by the project participants and the calculation is transparent and correct. CL 4 is closed.
CL 5 It needs to justify the validity and suitability of input parameters in financial analysis (including PLF, electricity tariff, annual O&M costs and taxes) with sufficient evidence documents. The total investment costs per kW applied in the project financial analysis should be justified by cross-checking or other appropriate manner with the similar wind power projects in Gansu Province.	B.5.20 B.5.21 B.5.22 B.5.23 B.5.24 B.5.25 B.5.48	The input parameters applied in the investment analysis are derived from the FSR of the project and are completely consistent with the ones in FSR. The FSR was completed by Northwest Hydro Consulting Engineers, CHECC which is an independent designed authority in December 2008 and was approved by NDRC on 21 <sup>st</sup> April 2009. <b><u>PLF:</u></b> The proposed project is expected to operate 2205 hours per years which is derived from the officially approved FSR compiled by an independent engineering company. In the Approved FSR, the expected annual electricity output of the proposed project were calculated based on 30 years of historical wind speeds measured by Local Meteorological Station. Furthermore, the PLF of the proposed project is 25.17% (2,205/8,760), which is a little higher than average PLF (20% <sup>2</sup> ) of	OK. It has been verified in the Section 4.6.3 in the validation report that the input parameters in financial analysis i.e. PLF (electricity generation), tariff, total investment, annual O&M costs and taxes in financial analysis are reasonable and adequately represent the economic situation of the project. CL 5 is closed.

<sup>2</sup> CHINA WIND POWER REPORT 2008, P23.

<sup>3</sup> Fagainengyuan [2009] No. 1005

<sup>4</sup> China Electricity Price Executive Report 2008, issued by State Electricity Regulatory Commission

<sup>5</sup> Renewable Energy Technology , Economics and Environment, P342

<sup>6</sup> <http://www.js-n-tax.gov.cn/Page1/StatuteDetail.aspx?StatuteID=8862>, State Administration of Taxation, National VAT Law.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
		<p>the similar projects in the same region Gansu Province. Therefore, it can be concluded that the PLF of the proposed project is valid and appropriate.</p> <p><b><u>Electricity Tariff:</u></b></p> <p>The electricity tariff 0.5206RMB/kWh (Inc. VAT) used in the PDD is sourced from the approved FSR. On 21st April, 2009, the FSR of the proposed project was approved by the NDRC<sup>3</sup>. According to Fagainengyuan [2009] No. 1005, the tariff of the wind farm project officially approved was two-phase tariff. The tariff before 30,000 hours will be fixed (i.e. 0.5206 RMB/kWh (Inc. VAT)), the tariff after 30,000 hours will be set at the average tariff of the local grid (0.24901 RMB/kWh (Inc.VAT) in 2008)<sup>4</sup> which is far lower than 0.5206 RMB/kWh (Inc.VAT, after 30,000 hours) used in IRR calculation. So, it is conservative and reasonable to use 0.5206RMB /kWh (Inc.VAT) as the tariff for whole life.</p> <p>Moreover, even if the highest tariff issued for similar projects in Gansu Province 0.585 RMB/kWh (Inc. VAT) was used in the IRR calculation for whole life, the project IRR would be still lower than the benchmark of 8%.</p> <p><b><u>Annual O&amp;M cost:</u></b></p> <p>The annual O&amp;M costs mainly include</p>	

<sup>7</sup> <http://www.js-n-tax.gov.cn/Page1/StatuteDetail.aspx?StatuteID=8931>, State Administration of Taxation, 50%-off discount on VAT for wind power projects.

<sup>8</sup> [http://www.gov.cn/flfg/2007-03/19/content\\_554243.htm](http://www.gov.cn/flfg/2007-03/19/content_554243.htm)

<sup>9</sup> [http://www.law-lib.com/law/law\\_view1.asp?id=99771](http://www.law-lib.com/law/law_view1.asp?id=99771)

<sup>10</sup> <http://202.108.90.130/chinatax/jibenfa/jibenfa0401.htm>



Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
		<p>maintenance costs, wage and welfare, material cost and other costs. The O&amp;M costs are about 2.13% of the total investment which is also well within the typical average<sup>5</sup>. Otherwise, Only when the annual O&amp;M cost has a drop of 225%, the project IRR can reach the benchmark rate. Transparently, it is impossible for the operation &amp; maintenance cost to zero. Therefore, the annual O&amp;M cost will not be changed to make the project IRR equal to the benchmark;</p> <p><b><u>Taxes:</u></b></p> <p><b>Value added tax:</b></p> <p>The rate of VAT is 17%, and the rate of VAT drawback is 50%, applicable to the wind power industry in accordance with National VAT Law (State Council [2008]538) <sup>6</sup> issued by State Administration of Taxation and VAT policy on Comprehensive Utilization of Resource and Other Products (Cai Shui [2008]156) <sup>7</sup> released by Ministry of Finance and State Administration of Taxation. According to revised “Provisional Regulations of the People's Republic of China on Value Added Tax” (Cai Shui [2008]170), the VAT incurred by the purchase of equipments can be credited over the operation period against the VAT for electricity sales until the VAT from the equipment is fully recovered. Both VAT reduction policies are taken into account in the updated IRR Calculation Sheet. So, this is conservative.</p> <p><b>Income tax:</b></p> <p>According to “Income Tax Law of the People's Republic of China for Enterprises” issued in 16<sup>th</sup></p>	

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
		<p>March 2007, the income tax rate was set as 25%<sup>8</sup>.</p> <p><b>Education supplementary tax:</b></p> <p>According to the Interim Provision on Education Tax Law, the education supplementary tax rate is 3% of VAT<sup>9</sup>.</p> <p><b>Maintaining and building cities tax:</b></p> <p>According to the National City Tax Law, the maintaining and building cities tax rate is 5% of VAT<sup>10</sup>.</p> <p>So, all these taxes used in financial analysis are valid and appropriate.</p> <p><b><u>Total Investment:</u></b></p> <p>The total static investment used in the investment analysis in the PDD is from the approved FSR. The total investment per kW of the proposed project is 9 731RMB/kW, which is a little higher than the average investment costs of 9 270 RMB/kW of all CDM projects in Gansu province registered in UNFCCC. If we use 9 270RMB/kW for the project, the IRR is 6.56% which is still lower than the benchmark of 8%.</p> <p>Otherwise, the project owner has signed purchase agreement of the main transformer and the purchase agreements of the wind turbines and wind-power towers. By reviewing them, it can be concluded that the actual expenses are higher than the estimated value in the approved FSR. So, the static total investment used in the investment analysis in the PDD is valid and appropriate and it is impossible for the proposed project to reduce the static total investment to make the project IRR higher than the benchmark of 8%.</p>	

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
<p>CL 6</p> <p>The data sources used for the common practice of the referred compared projects need to be specified and available to access.</p>	<p>B.5.44</p> <p>B.5.45</p> <p>B.5.46</p> <p>B.5.47</p> <p>B.5.48</p>	<p>The data sources used for the common practice of the referred compared projects has been specified.</p>	<p>OK.</p> <p>The data sources used for the common practice of the referred compared projects are updated and available to access.</p> <p>The PDD version 2.0 dated 5 August 2010 /1/ has been updated.</p> <p>CL 6 is closed.</p>
<p>CL 7</p> <p>The only parameter needs to be monitored is the net electricity generation supplied by Gansu Guazhou Ganhekou No.8 Wind Farm Project.</p> <p>It is stated in the PDD that <math>EG_{\text{export},y}</math>, <math>EG_{\text{import},y}</math> and <math>EG_{\text{backupline},y}</math> will be monitored. It needs to further explain the relationship of <math>EG_{\text{import},y}</math> and <math>EG_{\text{backupline},y}</math>, and how to define the net electricity supplied to the grid by the proposed project.</p>	<p>B.7.2</p>	<p>The net electricity supplied by the proposed project activity is calculated based on the recording measured by meter 1 and meter 2. For details, please see the updated PDD.</p>	<p>Ok.</p> <p>This part in PDD has been updated. <math>EG_{\text{import},y}</math> means electricity imported from the grid to the project through the main line in year y; while <math>EG_{\text{auxiliary line},y}</math> is for the electricity delivered to the project through the auxiliary line in year y.</p> <p>The metering equipments of main meter M1 and backup meter will continuously measure the electricity import from the grid and export to the grid through 330 kV transmission line at Ganhekou West Transformer Station, while the metering equipment M2 will continuously measure the electricity import from the grid through the 35kV/400V auxiliary line.</p> <p>The net electricity generation from the proposed project activity will be calculated as <math>EG_{\text{facility},y} = EG_{\text{export},y} - EG_{\text{import},y} - EG_{\text{auxiliary line},y}</math>, which is deemed reasonable.</p> <p>CL 7 is closed.</p>
<p>CL 8</p> <p>It is stated in Section B.7.2 in the PDD that the accuracy of the meters will be no less than 0.5. It needs to justify the accuracy with</p>	<p>B.7.4</p>	<p>The accuracy of the meter M1 and the backup meter M1 will be 0.2s, while the accuracy of the metering equipment M2 shall be 0.5s. And this has been updated in the PDD.</p>	<p>OK.</p> <p>According to the “National industry standard of the Technical Administrative Code of Electric Energy Metering (DL/T448-2000)” /45/, the accuracy of the toll-gate meters should be 0.2 or 0.2s for the</p>

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
sufficient evidence documents.			power plants with the installed capacity more than 200 MW. Hence, the accuracy of 0.2s for the meter M1 and the backup meter is reasonable. The accuracy of 0.5s for the metering equipment M2 is reasonable, since it will measure the electricity import from the grid through the 35kV/400V auxiliary line in case of emergencies. CL 8 is closed.
CL 9 The procedures for day-to-day records handling needs to be described in the PDD.	B.7.9	All these information have been added in the updated PDD.	OK. The procedures for day-to-day records handling has been identified in the updated PDD version 2.0 dated 5 August 2010 /1/: <ul style="list-style-type: none"><li>● On-duty staff will watch the operation status of metering equipments on site. The designated staff will collect the measured data and the corresponding records. The data from these records will be digested and analyzed and the results will be reported to project manager.</li><li>● All physical documents including the readings in electronic and/or manual form of the meters, electricity transaction notes will be stored by the project owner.</li><li>● The monthly records of power supplied to the grid and received from the grid, relevant accounting documents and electricity transaction notes and the results of calibration shall be collected in a central place by the project owner.</li></ul> CL 9 is closed.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
CL 10 The project owner conducted a public survey to invite comments from local stakeholders in December 2009. However, it needs to clarify how the questionnaires distributed, update the summary descriptions in the PDD according to the received 59 stakeholder questionnaires and summarize the public suggestions received through the invitation of the Lanzhou Morning Post dated 23 December 2009.	E.1.1 E.1.4	All these information have been added in the updated PDD and the relevant descriptions has been updated in the PDD.	OK. The proposed project is located in the Gobi where 56.5 km away from the northwest of Guazhou county seat is; there are few residents who live near the project site and are impacted by the proposed project, and there are no farmlands around according to the approved FSR /2/ and EIA /3/. The 59 questionnaires are reasonable to represent all local stakeholders near the project site. No negative comments received from the local stakeholders through questionnaires survey /12/ and no comments had been received from invitation dated 23 December 2009 through e-mail or the telephone on the proposed project. The summary description has been updated. CL 10 is closed.

**Table 4      Forward action requests**

Forward action request	Reference to Table 2	Response by project participants
NA	NA	NA

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**APPENDIX B**

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**CURRICULA VITAE OF THE VALIDATION TEAM MEMBERS**



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## CURRICULA VITAE OF THE VALIDATION TEAM MEMBERS

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### ***Xue, Yan Ju (Andi)***

Ms. Xue Yan Ju, Andi Holds a Master Degree in Applied Chemistry. Having an overall experience of around three and a half years. Prior to joining DNV having two years auditing experience in the implementation of quality management system such as ISO9001 standard for two years.

She has experience of around one and a half years in validation and verification of numerous CDM projects in DNV, in China. Her qualification, industrial experience and experience in CDM demonstrate her sufficient sectoral competence in “Energy Generation from Renewable Energy Sources”.

### ***Jian Rong Gary Zhou***

Mr. Zhou Jian Rong, Gary holds a Master Degree in Mining Engineering. He has an overall experience of around four years. Prior to joining DNV, having three years direct working experience in coal mines in different discipline and capacities such as technician, assistant engineer, principal staff and certified safety engineer, with responsibility for mining and excavation engineering quality management, production planning and coordinating with mining and excavation engineering teams in different districts. He had gained the knowledge and experience with regards to the laws and regulations governing safety in production, rules and regulations related the coal industry& coal mining enterprises and Safety Regulations in Coal Mine. He is knowledgeable in coal production system operating processes.

He has experience of around one year in validation and verification of numerous CDM projects.

His qualification, industrial experience and experience in CDM demonstrate him sufficient sectoral competence in “Oil and Gas industry, CMM Recovery and Use”.



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## CURRICULA VITAE OF THE VALIDATION TEAM MEMBERS

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### ***Zhi Ang (Walter) Tang***

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

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

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

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

### ***Andrea Leiroz***

Mrs. Andrea Leiroz holds a Bachelor’s Degree in Chemical Engineering, Master Degree in Material Science and Doctor Degree in Mechanical Engineering having an overall experience of around Thirteen years.

She has experience of around 4 years in validation and verification of numerous CDM projects in DNV, both in Brazil & abroad.

Her qualification, experience in CDM demonstrates her sufficient sectoral competence in Energy Generation from renewable energy sources, Waste handling and disposal and Animal waste management.