



VALIDATION REPORT

CECIC URUMQI TUOLI PHASE I WIND FARM PROJECT IN CHINA

REPORT No. 2010-9429

REVISION No. 01

DET NORSKE VERITAS



VALIDATION REPORT

Date of first issue: 2010-11-24		ConCert Project No.: PRJC-266913-2010-CCS-CHN
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Summary:

Project Name: CECIC Urumqi Tuoli Phase I Wind Farm Project

Country: China

Methodology: ACM0002

Version: 12.1

GHG reducing Measure/Technology: Wind Power

ER estimate: 116 644 tCO₂e per year (average)

Size

☒ Large Scale

☐ Small Scale

Validation Phases:

☒ Desk Review

☒ Follow up interviews

☒ Resolution of outstanding issues

Validation Status

☐ Corrective Actions Requested

☐ Clarifications Requested

☒ Full Approval and submission for registration

☐ Rejected

In summary, it is DNV's opinion that the project activity "CECIC Urumqi Tuoli Phase I Wind Farm Project" in China, as described in the PDD, version 1.2 of 20 December 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 12.1. Hence DNV requests the registration of the project as a CDM project activity.

Report No.: 2010-9429	Subject Group: Environment
Report title: CECIC Urumqi Tuoli Phase I Wind Farm Project in China	
Work carried out by: Xue, Yanju Andi	
Work verified by: Andrea Leiroz	
Date of this revision: 2011-02-11	Rev. No.: 01
Number of pages: 32	

Indexing terms

Key words

Climate Change

Kyoto Protocol

Validation

Clean Development Mechanism

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**Abbreviations**

BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction(s)
CL	Clarification request
CM	Combined Margin
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNA	Designated National Authority
DNV	Det Norske Veritas
DRC	Development and Reform Committee
EF	Emission Factor
EIA	Environmental Impact Assessment
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
NDRC	National Development and Reform Committee
NGO	Non-governmental Organisation
NWPG	Northwest China Power Grid
ODA	Official Development Assistance
OM	Operating Margin
PDD	Project Design Document
PLF	Plant Load Factor
RMB	Renminbi, Chinese currency (Yuan)
tCO ₂ e	Tonnes of CO ₂ equivalents
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 “CECIC Urumqi Tuoli Phase I 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 the United Kingdom of Great Britain and Northern Ireland. Both Parties fulfil the participation criteria and have approved the project and authorized the project participants CECIC Wind Power (Xinjiang) Co., Ltd. and Carbon Resource Management S.A. The DNA from China confirmed that the project assists in achieving sustainable development.

The project correctly applies the baseline and monitoring methodology ACM0002, version 12.1 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”.

For the proposed project totally 33 sets of 1.5 MW wind turbines will be installed, providing an average annual generation of 125 532 MWh connected into the Northwest China Power Grid. As a result, the project results in reductions of CO₂ emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The total emission reductions from the project are estimated to be on the average 116 644 tCO_{2e} per year over the selected 7 year renewable crediting period. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

The monitoring plan provides for the monitoring of the project’s emission reductions. The monitoring arrangements described in the monitoring plan are feasible within the project design and it is DNV’s opinion that the project participants are able to implement the monitoring plan.

In summary, it is DNV’s opinion that the project activity “CECIC Urumqi Tuoli Phase I Wind Farm Project” in China, as described in the PDD, version 1.2 dated 20 December 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 12.1. Hence, DNV requests the registration of the project as a CDM project activity.

Beijing and Oslo, 2011-02-11

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2 INTRODUCTION

Carbon Resource Management S.A. has commissioned Det Norske Veritas Certification AS (DNV) to perform a validation of the CECIC Urumqi Tuoli Phase I Wind Farm Project project in China (hereafter called “the project”). This report summarises the findings of the validation of the project, performed on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures and the subsequent decisions by the CDM Executive Board.

2.1 Objective

The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, monitoring plan, and the project's compliance with relevant UNFCCC and host Party criteria are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

2.2 Scope

The validation scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodology ACM0002 (version 12.1) /29/. The validation was based on the recommendations in the Validation and Verification Manual /28/.

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/ Carbon Resource Management Ltd.: *CDM-PDD for project activity "CECIC Urumqi Tuoli Phase I Wind Farm Project" in China*, version 1.1 dated 26 October 2010 and version 1.2 dated 20 December 2010.
- /2/ Xinjiang Survey and Design Institute of Water Resources and Hydropower Ministry of Water Resources: *Feasibility Study Report (FSR) of CECIC Urumqi Tuoli Phase I Wind Farm Project*, dated March 2010.
Development and Reform Commission of Xinjiang Uygur Autonomous Region: *The approval on the FSR of CECIC Urumqi Tuoli Phase I Wind Farm Project*, dated 31 May 2010.
- /3/ Xinjiang Environmental Protection Technology Consultation Center: *The Environmental Impact Assessment (EIA) report of CECIC Urumqi Tuoli Phase I Wind Farm Project*, dated 4 May 2008.
Environmental Protection Bureau of Xinjiang Uygur Autonomous Region: *The approval for EIA of CECIC Urumqi Tuoli Phase I Wind Farm Project*, dated 2 June 2008.
- /4/ Carbon Resource Management Ltd.: *The project IRR calculation spreadsheet*, version 1.1 dated 26 October 2010.
- /5/ Carbon Resource Management Ltd.: *The project ER calculation spreadsheet*, version 1.1 dated 26 October 2010.
Carbon Resource Management Ltd.: *The project EF calculation spreadsheet*, version 1.1 dated 26 October 2010.
- /6/ CECIC Wind Power (Xinjiang) Co., Ltd.: *Board meeting minutes for CDM consideration*, dated 2 June 2010.
- /7/ CECIC Wind Power (Xinjiang) Co., Ltd. and Carbon Resource Management S.A.: *Emission Reduction Purchase Agreement (ERPA) of CECIC Urumqi Tuoli Phase I Wind Farm Project*, dated 22 June 2010.
- /8/ CECIC Wind Power (Xinjiang) Co., Ltd. and Xinjiang Goldwind Science & Technology Co., Ltd.: *Turbines Purchase Agreement for CECIC Urumqi Tuoli Phase I Wind Farm Project*, dated 1 September 2010.
- /9/ CECIC Wind Power (Xinjiang) Co., Ltd.: *49 copies of answered questionnaires for the*



- stakeholder consultation, dated May 2010.*
- /10/ CECIC Wind Power (Xinjiang) Co., Ltd.: *Notification of the project commencement date and its intension to seek CDM support, submitted to the Chinese DNA, dated 2 August 2010 and confirmed by the Chinese DNA on 9 August 2010.*
 - /11/ Carbon Resource Management Ltd.: *Prior CDM consideration form submitted to UNFCCC secretariat, dated 13 July 2010 and confirmed by UNFCCC on 22 July 2010.*
 - /12/ Business Administration Bureau of Xinjiang Uygur Autonomous Region: *Business License of CECIC Wind Power (Xinjiang) Co., Ltd., dated 12 June 2008.*
 - /13/ Xinjiang Power Grid Company: *Assessment Opinions on the Grid Access of CECIC Urumqi Tuoli Phase I Wind Farm Project, dated 16 March 2010.*
 - /14/ National Lands and Resources Department of Xinjiang Uygur Autonomous Region, *Intention Letter on Land Use for CECIC Urumqi Tuoli Phase I Wind Farm Project, dated 16 July 2008.*
 - /15/ CECIC Wind Power (Xinjiang) Co., Ltd. & Xinjiang Kunlun Engineering Supervision Co., Ltd.: *Authorized Supervision Contract of CECIC Urumqi Tuoli Phase I Wind Farm Project, dated 15 September 2010.*
 - /16/ Xinjiang Kunlun Engineering Supervision Co., Ltd.: *Construction permission of tower basements, onsite substation and roads for CECIC Urumqi Tuoli Phase I Wind Farm Project, dated 30 November 2010.*
 - /17/ CECIC Wind Power (Xinjiang) Co., Ltd. & Xinjiang Xinneng Steel Structure Co., Ltd.: *Purchase agreement of towers for CECIC Urumqi Tuoli Phase I Wind Farm Project, dated 30 September 2010.*
 - /18/ CECIC Wind Power (Xinjiang) Co., Ltd. & Shandong Taikai Transformers Co., Ltd.: *Purchase agreement of box transformers for CECIC Urumqi Tuoli Phase I Wind Farm Project, dated 30 September 2010.*
 - /19/ CECIC Wind Power (Xinjiang) Co., Ltd. & Special transformers electricity engineering Co., Ltd.: *Purchase agreement of main transformer for CECIC Urumqi Tuoli Phase I Wind Farm Project, dated October 2010.*
 - /20/ CECIC Wind Power (Xinjiang) Co., Ltd. & Henan road sub-branch, Urumqi Branch of China Construction Bank: *Bank loan contract for CECIC Urumqi Tuoli Phase I Wind Farm Project, dated 13 October 2010.*
 - /21/ CECIC Wind Power (Xinjiang) Co., Ltd. & Xinjiang Electricity Construction Co., Ltd.: *Construction Contract of Turbines Installation Engineering, dated 11 November 2010.*
 - /22/ CECIC Wind Power (Xinjiang) Co., Ltd. & Xinjiang Huitong (Group) Co., Ltd.: *Contract for installation of 35 kV transmission line and construction of 110 kV step-up substation, dated 15 September 2010.*
 - /23/ CECIC Wind Power (Xinjiang) Co., Ltd. & Xinjiang Huitong (Group) Co., Ltd.: *Contract for installation of 110 kV transmission line and OPGW cables, dated 15 September 2010.*
 - /24/ CECIC Wind Power (Xinjiang) Co., Ltd. & Zhengzhou City Zhengyan Construction Co., Ltd.: *Construction contract of office building for CECIC Urumqi Tuoli Phase I Wind Farm Project, dated October 2010.*
 - /25/ People's Daily: *The development of wind power projects in China, dated 11 May 2007.*
<http://energy.people.com.cn/GB/5720709.html>



3.1.2 Letters of approval

/26/ National Development and Reform Committee (Abbreviation: NDRC, the DNA of China): *Letter of approval for CECIC Urumqi Tuoli Phase I Wind Farm Project*, dated 30 September 2010.

It is confirmed by <http://cdm.ccchina.govcn/web/NewsInfo.asp?NewsId=4806>.

/27/ Department of Energy and Climate Change (DNA of United Kingdom of Great Britain and Northern Ireland): *Letter of approval for CECIC Urumqi Tuoli Phase I Wind Farm Project*, dated 3 December 2010.

Designed National Authority (DNA) of United Kingdom of Great Britain and Northern Ireland: *Email including the letter of approval for CECIC Urumqi Tuoli Phase I Wind Farm Project to Carbon Resource Management S.A.*, dated 3 December 2010

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

/28/ CDM Executive Board: *Validation and Verification Manual*, version 1.2, adopted EB55 Annex 1 dated 30 July 2010.

http://cdm.unfccc.int/Reference/Manuals/accr_man01.pdf

/29/ CDM Executive Board: *Baseline and monitoring methodology ACM0002 Consolidated baseline methodology for grid-connected electricity generation from renewable sources*, version 12.1 adopted at EB58 Annex 7.

/30/ CDM Executive Board: *Tool for the demonstration and assessment of additionality*, Version 5.2 adopted EB39 Annex 10.

/31/ CDM Executive Board: *Tool to calculate the emission factor for an electricity system*, version 2 adopted EB50 Annex 14.

/32/ CDM Executive Board: *Information note on the highest tariffs applied by the executive board in its decisions on registration of projects in the People's Republic of China*, version 1, issued in EB54.

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

/33/ CDM Executive Board: *Guidelines for the reporting and validation of plant load factors*, version 1 adopted EB 48 Annex 11.

/34/ CDM Executive Board: *Guidelines on the demonstration and assessment of prior consideration of the CDM*, version 03 adopted EB49 Annex 22.

/35/ CDM Executive Board: *Guidance on the assessment of investment analysis*, version 3.1 adopted EB51 Annex 58.

/36/ CDM Executive Board: *Guidance for request for deviation titled "Application of AM0005 and AMS-I.D in China"*, adopted on 1 December 2005.

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

/37/ IPCC: *2006 IPCC Guidelines for National Greenhouse Gas Inventories*.

/38/ China Electric Power Yearbook 2004-2008.

/39/ China Energy Statistical Yearbook 2006-2008.

/40/ NDRC: *Emission factor calculation for each power grid of China (including the Chinese DNA's guidance for the determination of grid boundaries)*, dated 2 July 2009.



- http://qhs.ndrc.gov.cn/qjzjz/t20090703_289357.htm
- /41/ State Power Corporation of China: *Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects*, dated 2003.
- /42/ Shi Pengfei: *Statistics of Domestic Wind Farm Installation Capacity in 2007*.
http://www.cwea.org.cn/download/display_info.asp?id=25
- /43/ State Council of the People's Republic of China: *Interim Regulation of the People's Republic of China on Value Added Tax*, (State Council Document No. 538), dated 10 November 2008 and effective on 1 January 2009.
- /44/ NDRC: *The Code on Compiling the Feasibility Study Report of Wind Farms*, dated 25 May 2005.
http://www.windpower.org.cn/news/links/js_2005_0508.htm
- /45/ NDRC and Ministry of Construction of P.R.China: *Economic Evaluation Method and Parameters for Project Construction*, 3rd edition, dated 3 July 2006.
- /46/ Ministry of Finance & State Administration of Taxation: *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*, Cai Shui [2008]156, issued on 9 December 2008 and effective on 1 January 2009.
- /47/ Ministry of Justice of the People's Republic of China: *Law of People's Republic of China on Enterprise Income Tax*, President decree No.63, issued on 16 March 2007 and effective on 1 January 2008.
- /48/ State Council of the People's Republic of China: *Implementation Rules of Enterprise Income Tax Law of People's Republic of China*, State Council Document No.512, issued 6 December 2007 and effective on 1 January 2008.
- /49/ State Council of the People's Republic of China: *Provisional Regulations of the People's Republic of China on City Maintenance and Construction Taxes*, dated 8 February 1985.
<http://www.tjtdxy.cn/show.aspx?id=1932&cid=69>
- /50/ State Council of the People's Republic of China: *Provisional Regulations of the People's Republic of China on Education Tax*, dated 20 August 2005.
- /51/ Ministry of Justice of the People's Republic of China: *Environmental Protection Law of the People's Republic of China*, dated 26 December 1989.
- /52/ Ministry of Justice of the People's Republic of China: *Law of the People's Republic of China on Evaluation of Environmental Effects*, [2002] No.77 dated on 1 September 2003.
- /53/ NDRC: *Promulgation of Electric Power Industry Reform*, dated 11 February 2002:
http://www.ndrc.gov.cn/xwfb/t20050708_28096.htm
- /54/ NDRC: *Notification of electricity tariff for wind power projects*, Fa Gai Jia Ge [2006]2908, dated 22 December 2006.
- /55/ NDRC: *Notification of electricity tariff for wind power projects*, Fa Gai Jia Ge [2007]1260, dated 9 June 2007.
- /56/ NDRC: *Notification of electricity tariff for wind power projects*, Fa Gai Jia Ge [2007]3303, dated 3 December 2007.
- /57/ NDRC: *Notice of improving tariff regulation for wind power projects*, Fa Gai Jia Ge [2009]1906, dated 20 July 2009.



- /58/ Development and Reform Committee (DRC) of Xinjiang Uygur Autonomous Region: *Tariff approval for wind power projects*, dated 14 December 2009.
- /59/ NDRC: *Notice on the solutions to the tariff issues for wind power projects in Xinjiang*, dated 26 November 2004.
- /60/ DRC of Xinjiang Uygur Autonomous Region: *Straightening out Conflicts over Electricity Tariff in Urumqi*, Document No. [2004] 2570, dated 19 November 2004.
- /61/ DRC of Xinjiang Uygur Autonomous Region: *Notice on adjusting the electricity sales tariff for various power plants*, Xinjiang Energy Price Document No. [2006] 977, dated 18 July 2006.
- /62/ Xinjiang Tianfeng Wind Power Co., Ltd. & Xinjiang Electric Power Corporation, *Power Purchase Agreement (PPA) of Xinjiang Tianfeng Dabancheng Second Phase Wind Farm Project*, 30 December 2005.
- /63/ CECIC Wind Power (Xinjiang) Co., Ltd. & Zhengzhou City Zhengyan Construction Co., Ltd.: *Construction contract for tower basements, onsite substation and roads for CECIC Urumqi Tuoli Phase I Wind Farm Project*, dated 13 September 2010.
- /64/ Financial ministry of China: *Financial regulations for industrial enterprises*, effective on 1 July 1993.
- /65/ UNFCCC website: *PDD publication for CECIC Urumqi Tuoli Phase I Wind Farm Project*, dated 4 November 2010.
<http://cdm.unfccc.int/Projects/Validation/DB/JUJDGH361TXI38506QVL8AUTO8YDZ8/view.html>
- /66/ China NDRC: *Measures for Operation and Management of CDM Projects in China*, date 18 October 2005
<http://cdm.ccchina.gov.cn/web/NewsInfo.asp?NewsId=458>
- /67/ NDRC: *The thermal power plant that has the capacity of less than 50MW should be shut down and the construction of thermal power plant that has the capacity of less than 135MW will be forbidden*, dated 20 January 2007.
http://www.gov.cn/gongbao/content/2002/content_61480.htm
- /68/ NDRC: *The distribution map of hydro resource in China shows that the project site is in a water-resource-shorter region*, dated 31 December 2009.
<http://www.watereyes.com/info.asp?id=2125>
- /69/ People's Daily Newspaper: *Solar PV is blocked by the high cost and faces the technical and financial barriers*, dated 12 October 2009.
- /70/ China New Energy Website: *The geothermal power generation is facing barriers and expecting the policy support*, dated 7 August 2009.
<http://www.newenergy.org.cn/Html/0098/870929050.Html>
- /71/ China New Energy Website: *The difficulties faced by the biomass power generation*, dated 7 December 2009.
<http://www.newenergy.org.cn/html/00912/1270930650.html>
- /72/ State Economic and Trade Commission: *Technical administrative code of electric energy metering (DL/T 448-2000)*, dated 3 November 2000.

The main differences between the web-hosted PDD published for the 30 days stakeholder commenting period and the final version submitted for registration are as follows:



- The calibration frequency of meters was specified in monitoring plan of PDD version 1.2 dated 20 December 2010.
- The coordinates of the project boundary corners were summarized in section A.4 of PDD version 1.2 dated 20 December 2010.
- All creditable alternatives to the project activity are identified in the PDD version 1.2 dated 20 December 2010 while applying the step 1 of *Tool for the demonstration and assessment of additionality* /30/.
- The version of methodology applied by the proposed project activity has been updated from 12.0.0 to 12.1.0. in the PDD version 1.2 dated 20 December 2010.
- In section A.4.1, the coordinates of the project boundary corners are transformed from sexagesimal format to decimal format.
- The starting date of crediting period has been changed from 1 July 2011 to 1 May 2011.
- Other changes related to the CLs raised in this validation report (refer to the table 3 in the Appendix A of this validation report).

After reviewing the PDD version 1.2 dated 20 December 2010, DNV issued this final validation report and opinion.

3.2 Follow-up interviews with project stakeholders

DNV has carried out the validation by reviewing the available documents and feasibility studies and has conducted a comparison analysis of the input values for the investment analysis (refer to the section 4.6.3). During the project activity desk review from 1 November 2010 to 1 December 2010, the project relevant documents including: the PDD /1/, EIA /3/, approval of EIA /3/, FSR /2/, approval of FSR /2/, IRR calculation spreadsheet /4/, ER calculation spreadsheet /5/, wind turbines purchasing agreement /8/ and stakeholder questionnaires /9/ etc., were provided and reviewed. Based on the documents provided, DNV was able to check the project design, implementation, monitoring plan and all baseline scenario information.

The construction contract for the turbines foundation, onsite substation and roads was signed between CECIC Wind Power (Xinjiang) Co., Ltd. and Zhengzhou City Zhengyan Construction Co., Ltd. on 13 September 2010 /63/. And the project construction permission was issued by Xinjiang Kunlun Engineering Supervision Co., Ltd. on 30 November 2010 /16/. Based on the documents mentioned above, it is demonstrated that the project is currently under the stage of construction. Moreover, DNV confirms that the project activity does not involve resettlement of people through the project FSR /2/ and EIA /3/. Therefore, DNV can justify that a physical site visit for this project was not required during the validation stage and hence has arranged the follow-up interview at DNV Beijing office.

The follow-up interview was thus held by Ms. Xue Yanju Andi on 7 December 2010, with the PDD authors from Carbon Resource Management Ltd., and the project participant CECIC Wind Power (Xinjiang) Co., Ltd., to resolve the issues identified during the desk review.

	Date	Name	Organization	Topic
/73/	7 December	Ms. Chen Dong Juan;	CECIC Wind Power	<ul style="list-style-type: none"> • Information of project construction • The development of wind-power



2010	Mr. Yao Xi; Mr. Shen Hong Shuai.	(Xinjiang) Co., Ltd.	project in Xinjiang Uygur Autonomous Region
			<ul style="list-style-type: none"> • The approval status (incl. EIA approval, the feasibility study report approval, CDM project approval) • Project management • Emission reduction monitoring plan • Consulting process for stakeholder's comments and rationality of questionnaires • Investment risks and barriers
/74/ 7 December 2010	Mr. Cai Lu Ping; Ms. Gao Yan.	Carbon Resource Management Ltd.	<ul style="list-style-type: none"> • Baseline determination of the project • Applicability of selected methodology ACM0002 (Version 12.1) • Issues related to the additionality • Common practice analysis • Emission reductions calculation • Emission reduction monitoring plan and project management

3.3 Resolution of outstanding issues

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

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

The validation protocol consists of four tables. The different columns in these tables are described in the figure below. The completed validation protocol for the project activity "CECIC Urumqi Tuoli Phase I 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
<i>The requirements the project must meet.</i>	<i>Gives reference to the legislation or agreement where the requirement is found.</i>	<i>This is either acceptable based on evidence provided (OK) or a corrective action request (CAR) if a requirement is not met.</i>

Validation Protocol Table 2: Requirement Checklist

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

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
<i>The CARs and/or CLs raised in Table 2 are repeated here.</i>	<i>Reference to the checklist question number in Table 2 where the CAR or CL is explained.</i>	<i>The responses given by the project participants to address the CARs and/or CLs.</i>	<i>The validation team's assessment and final conclusions of the CARs and/or CLs.</i>

Validation Protocol Table 4: Forward Action Requests

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

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

<i>Role</i>	<i>Last Name</i>	<i>First Name</i>	<i>Country</i>	<i>Type of involvement</i>						
				Administrative	Desk review	Site visit / Interviews	Reporting	Supervision of work	Technical review	Sectoral competence
Project manager	Xue	Yanju Andi	China	✓						
Technical team leader (CDM validator), Sectoral competence	Xue	Yanju Andi	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 PDD, version 1.2 dated 20 December 2010 /1/.

4.1 Participation requirements

The project participants are CECIC Wind Power (Xinjiang) Co., Ltd. and Carbon Resource Management S.A.. The host Party (China) and the Annex I Party (United Kingdom of Great Britain and Northern Ireland) meet all relevant participation requirements, and have ratified the Kyoto Protocol and established their own DNA as per the participating requirements for CDM under the Kyoto Protocol. China has ratified the Kyoto Protocol on 30 August 2002 and its DNA is Nation Development Reform Committee (NDRC). The United Kingdom of Great Britain and Northern Ireland has ratified the Kyoto Protocol on 31 May 2002 and its DNA is Department of Energy and Climate Change.

A letter of approval (LoA) /26/ was issued by DNA of China on 30 September 2010, authorizing CECIC Wind Power (Xinjiang) Co., Ltd. of host Party as project participant and confirming that the project assists in achieving sustainable development. The DNA of United Kingdom of Great Britain and Northern Ireland issued the LoA /27/ on 3 December 2010 and authorized Carbon Resource Management S.A. from Annex I Party as project participant.

The letters of approval were received from the project participants. The authenticity of LoA from China has been verified from the website of DNA of China's /26/. The authenticity of LoA from Annex I party has been verified through the email with the LoA as an attachment, from the DNA of United Kingdom of Great Britain and Northern Ireland to Carbon Resource Management S.A. /27/.

DNV does not doubt the authenticity of the letters of approval /26/ /27/. DNV considers the letters are in accordance with paragraphs 45- 48 of the VVM /28/.

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 proposed project is located in Tuoli Town, Urumqi County, Xinjiang Uygur Autonomous Region, P. R. China. The geographical coordinates of the center of this project are longitude 87.7333 East and latitude 43.4833 North, sourced from the FSR /2/.

The project involves installation and operation of 33 wind turbines (Model number: GW77/1500kW /8/). The installed capacity of each unit is 1.5 MW, constituting a total installed capacity of 49.5 MW. The wind turbines are domestically manufactured by Xinjiang Goldwind Science & Technology Co., Ltd. /8/. Based on its sectoral expertise DNV confirms that the technology used by the project activity reflects the good current practice in China.



DNV checked all the parameters of the turbines from the PDD against the FSR /2/ and confirms that the documents were consistent.

It is expected that the project will supply appropriately 125 532 MWh net electricity per year to the Northwest China Power Grid (NWPG) when it is in full operation with a plant load factor (PLF) of 28.9% /2/. The electricity generated by the project using the unit connection mode of one-turbine-one-transformer will be transmitted to the on-site substation in the wind farm, and then will be delivered to the grid substation, which is part of the NWPG /2/.

Being a renewable electricity project, the project activity will generate greenhouse gas (GHG) emission reductions by avoiding the CO₂ emissions from the electricity generation by fossil fuel power projects.

The project boundary includes the project geographical location and the NWPG, which is in line with the delineation of the grid boundaries regulated by DNA of China /40/.

The expected operational lifetime of the project activity is 20 years derived from the FSR /2/. A renewable crediting period of 7 years has been chosen for the project, starting on 1 May 2011 or the registration date, whichever is later. The chosen crediting starting date is deemed to be reasonable. The emission reductions are estimated to be 116 644 tCO₂e per year and 816 508 tCO₂e over the first seven-year crediting period.

The starting date of the proposed project activity was defined as 1 September 2010 when the wind turbines purchase agreement was signed /8/, which is the earliest financial commitment for the proposed project activity.

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

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 baseline methodology ACM0002 (version 12.1), “*Consolidated baseline methodology for grid-connected electricity generation from renewable sources*” /29/.

The applied baseline methodology is justified as it has been demonstrated that the project activity ensures that:

- The project is the installation of a grid-connected and greenfield renewable power plant generating electricity from wind. This applicability has been verified through the FSR /2/, assessment opinion on the grid access of CECIC Urumqi Tuoli Phase I Wind Farm Project to Xinjiang power grid /13/ and the EIA /3/.
- Being a wind project, it does not involve switching from fossil fuel to renewable energy at the project site, which has been verified by DNV through the follow-up interview /73/ and the FSR /2/.
- The project is connected to the NWPG of which geographical and system boundaries are clearly identified and information on the characteristics of this grid is available /2/ /13/.



The assessment of the project's compliance with the applicability criteria of ACM0002 (version 12.1) are documented in detail in section B.2 of Table 2 in the validation protocol in Appendix A to this report.

4.4 Project boundary

The spatial extent of the project boundary is clearly defined as the site of project activity and all power plants connected physically to NWPG including Shaanxi, Gansu, Qinghai, Ningxia and Xinjiang power grids, to which the project is connected. This is in line with the delineation of grid boundaries as provided by the DNA of China /40/. The defined project boundary is in line with the methodology ACM0002 (version 12.1) /29/. It is DNV's opinion that the project boundary of CECIC Urumqi Tuoli Phase I Wind Farm Project is clearly defined.

Emission sources and gases included in the project boundary are:

	<i>GHGs involved</i>	<i>Description</i>
Baseline emissions	CO ₂	The baseline emission factor for the project is determined ex-ante as a combined margin (CM), consisting of combination of the operating margin (OM) and build margin (BM) of the NWPG.
Project emissions	N/A	Project emission is regarded as zero as the project is a renewable energy (wind source) project.
Leakage	N/A	There are no leakages that need to be considered in applying this methodology.

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 12.1).

4.5 Baseline identification

A) Baseline determination

Since the project was demonstrated to be additional, cf. Section 4.6, the baseline is in accordance with ACM0002 (version 12.1) /29/ that electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system".

According to ACM0002 version 12.1 /29/, baseline emissions are equal to power generated by the project delivered to the NWPG, 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 /29/. 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” /31/.

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

Therefore, it is concluded by DNV that the baseline determination is transparent and reasonable.

The approved baseline methodology has been correctly applied to identify a complete list of realistic and credible baseline scenarios, and the identified baseline scenario most reasonably represents what would occur in the absence of the proposed CDM project activity.

All the assumption and data used by the project participants are listed in the PDD and/or supporting documents. All documentation relevant for establishing the baseline scenario and are correctly quoted and interpreted in the PDD. Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable. Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD.

4.6 Additionality

The addtionality of the project has been demonstrated by applying the Tool for the demonstration and assessment of addtionality version 5.2 /30/ approved by the CDM-EB.

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

Project start date:

The wind turbines purchase agreement was signed between CECIC Wind Power (Xinjiang) Co., Ltd. and Xinjiang Goldwind Science & Technology Co., Ltd. on 1 September 2010 /8/. The construction contract for turbines foundation, onsite substation and roads was signed between the CECIC Wind Power (Xinjiang) Co., Ltd. and Zhengzhou City Zhengyan Construction Co., Ltd. on 13 September 2010 /63/. The construction permission for turbines foundation, onsite substation and roads was issued by Xinjiang Kunlun Engineering Supervision Co., Ltd. on 30 November 2010 /16/. Hence, DNV was able to confirm that the earliest commitment to financial expenditure is the wind turbines purchase agreement (1 September 2010) /8/, which is considered as the project starting date.

Serious consideration of CDM and efforts to secure CDM status:

Since the starting date is later than 2 August 2008 a commencement notification letter for CECIC Urumqi Tuoli Phase I Wind Farm Project in China was sent by the project participant to the Chinese DNA on 2 August 2010 /10/ and confirmed by Chinese NDRC on 9 August 2010 /10/. The prior consideration of the CDM Form to UNFCCC was also received by EB on 13 July 2010 and confirmed on 22 July 2010 /11/, which is within six months of the



project activity starting date i.e. 1 September 2010. CDM was therefore seriously considered in the decision to proceed with the project activity.

In addition, the FSR was completed in March 2010 /2/ and approved by the NDRC on 31 May 2010 /2/. In the FSR, the project developer was suggested to consider CDM benefit /2/ because the IRR is lower than the industry (wind power plant) benchmark of 8% and hence financially unattractive /2/. The project developer identified CDM as a mean to overcome the investment barriers to proceed with the project, as evidenced in the board meeting minute of CECIC Urumqi Tuoli Phase I Wind Farm Project for CDM development on 2 June 2010 /6/. The CDM Emission Reduction Purchase Agreement (ERPA) was signed between CECIC Wind Power (Xinjiang) Co., Ltd. and Carbon Resource Management S.A. on 22 June 2010 /7/. The project participants started the global stakeholder consultation (4 November 2010) two months after the starting date of the project activity (1 September 2010). Since this is less than two years, 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

Four alternatives that provide the outputs comparable with the proposed CDM project activity have been identified and discussed:

- a) The proposed project activity undertaken without being registered as a CDM project activity;
- b) Construction of a fossil fuel-fired plant with the comparable electricity output;
- c) Construction of a power plant using other renewable energy with the comparable capacity or electricity output, such as hydro, biomass or solar etc;
- d) To provide the comparable electricity output with the proposed project activity by the grid NWPG.

Alternative b): In 2008 the annual operation time of thermal power plants in China was 4 885 hours. To provide the comparable electricity generation with the proposed project activity, there would be the installation of a thermal power plant with the capacity of 25.7 MW (equivalent to the proposed 49.5 MW wind project). However, the fossil fuel-fired plants with the capacity lower than 135 MW are prohibited to be built in areas covered by large grids such as provincial grids /67/. Therefore, the alternative b) does not comply with the mandatory legislation and regulations and is eliminated from further consideration.

Alternative c): DNV confirms that the proposed project activity is located in the region which has no commercially exploitable hydro source /68/. In addition, due to the undeveloped technology status and the high cost for power generation from the solar PV /69/, undeveloped stage and lack of technology support for geothermal /70/, barriers to operate biomass power generation /71/, the alternative c) is ruled out from being the realistic alternative.

Based on the discussion above, the alternatives a) and d) are the potential alternatives and thus will be discussed at the next step.

DNV considers the listed alternatives to be credible and complete, and the Step 1 of *Tool for the demonstration and assessment of additionality* /30/ is applied appropriately.



4.6.3 Investment analysis

Choice of approach

As the project generates financial and economic benefits other than CDM related income through the sales of electricity and the alternative to the project does not involve an investment, a benchmark analysis is justified for conducting the investment analysis.

Benchmark selection

According to the “*Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects*” /41/, in China a project-IRR of 8% (post tax) of a project is regarded as a benchmark for investing in wind farm projects. The benchmark of 8% (post tax) is therefore appropriate for this project. DNV was able to confirm that the selected benchmark is suitable and reasonable for the proposed project as following:

1. According to the FSR /2/, this project is a wind farm project with the installation capacity of 49.5 MW.
2. The benchmark was determined by the national administration of this industry in China, and represents a government/official approved benchmark /41/;
3. The benchmark is for project-IRR and post tax and the investment analysis for this project will be for project and post tax also;
4. The “*Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects*” /41/ is referred to the risk premiums of large scale wind power project;
5. The “*Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects*” /41/ is still valid till now.

DNV is able to confirm this benchmark is suitable and reasonable.

Input parameters

The input parameters used in the financial analysis of this project are taken from the FSR developed by Xinjiang Survey and Design Institute of Water Resources and Hydropower Ministry of Water Resources in March 2010 and approved by Development and Reform Commission of Xinjiang Uygur Autonomous Region on 31 May 2010 /2/. Thus, it can be considered as information provided by an independent and recognised source.

DNV compared the input parameters 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 31 May 2010 by Development and Reform Commission of Xinjiang Uygur Autonomous Region /2/ and thus two months prior to the decision to proceed with the project activity (i.e. starting date of the project) which was on 1 September 2010 /8/. Given this relative short period of time between the 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 /2/ 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 CDM projects developed in Xinjiang Uygur Autonomous Region (refer to Table 1 below), by comparing the investment costs per kW, percentage of annual



O&M costs relative to total static investment costs, the plant load factor, the depreciation period, residual value and miscellaneous fee, as shown in the following table. With the guidance of *Tool for the demonstration and assessment of additionality* /30/, projects are defined as similar if they are wind power projects located in the same autonomous region (i.e. Xinjiang Uygur Autonomous Region) and taken place after the April 2002 when the electricity power industrial reform was implemented /53/. It has thoroughly changed the regulatory framework and investmental environment of power industry in China /53/. Therefore, the wind projects located in the Xinjiang Autonomous Region and started after the reform in April 2002 are included in the Table 1.

Table 1: Comparison of investment cost per kW, percentage of annual O&M costs relative to total investment, miscellaneous fee, depreciation and residual rate amongst the registered wind power CDM projects in Xinjiang Uygur Autonomous Region

UNFCCC Ref. No.	Project name	Installed capacity (MW)	Investment cost (RMB/kW)	Depreciation period (years)	Residual rate	Miscellaneous fee rate (RMB/kW)	Annual O&M costs/investment
1480	Xinjiang Xiaocaohu Wind Power Project	49.5	7 779	17	0	50	3.35%
2413	Xinjiang Huadian Xiaocaohu the 2nd phase of No.1 Wind Farm project	49.5	8 658	17	0	50	N/A
2537	The Bogeda 40.5 MW Wind-Farm Project in Urumqi, Xinjiang, China	40.5	9 365	15	N/A	N/A	5.78%
2855	Xinjiang Dabancheng Sanchang Phase III Wind Power Project	49.5	8 613	15	4%	40	4.29%
0536	The 30 MW Tuoli Wind-Farm Project in Urumqi, Xinjiang of China	30	8 776	N/A	N/A	N/A	N/A
0894	Xinjiang Dabancheng Sanchang First Phase Wind Farm Project	30	8 946	N/A	N/A	N/A	3.69%
1734	Xinjiang Tianfeng Dabancheng Second Phase Wind Farm Project	30	8 123	15	4%	50	4.55%
1244	The Wulabo 30 MW Wind-Farm Project in Urumqi, Xinjiang of China	30	9 940	15	N/A	N/A	9.82%
2031	Xinjiang Mayitasi Wind Farm Project	49.5	7 682	12	4%	40	3.38%
3003	Xinjiang Alashankou Phase I Wind Power Project	49.5	10 219	15	5%	25	0.50%
3107	Xinjiang Dabancheng Sanchang Phase IV Wind Power Project	49.5	8 604	15	5%	15	3.88%



3579	Huaneng Xinjiang Hami Santanghu Phase I Wind Farm Project	49.5	9 167	15	5%	30	2.75%
4001	Xinjiang Alashankou Wind Power Project	49.5	10 305	15	5%	30	2.68%
3228 Requesting Registration	Huadian Xinjiang Xiaocaohu Second Wind Farm Phase I Project	49.5	9 219	15	5%	15	2.49%
	Proposed project	49.5	9 805	14	3%	50	3.61%

(Data source: National Development and Reform Commission (<http://www.sdpc.gov.cn/>), Clean Development in China (<http://cdm.ccchina.gov.cn/web/>) and UNFCCC (<http://cdm.unfccc.int/index.html>)).

1) Total static investment cost

The total static investment costs used in the financial analysis of the proposed project activity were compared with data reported for other similar CDM wind projects in the Xinjiang Uygur Autonomous Region. As shown in the Table 1, the investment costs per kW for the proposed project (9 805 RMB/kW) is within the range of the investment costs per kW (7 682 RMB/kW to 10 305 RMB/kW) for other similar projects.

Moreover, DNV has also cross-checked the total static investment against the signed contracts for equipments /8/ /17/ /18/ /19/ as well as other relevant contracts and documents for construction related services /15/ /63/ /21/. According to the contracted expenses shown in Table 2, the total expense on them is the 78.97% of the total static investment. The actual expenditure is 8.7% higher than the assumed expenditure in the FSR /2/, which indicates that the FSR investment cost estimate was reasonable at the time.

Table 2 - Comparison of expenditures between values in the FSR and contracts

Equipments/Construction/others	Estimated value in FSR /2/ (million RMB)	Contracted value (million RMB)
Wind turbines	262.35	280.92 /8/
Towers	47.19	53.43 /17/
Box transformers	6.93	8.33 /18/
Main transformer	4.24	4.90 /19/
Construction for turbine foundations, onsite substation and roads	20.81	26.70 /63/
Supervision of construction for turbine foundations, onsite substation and roads	4.94	4.90 /15/



Construction of turbines installation	6.27	4.12 /21/
Total	352.73	383.3

From the comparison, the investment analysis in the FSR /2/ has been demonstrated to be realistic and conservative. Therefore, the total static investment is deemed to be reasonable and appropriate in Xinjiang Uygur Autonomous Region by DNV.

2) Tariff

The tariff of 0.51 RMB/kWh (Incl. VAT) for the entire operation period adopted in the PDD (version 1.2 dated 20 December 2010) /1/ was sourced from the FSR completed by Xinjiang Survey and Design Institute of Water Resources and Hydropower Ministry of Water Resources in March 2010 /2/. While compiling the FSR in March 2010, the most recent tariff notification (Fa Gai Jia Ge [2009] 1906) for wind power projects in China has been issued /57/. In this document (Fa Gai Jia Ge [2009]1906) /57/, it clearly states that the tariff will be stipulated as 0.51 RMB/kWh (Incl.VAT) since 1 August 2009 for newly built wind power projects located in wind resource region I (Urumqi city, Kazakhstan minority autonomous prefecture in Yili city, Muslim minority autonomous prefecture in Chuangji city, Karamay city, Shihezi city, Xinjiang Uygur Autonomous Region). The proposed project is located in Tuoli Town, Urumqi County, Xinjiang Uygur Autonomous Region, P. R. China, within the wind resource region I. Thus, DNV deems that it is reasonable to apply the tariff of 0.51 RMB/kWh (Incl. VAT) for the proposed project activity. The FSR has been approved by Development and Reform Commission of Xinjiang Uygur Autonomous Region on 31 May 2010 /2/, when was prior to the investment decision of this proposed project activity on 1 September 2010.

There was no tendering process in the tariff determination for the proposed project activity. To confirm the suitability of tariff applied by the proposed project activity, DNV has checked all wind power projects in Xinjiang Uygur Autonomous Region and summarized as below,

Table 3 – Tariffs of Wind Power Projects in Xinjiang Uygur Autonomous Region

Projects	Tariff (RMB/kWh, Incl. VAT)	Source	Date
Dabancheng Sangecunzhuang (No. 1) Wind Farm	0.51	Notice on solution to tariff issues for wind power projects in Xinjiang /59/	26 November 2004
Dabancheng Chaiwopu (No. 2) Wind Farm	0.533		
The 30 MW Tuoli Wind-Farm Project in Urumqi, Xinjiang of China	0.47	NDRC-Price [2004] 2570 /60/	19 November 2004
Xinjiang Xiaocaohu Wind Power Project	0.47	Xinjiang Energy Price Document No. [2006] 977 /61/	18 July 2006
Xinjiang Dabancheng Sanchang First Phase Wind Farm Project	0.47	Xinjiang Energy Price Document No. [2006]	18 July 2006



		977 /61/	
Xinjiang Mayitasi Wind Farm Project	0.47	Xinjiang Energy Price Document No. [2006] 977 /61/	18 July 2006
The Wulabo 30 MW Wind-Farm Project in Urumqi, Xinjiang of China	0.47	Xinjiang Energy Price Document No. [2006] 977 /61/	18 July 2006
Xinjiang Tianfeng Dabancheng Second Phase Wind Farm Project	0.47	PPA /62/	30 December 2005
The Bogeda 40.5 MW Wind-Farm Project in Urumqi, Xinjiang, China	0.51	Fa Gai Jia Ge [2007] 1206 /55/	9 June 2007
Xinjiang Dabancheng Sanchang Phase III Wind Power Project	0.51	Fa Gai Jia Ge [2007] 1206 /55/	9 June 2007
Xinjiang Huadian Xiaocaohu the 2nd phase of No.1 Wind Farm project	0.51	Fa Gai Jia Ge [2007] 3303 /56/	3 December 2007
Xinjiang Alashankou Phase I Wind Power Project	0.51	Fa Gai Jia Ge [2007] 3303 /56/	3 December 2007
Xinjiang Dabancheng Sanchang Phase IV Wind Power Project	0.51	Fa Gai Jia Ge [2007] 3303 /56/	3 December 2007
Huaneng Xinjiang Hami Santanghu Phase I Wind Farm Project	0.51	Fa Gai Jia Ge [2007] 3303 /56/	3 December 2007

From the Table 3 above, it is found that the highest tariff of wind power projects in Xinjiang Uygur Autonomous Region is 0.533 RMB/kWh (Incl. VAT). This is also in line with Information Note on the Highest Tariffs Applied by the Executive Board in its Decision on Registration of Projects in China” /37/. Hence, even using the highest tariff 0.533 RMB/kWh (Incl. VAT) indicated in the Table 3 for the financial analysis of the project activity, the project IRR would be 6.38%, which is still below the benchmark of 8%.

Therefore, DNV concludes that the tariff of 0.51 RMB/kWh (Incl. VAT) adopted by the proposed project is suitable.

3) O&M costs

According to the *Code on Compiling Feasibility Study Report of Wind Farms* issued by the NDRC /44/ and *Economic Evaluation Method and Parameters for Project Construction* /45/, the annual O&M costs mainly consist of materials fee, salary and social welfare, repair cost, insurance fee and miscellaneous fee rate (including office expenses, business travel, training fees, daily transport costs and union fees).

Compared with the registered CDM wind projects, the annual O&M costs of the proposed project (17.52 million RMB), which accounts for 3.61% of the total investment (485.37 million RMB), is within the range of 0.5% to 9.82% of the similar project in Xinjiang Uygur Autonomous Region as shown in the Table 1. Therefore, it can be confirmed that the annual O&M costs of the project is reasonable and appropriate.

4) Annual Power Generation



It is expected that the proposed project will supply to NWPG approximately 125 532 MWh per year at a plant load factor (PLF) of 28.9% on the basis of the FSR prepared by Xinjiang Survey and Design Institute of Water Resources and Hydropower Ministry of Water Resources in March 2010 /2/. Annex 11 of CDM EB's 48th meeting report /33/ gives a guideline for validation of plant load factor for renewable energy. One option is to use plant load factor provided to the government while applying the project activity for implementation approval. The FSR has this purpose and hence according to current CDM regulation, the checking that the values are in line with the FSR should be considered sufficient for validation of plant load factor /2/. This was the case for this project.

According to the FSR /2/, the rich wind resource area has been selected on the basis of the wind resource statistical data over 27 years from 1982 to 2008 using the professional software WAsP, then the distribution of turbines were determined using the software Windfarmer. It is the prevailing practice in the global wind industry. DNV was able to verify the mentioned values derived from the FSR /2/.

Therefore, it is DNV's opinion that the determination of the PLF of the proposed project is appropriate and conservative.

5) Taxes

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

Table 3 Tax rates involved in the project

Value added tax (VAT)	17%
Income tax	25%
Rate of residual value	3%
Depreciation period (years)	14
Education tax (of the VAT)	3%
City build tax (of the VAT)	5%

(i) VAT rate

VAT is a tax that applies to most business transactions involving the transfer of goods and services. It is thus applicable to the proposed project. When the business is registered for VAT, it will pay VAT on its purchase of equipments and charge VAT on its sales. As for the proposed project, the VAT paid on the purchase of equipments and VAT charged on the sales are discussed below.

(a) VAT for equipment

The VAT rate of 17% is paid as usual for purchased goods. According to the *Provisional regulations of the people's republic of China on value added tax from China State Council* (State Council Document No. 538) issued on 10 November 2008 and implemented from 1 January 2009 /43/, 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 this project, this happens in the 6th year of operation.

(b) VAT on tariff

The project applies a VAT rate of 17% on the tariff which is substantiated by the following arguments.



On 10 November 2008, the *Provisional regulations of the people's republic of China on value added tax from China State Council* (State Council Document No. 538) was issued and became effective on 1 January 2009 /43/. In this regulation /43/, the VAT occurred on the sales of electricity was stipulated to be 17%.

On 9 December 2008, the *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* (Cai Shui [2008]156) /46/ was issued. As stipulated in this notice (Cai Shui [2008]156) /46/, 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. This regulation is thus applicable to the project activity.

Based on the document introduced above, the VAT rate adopted by the proposed project is 17%. Half of the VAT incurred by the electricity sales has been annually recovered from the 6th year to the 20th year after the equipment VAT is fully recovered.

(ii) Income tax

According to the *Law of the People's Republic of China on Enterprise Income Tax* /47/, the income tax of 25% is chosen for the *CECIC Urumqi Tuoli Phase I Wind Farm Project*. Thus the income tax rate (25%) applied in the financial analysis of the proposed project and used in FSR /2/ is reasonable. DNV can confirm that the tax benefits from interest payments were considered in the calculation of income tax by including the interest of loan in total cost /35/.

(iii) Rate of residual value

The residual rate of 3% is taken from the FSR /2/ and is in line with the document of *Financial regulations for industrial enterprises* effective on 1 July 1993 /64/. The residual value is recovered at the end of operation period in the project IRR calculation spreadsheet /4/. According to the *Implementation Rules of the Enterprise Income Tax Law* /48/, the net residual value of a fixed asset shall be reasonably determined by an enterprise according to the nature and condition of the fixed asset. It may not be changed once determined. In addition, as shown in the Table 1, the residual rate of 3% is in the ranged of 0% to 5% for the registered wind projects in Xinjiang Uygur Autonomous Region. Therefore, DNV could confirm that the residual value of 3% applied to the proposed project is deemed to be acceptable.

(iv) Depreciation period

The depreciation period of 14 year and the depreciation rate per year of 6.93% are derived from the FSR /2/ and is in line with the *Implementation Rules of the Enterprise Income Tax Law* effective on 1 January 2008 /48/. According to the *Implementation Rules of the Enterprise Income Tax Law* /48/, an enterprise shall begin computing depreciation for a fixed asset in the month following the month in which the asset is into service, and shall cease computing depreciation for a fixed asset in the month following in which the asset's use is ceased. The minimum number of years for computing depreciation of fixed assets is 10 years for the manufacturing and business operations. Therefore, the depreciation period of 14 years for the proposed project is in line with the *Implementation Rules of the Enterprise Income Tax Law* /48/.

Compared with the depreciation period of CDM registered wind power projects (ranged of 12



to 17 years) as shown in Table 1, the depreciation period of 14 years adopted by the proposed project is considered to be reasonable.

(v) Education added tax

The project applies an education added tax rate of 3% of VAT. DNV has verified that the rate applied is in accordance with the *Provisional Regulations of the People's Republic of China on Education Tax* /50/.

(vi) City building tax

The project applies the city building tax rate of 5% of VAT, which is in accordance with the *Provisional Regulations of the People's Republic of China on City Maintenance and Construction Taxes* /49/.

Therefore, DNV confirms that all tax rates involved in the financial analysis of proposed project are in line with the relevant current laws and regulations of the taxes rates.

6) Miscellaneous fee rate

The “miscellaneous fee rate” of the proposed project is 50 Yuan/kW sourced from the FSR /2/. According to *Code on Compiling the Feasibility Study Report of Wind Farms* /44/, the “miscellaneous fee” applied in the project includes office expenses, business travel, training fees, daily transport costs and union fees. The components of “miscellaneous fee” have been verified to be consistent with the definition in *Economic Evaluation Method and Parameters for Project Construction* /45/. Hence, in DNV’s opinion, the “miscellaneous fee rate” applied in the project activity is reasonable.

The “miscellaneous fee rate” of 50 Yuan/kW has been verified to be within the range from 15 to 50 RMB/kW of similar wind power projects as shown in the Table 1. It shows that the adopted miscellaneous fee for the proposed project is reasonable compared with the registered CDM wind power projects in Xinjiang.

In addition, based on our local and sectoral expertise, and database of publicly available information, 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 were provided in a spreadsheet /4/. The calculations were verified and found to be correct by DNV. The assumptions used in the calculations were deemed to be correct by DNV. The project-IRR (post tax) over 20 years without CDM revenues is 5.65%, which confirms that the project in the absence of CDM benefits and compared to the benchmark of 8% is not financially attractive /4/. With CER revenues, the project-IRR (post tax) increases to 9.09%, which is above the benchmark of 8% /4/.

Sensitivity analysis

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



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

<i>Key Indicators</i>	<i>Variation of the parameter indicator needed to reach benchmark 8%</i>
Total static investment	-17.9%
Annual O&M cost	-51.0%
Electricity tariff	+15.2%
Annual electricity generation	+15.2%

- Total Static Investment:** DNV was able to confirm that a 17.9% decrease in total investment costs is unlikely to happen, as 79% of the total investment of the project goes towards purchase turbines, towers and construction-related services according to FSR /2/. Prices of wind turbines and raw materials have been increasing for that the turbine demand exceeded the supply during the project purchase period /25/. Moreover, according to the already signed contracts /8/ /15/ /17/ /18/ /19/ /21/ /63/ the actual total expense on equipment and construction is 383.3 million RMB, which is 8.7% higher than the estimated value in the FSR (352.73 million RMB) /2/. Therefore, the comparison demonstrates that the estimated total static investment in the PDD is conservative and reasonable. The static total investment is not likely to decrease by 17.9%.
- Annual Electricity Generation:** For a 15.2% increase in annual electricity generation, the benchmark will be reached. According to the FSR completed by the third party /2/, the annual electricity generation is estimated based on the 27-year wind resource data (from 1982 to 2008) provided by local meteorological station. Therefore, it is highly unlikely to rise the annual operational hours at the project site to induce a 15.2% increase in electricity generation during the whole crediting period.
- Electricity Tariff:** To reach the 8% benchmark, power tariff must increase by 15.2%, which is not likely to happen. Based on the analysis of tariff in the Table 2 (discussed in the section 'Input Parameters' above), the assumed tariff of 0.51 RMB/kWh (Incl. VAT) is in line with the trend of tariff of wind power projects in Xinjiang Uygur Autonomous Region since 2007. In addition, if the project applies the highest tariff of 0.533 RMB/kWh (Incl. VAT) in Xinjiang Uygur Autonomous Region after 2002 to the financial analysis during the whole operation period, the project IRR will still be lower than the project benchmark. The IRR benchmark will be arrived at when the tariff is rising to 0.587 RMB/kWh (Incl.VAT). However, such tariff has never been received in the past, as shown from the Table 3. Therefore, it is unlikely for the tariff to increase by 15.2%.
- O&M Costs:** According to the project FSR /2/, the O&M costs consist of materials fee, salary and social welfare, repair cost, insurance fee and other fees. As the price of the accessory equipments in China has been increasing in recent years /25/, it is not likely that O&M costs will decrease by 51.0% to reach the benchmark of 8%.



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 not financially attractive.

4.6.4 Barrier analysis

Barrier analysis was not applied for the proposed project.

4.6.5 Common practice analysis

Since the regulatory framework, investment climate, access to technology and access to finance are similar within Xinjiang Uygur Autonomous Region, it is reasonable to select Xinjiang Uygur Autonomous Region to carry out the common practice analysis.

A power industry reform allowing for a more commercialized market in China was started in April 2002 /53/. Since then, the power industry has made several reforms in China. Therefore, only projects implemented after the reform in 2002 were considered for the common practice.

The installed capacity of similar projects should be higher than 15 MW (same as the EB definition of “large scale” projects) as the small scale projects (lower than 15 MW) are not comparable to the project activity.

Using information available in the *Statistics of Installed Capacity of Wind Power in China* /42/, all wind power projects located in the same region as the project activity and having a similar installed capacity range were selected for the purpose of the common practice. CDM projects have been excluded from the analysis as per the guidance of *Tool for the demonstration and assessment of additionality* /30/.

According to the definitions described above, there is no similar project without being implemented considering the benefits of the CDM in Xinjiang Uygur Autonomous Region. Thus, it can be concluded that the proposed project activity is not a common practice in the region.

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 version 12.1 /29/, “*Consolidated baseline methodology for grid-connected electricity generation from renewable sources*” /29/. The selected monitoring methodology is applicable for the project activity as it involves grid-connected renewable power generation using wind energy. Refer to the discussion on the applicability of the methodology ACM0002 (version 12.1) /29/ at section 4.3 above.

Monitoring of sustainable development indicators is not required by the Chinese DNA and it has been verified by DNV against the *Measures for Operation and Management of CDM Projects in China* issued by China DNRC /66/. The environmental impacts are considered minor and will be monitored by the local environmental authority during the project lifetime.



The project monitoring plan is in compliance with the monitoring methodology ACM0002 (version 12.1). The monitoring plan will give opportunity for real measurements of achieved emission reductions.

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; 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>	<i>Source of data used</i>
Operating margin of NWPG (OM)	tCO ₂ /MWh	1.0246	China Electric Power Yearbook 2004-2008 /38/ China Energy Statistical Yearbook 2006-2008 /39/
Build margin of NWPG (BM)	tCO ₂ /MWh	0.6433	
Emission factor of NWPG	tCO ₂ /MWh	0.9292	

4.7.2 Parameters monitored ex-post

The parameter monitored *ex-post* is the quantity of net electricity generation supplied by the proposed project activity to the grid in the year y (i.e. $EG_{\text{facility}, y}$). The net electricity generation supplied by the proposed project activity to the grid will be measured by a main meter installed at grid substation. The back-up meter will be installed at grid substation in case the main meter fails to work. The main and backup meters measuring both exports to the grid and imports from the grid; net electricity supplied to the grid ($EG_{\text{facility}, y}$) is exports subtract imports. The on-grid electricity will be monitored continuously and recorded on a monthly basis. The meters are bi-directional and their accuracy is not lower than 0.5S. This data will be verified against the sales receipt from the grid. All data collected as part of the monitoring are archived electronically and kept at least for 2 years after the end of the last crediting period. All meters will be calibrated once a year by a qualified third party according to the relevant industrial standard.

If the additional capacity (either the expansion of this project activity or addition of one more wind farm) is added to the grid at the same point as the proposed project activity, and shares the same transmission facilities as the proposed project, the following parameters will be monitored in order to calculate the net electricity generation supplied by the proposed project activity to the grid in the year y ($EG_{\text{facility}, y}$).

- **EG_{total,y}:** Quantity of total net electricity supplied to the grid by the proposed project activity and the additional capacity. It will be continuously monitored by the bidirectional main meter installed at the grid substation. The bidirectional back-up meter will be installed at grid substation in case the main meter fails to work. The main and backup meters measuring both the electricity exports to the grid and imports from the grid; total net electricity supplied to the grid ($EG_{\text{total},y}$) is exports subtract



imports. The on-grid electricity will be monitored continuously and recorded on a monthly basis. The meters are bi-directional and their accuracy is not lower than 0.5S. This data will be verified against the sales receipt from the grid. All meters will be calibrated once a year by a qualified third party according to the relevant industrial standard.

- **E_facility,y:** Quantity of electricity generation by the proposed project activity in case of including the additional capacity. It will be continuously monitored by the bidirectional meter installed at the project site. The electricity generation by the proposed project activity will be monitored continuously and recorded on the monthly basis. The meter is bi-directional and its accuracy is not lower than 0.5S. The data will be verified against the records of sold electricity. The meter will be calibrated once a year by a qualified third party according to the industrial standard *Chinese electric industry regulation DL/T448 /72/*.
- **E_additional_capacity,y:** Quantity of electricity generation by the additional capacity. It will be continuously monitored by the bidirectional meter installed at the project site. The electricity generation by the additional capacity will be monitored continuously and recorded on the monthly basis. The meter is bi-directional and its accuracy is not lower than 0.5S. The data will be verified against the records of sold electricity. The meter will be calibrated once a year by one qualified third party according to the industrial stand *Chinese electric industry regulation DL/T448 /72/*.

If such additional capacity is installed, the share of the power supply from the proposed project activity will be accounted as the proportion of generation between the proposed project activity (i.e. E_facility,y) and the added capacity (i.e. E_additional_capacity,y). The net electricity supplied by the proposed project activity to the grid in the year y ($EG_{\text{facility}, y}$) will be calculated using the following formula:

$$EG_{\text{facility}, y} = EG_{\text{total}, y} * \text{Share}_{\text{project}, y}$$

Where,

$EG_{\text{facility}, y}$ is the net electricity supplied by the project activity to the grid in the year y;

$EG_{\text{total}, y}$ is the total net electricity supplied to the grid in the year y;

$\text{Share}_{\text{project}, y}$ is the share of generation of the proposed project activity in the total generation by the proposed project activity and the additional capacity in the year y. Its calculating formula is shown below,

$$\text{Share}_{\text{project}, y} = E_{\text{facility}, y} / (E_{\text{facility}, y} + E_{\text{addition_capacity}, y})$$

DNV confirms that the monitoring arrangements described in the monitoring plan are feasible within the project design, and the mean of implementation of the monitoring plan is able to ensure the achievement of emission reductions.

4.7.3 Management system and quality assurance

The project's monitoring plan includes:

- Responsibility for monitoring lines;



- Training plan;
- Data and parameters to be monitored;
- Installation of electricity meters;
- Compilation of the monitored data and dealing with the errors;
- Calibration;
- Dealing with potential future additional installed capacity.
- Quality control;
- Reporting;
- Record keep.

Detailed information has been described in the PDD section 7.2 /1/. These will be maintained and implemented to enable the subsequent verification of emission reductions.

In conclusion, the application of the monitoring methodology is transparent and DNV considers that the project participants are 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 are the difference between baseline emissions (BE_y), project emissions (PE_y) and emissions due to leakage (L_y), as follows:

- 1) Baseline emissions: baseline emissions (BE_y in tCO_2) are the product of the baseline emission factor (EF_y in tCO_2/MWh) times the electricity supplied by the project activity to the grid (EG_y in MWh).
- 2) Project emissions: there are no emissions from the project which is a renewable wind energy project.
- 3) Leakage: no leakage has to be considered for the project activity.

The baseline emission factor for the project is determined *ex-ante* as a combined margin, consisting of combination of the operating margin (OM) and build margin (BM) according to “Tool to calculate the emission factor for an electricity system” version 2 /31/ for the 7 years crediting period, based on the most recent information available at the start of validation i.e. 4 November 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 emission factors.

The data used in the emission factor calculation is in accordance with data in the China Electric Power Yearbook 2008 /28/ and China Energy Statistical Yearbook 2008 /29/ and IPCC 2006 default values for emission factors of each kind of fuel /37/.

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 (19.34% in 2003, 22.18% in 2004, 23.62% in 2005, 24.71% in 2006 and 23.15% in 2007) /38/.

Aggregated generation (sourced from China Electric Power Yearbooks 2006 - 2008 /38/) and fuel consumption data (sourced from China Energy Statistical Yearbooks 2006 - 2008 /39/) are used due to the fact that more disaggregated data for power plants are not available in the



NWPG. Country specific data for net calorific value of each type of fossil fuel obtained from the China Energy Statistical Yearbook from 2006 to 2008 /39/, the IPCC 2006 default values /37/ for the emission factors of each type of fossil fuel, and the total electricity delivered to the NWPG obtained from the China Electric Power Yearbook from 2004 to 2008 /38/, are deemed reasonable.

The OM is calculated to be 1.0246 tCO₂/MWh. The sources and calculation have 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 of this project /38/:

- Use of capacity additions from the years 2005 to 2007 is chosen and reaches 25.54% of the 2007 installed capacity /38/;
- Use of weights to estimate the installed capacity in place of annual electricity generation. Thermal power plant accounts for 78.74% of the total installed capacity additions in this period /39/. Since specific data for each technology is not available, the fraction of fuels (coal 98.14%, natural gas 1.77% and oil 0.08% /39/) was estimated from the CO₂ intensity for the fuels used in the NWPG;
- Use of the efficiency of electricity transmission of the best technology commercially available in the provincial/regional or national grid of China, as a conservative proxy, for each fuel type in estimating the fuel consumption. The efficiency is 38.10% for coal power plants and 49.99% for oil or gas power plants /40/.

The BM is calculated as 0.6433 tCO_{2e}/MWh, which has been verified from the EF calculation spreadsheet /5/.

The resulting combined margin emission factor 0.9292 tCO_{2e}/MWh /5/ is fixed *ex-ante* for the first crediting period. The annual electricity delivered to the NWPG is expected to be 125 532 MWh /1/. Hence, the total emission reductions from the project are estimated to be on the average 116 644 tCO_{2e} per year /5/ over the selected 7 year renewable crediting period /1/.

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 116 644 tCO_{2e} per year for the selected crediting period /5/.

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.

In summary, the GHG calculations are complete and transparent, and the data accuracy has been verified.



4.9 Environmental impacts

An Environmental Impact Assessment (EIA) has been conducted according to the *Environmental Protection Law of the People's Republic of China* /51/ and the *Law of the People's Republic of China on Evaluation of Environmental Effects* /52/. The potential environmental impacts of noise, waste water, air pollution and grass have been sufficiently identified. No significant environmental impacts are expected from the project activity. The Environmental Protection Bureau of Xinjiang Uygur Autonomous Region approved the EIA on 2 June 2008 /3/.

4.10 Comments by local stakeholders

The local stakeholder consultation process has been conducted through a questionnaire survey.

In May 2010, CECIC Wind Power (Xinjiang) Co., Ltd. distributed 49 questionnaires to local stakeholders, consisting of local villagers and residents /9/ and 49 questionnaires were returned giving a 100% response rate /9/. Since the project is located in an area with a low population density, the 49 questionnaires have almost been distributed to all the nearby residents.

DNV has checked all the questionnaires received. The survey shows that 100% of the investigated stakeholders expressed supportive attitudes to construction of the project and 100% of them agreed with the development of the project and thus no negative comment on this project has been received.

DNV considers the local stakeholder consultation carried out adequately.

4.11 Comments by Parties, stakeholders and NGOs

The PDD, version 1.1 dated 26 October 2010 /1/ was made publicly available on the CDM website and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 4 November 2010 to 3 December 2010 /65/. No comments were received.

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APPENDIX A

CDM VALIDATION PROTOCOL

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

Requirement	Reference	Conclusion
About Parties		
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3.	Kyoto Protocol Art.12.2	OK
2. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC.	Kyoto Protocol Art.12.2.	OK
3. The project shall have the written approval of voluntary participation from the designated national authority of each Party involved.	Kyoto Protocol Art. 12.5a, CDM Modalities and Procedures §40a	OK
4. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof.	Kyoto Protocol Art. 12.2, CDM Modalities and Procedures §40a	OK
5. In case public funding from Parties included in Annex I is used for the project activity, these Parties shall provide an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of these Parties.	Decision 17/CP.7, CDM Modalities and Procedures Appendix B, § 2	OK
6. Parties participating in the CDM shall designate a national authority for the CDM.	CDM Modalities and Procedures §29	OK
7. The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol.	CDM Modalities §30/31a	OK
8. The participating Annex I Party's assigned amount shall have been calculated and recorded.	CDM Modalities and Procedures §31b	OK
9. The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7.	CDM Modalities and Procedures §31b	OK
About additionality		
10. Reduction in GHG emissions shall be additional to any that would occur in the absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those	Kyoto Protocol Art. 12.5c, CDM Modalities and Procedures §43	CL2 CL3

Requirement	Reference	Conclusion
that would have occurred in the absence of the registered CDM project activity.		CL 4 OK
About forecast emission reductions and environmental impacts		
11. The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.	Kyoto Protocol Art. 12.5b	OK
For large-scale projects only		
12. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out.	CDM Modalities and Procedures §37c	OK
About stakeholder involvement		
13. Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received.	CDM Modalities and Procedures §37b	OK
14. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available.	CDM Modalities and Procedures §40	OK
Other		
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.
A General description of project activity						
A.1 Title of the project activity (VVM para 55-57)						
A.1.1	Does section A.1 of the PDD include a clearly identifiable project title, version number of the PDD and date of the PDD?	/1/	DR	<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
A.2 Description of the project activity (VVM para 58-64 and VVM para 135 and 136 (a) & (c) for small-scale project activities, as applicable)						
A.2.1	How was the design of the project assessed?	/1/ /2/ /3/ /6/ /7/ /8/ /26/ /27/	DR CC	<i>What type is the project?</i> <input type="checkbox"/> Project in existing facility or utilizing existing equipment(s) <input type="checkbox"/> Project is either a large scale project or a small scale project with emission reductions exceeding 15 000 tCO ₂ e per year. In this case, a site visit must be performed. <input type="checkbox"/> Project is a bundled small scale project, with each project in the bundle with emission reductions not exceeding 15,000 tCO ₂ e per year. In such case the number of physical site visits may be based on sampling, if the sampling size is appropriately justified through statistical		OK

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

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			<p>analysis.</p> <p><input type="checkbox"/> The project is an individual small scale project activity with emission reductions not exceeding 15 000 tCO₂e per year. In this case, DOE may not conduct a physical site visit as appropriate.</p> <p><input checked="" type="checkbox"/> Greenfield project</p> <p><i>How was the design of the project assessed?</i></p> <p><input type="checkbox"/> Physical site inspection</p> <p><input checked="" type="checkbox"/> Reviewing available designs and feasibility studies</p> <p><i>If a physical site inspection is not undertaken, justify why no site visit was undertaken:</i></p> <p>For the proposed project, DNV has been undergoing the validation by reviewing the available documents and feasibility studies and has conducted the comparison analysis. During the desk review from 4 November 2010 to 30 November 2010, the project relevant documents, including the PDD, EIA, Approval of EIA, FSR, approval of FSR, IRR calculation spreadsheet, EF calculation spreadsheet, wind turbines purchasing agreement, construction permission of turbine foundations and generator foundations, LoA from the Chinese DNA and stakeholder questionnaires etc. were provided and reviewed. Based on these documents provided, DNV is able to check the project design, implementation, monitoring plan and all baseline scenario information.</p> <p>The presented documents demonstrate that the</p>		

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

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			project is currently at the beginning. Moreover, it has been confirmed by DNV no resettlement of people was involved due to the project activity according to the FSR and EIA. Therefore, DNV justified the physical site visit for the project was not necessary and arranged the follow-up interview at the DNV Beijing office.		
A.2.2 If a greenfield project, describe the physical implementation of the project when the validation was commenced.	/1/ /16/ /63/	DR CC	<p>The construction permission of turbines foundation and generators foundation was approved by Xinjiang Kunlun Engineering Supervision Co., Ltd. on 30 November 2010.</p> <p>The construction contract of <i>tower basements, onsite substation and roads</i> was signed by the project owner with Zhengzhou City Zhengyan Construction Co., Ltd. on 13 September 2010.</p> <p>The validation was commenced in November 2010 when the project physical implementation was at the beginning stage.</p>		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 ₂ e per year), justify the sampling through a statistical analysis:	/1/	DR	It is not applicable for the proposed project activity since it is not a bundled small scale projects.		OK
A.2.4 Is the description of the proposed CDM project activity as contained in the PDD sufficiently covers all relevant elements, is accurate and that it provides the reader with a clear understanding of the nature of the proposed CDM project activity?	/1/ /8/	DR CC	<p>The description of the proposed project design has been addressed in the PDD.</p> <p>The proposed project activity will involve the installation and operation of 33 sets of turbines and associated generators each with 1.5 MW, having the total installed capacity of 49.5 MW.</p> <p>As shown in the PDD, the model numbers of the turbines (GW77/1500kW) are the same as the</p>		OK

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

Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
				description in the <i>equipments purchase agreement</i> .		
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/	DR	The proposed project activity is a Greenfield project, does not involve the alteration of existing installations.		OK
A.2.6	Does the project design engineering reflect current good practices?	/1/ /8/	DR	The turbines and generators (rated capacity: 1.5 MW) are domestically manufactured by Xinjiang Goldwind Science & Technology Co., Ltd.. By the sectoral experience, the manufacturer Xinjiang Goldwind Science & Technology Co., Ltd. is one of top suppliers of wind power equipments and its wind technology is advanced.		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/ /8/	DR CC	Yes. The turbines and generators for the proposed project are domestically manufactured by Xinjiang Goldwind Science & Technology Co., Ltd. using advanced domestic wind power technology, which is mature in the wind technology sector. The proposed project activity did not involve any transfer of technology from any Annex-I Party. According to <i>equipments purchase agreement</i> , no transfer of technology from the Annex-I Party was identified.		OK
A.3 Participation requirements (VVM para 51-54, 125-127)						
A.3.1	Do all participating Parties fulfil the participation requirements as follows:	/1/	DR			OK
		China (host)		United Kingdom of Great Britain and Northern Ireland	Country Y	

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

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
a) Party has ratified the Kyoto Protocol	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
b) Party has designated a Designated National Authority	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
c) The assigned amount has been determined	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
A.3.2 Do the letters of approval meet the following requirements?	/26/ /27/	DR CC	The LoA from the DNA of China has been obtained. The LoA from the DNA of United Kingdom of Great Britain and Northern Ireland has been obtained.		OK
			China (host) County X Country Y		OK
a) LoA confirms that Party has ratified the Kyoto Protocol	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
b) LoA confirms that participation is voluntary	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
c) The LoA confirms that the project contributes to the sustainable development of the host country?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	NA	NA		
d) The LoA refers to the precise project activity title in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
e) The LoA is unconditional with respect to (a) to (d) above	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
f) The LoA is issued by the respective Party's DNA	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
g) The LoA was received directly by the DNA or the PP	<input type="checkbox"/> DNA <input checked="" type="checkbox"/> PP	<input type="checkbox"/> DNA <input checked="" type="checkbox"/> PP	<input type="checkbox"/> DNA <input type="checkbox"/> PP		
h) In case of doubt regarding the authenticity of the letter of approval, describe how it was verified that the letter of approval is authentic	By checking the link from NDRC of China, DNV can verify the authenticity of LoA from Chinese DNA. http://cdm.ccchina.govcn/web/NewsInfo.asp?NewsId=4806 DNV can verify the authenticity of LoA from United Kingdom of Great Britain and Northern Ireland by checking the email from the DNA of United Kingdom of Great Britain and Northern Ireland.				
A.3.3 Have all private/public project participants been authorized	/26/	DR	The LoA from the DNA of China has been		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
by an involved Party?	/27/		obtained. The LoA from the DNA of Annex I party has been obtained.		
A.4 Technical description of the project activity (VVM para 58-64)					
A.4.1 Is the project's location clearly defined?	/1/ /2/	DR CC	The project is located in the Tuoli Town, Urumqi County, Xinjiang Uygur Autonomous Region, China. The geographical coordinates of the central point of the proposed project are East longitude 87.7333 and North latitude 43.4833. The information of the project's location shown in the FSR and PDD is verified to be consistent.		OK
A.5 Public funding of the project activity					
A.5.1 In case public funding from Parties included in Annex I is used for the project activity, have these Parties provided an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of these Parties?	/1/ /2/	DR CC	The project participants are requested to clarify whether the public funding from Parties included in Annex I is used for the project activity.	CL	OK
B Application of a baseline and monitoring methodology					
B.1 Methodology applied (VVM para 65-76 and VVM para 136 (b) for small-scale project activities, as applicable)					
B.1.1 Does the project apply an approved methodology and the correct and valid version thereof?	/1/ /29/	DR	Yes, the project applies correctly the approved methodology ACM0002 " <i>Consolidated baseline methodology for grid-connected electricity generations from renewable sources</i> " version 12.1.		OK
B.1.2 If applicable, has any specific guidance provided by the	/1/	DR	Yes. The <i>Tool for the demonstration and</i>		OK

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CDM EB in respect to the applied methodology been considered?		/30/ /31/	CC	<i>assessment of additionality</i> (version 5.2) has been used for the IRR calculation of the proposed project activity. The approved <i>Tool to calculate the emission factor for an electricity system</i> (version 2.0) is also employed for the calculation of grid emission factor.		
B.1.3	If the project applies a small-scale methodology, does the project also comply with the general guidelines to SSC CDM methodologies, which provides guidelines on equipment capacity, equipment performance/lifetime, baseline identification for type-II/III Greenfield project activities, sampling and other monitoring-related issues?	/1/	DR	It is not applicable to the proposed project activity since it is not a small scale project activity.		OK
B.2	Applicability of methodology (and tools) (VVM para 65-76) <i>Insert a row for each applicability criteria of the applied methodology (and tools)</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/ /3/ /73/ /74/	DR CC I	This project is the installation of a grid-connected and Greenfield renewable power plant generating energy from wind source. It can be clarified by the project owner during the follow-up interview and cross-checked with the FSR and the EIA approval.		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	/1/ /2/	DR	This project generates the electricity using the wind energy and does not involve on-site fuel switch from fossil fuels to a renewable source. It can be cross-checked with the approved FSR.		OK

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Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
use of fossil fuels at the site.						
B.2.3	How was it validated that project complies with the following applicability criteria: Have the geographical and system boundaries are clearly identified?	/1/ /2/ /40/	DR	The project is connected to the NWPG of which geographical and system boundaries are clearly identified and information on the characteristics of this grid is available.		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/ /29/	DR	Yes. The selected baseline of the project is based on the baseline described in ACM0002, Version 12.1. Therefore, it is deemed that the approved methodology ACM0002 Version 12.1 is applicable to the project activity.		OK
B.3 Project boundary (VVM para 78-80)						
B.3.1	What are the project's system boundaries (components and facilities used to mitigate GHGs)? Are they clearly defined and in accordance with the methodology?	/1/ /29/	DR	The project's system boundaries are defined and verified to be in accordance with the methodology ACM0002 Version 12.1. The spatial extent of the project boundary includes the proposed project and all power plants connected physically to the NWPG that the proposed project is connected to.		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/ /29/ /40/	DR	The GHG sources for the project are identified to be CO ₂ . The identified boundary is defined to be the project and all the power plants connected to the NWPG. The identified boundary cover all possible sources linked to the project activity, which can be verified with the grid boundaries published by NDRC in 2009.		OK
B.3.3	Does the project involve other emissions sources not foreseen by the methodologies that may question the applicability of the methodology? Do these sources contribute with more than 1% of the estimated emission	/1/ /29/	DR	As a Greenfield wind power project, the proposed project does not involve other emissions source as per the methodology ACM0002 version 12.1. No other project emission or leakage sources		OK

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reductions of the project?			contributing more than 1% and not mentioned by the methodology have been found.		
B.4 Baseline scenario determination (VVM para 81-88, 105-107) <i>Ensure that the evaluation of all alternatives provided in the PDD and required by the methodology and also possible alternatives/offshoots of alternatives are discussed. Check that all alternatives required to be considered by the methodology are included in the final PDD. If baseline alternatives required to be considered by the methodology are considered not applicable, please assess the justification for this.</i>					
B.4.1 Which baseline scenarios have been identified? Is the list of baseline scenarios complete?	/1/ /29/	DR	According to the ACM0002 Version 12.1, the baseline scenario can be defined as: Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources.		OK
B.4.2 How have the other baseline scenarios been eliminated in order to determine the baseline?	/1/ /29/	DR	Because the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario has been directly defined in the PDD. It is in line with the methodology ACM0002 version 12.1.		OK
B.4.3 What is the baseline scenario?	/1/	DR	Provision of equivalent amount of annual power output by the NWPG where the proposed project is connected into, which is the continued operation of the existing power plants and the addition of new generation sources.		OK
B.4.4 Is the determination of the baseline scenario in accordance with the guidance in the methodology?	/1/	DR	Yes. The determination of the baseline scenario is in accordance with the methodology ACM0002		OK

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		/29/		version 12.1.		
B.4.5	Has the baseline scenario been determined using conservative assumptions where possible?	/1/ /29/	DR	Yes. The determination of the baseline scenario is in accordance with the methodology ACM0002, Version 12.1.		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/	DR	Yes. The baseline scenario has sufficiently taken into account all relevant national and/or sectoral policies, macro-economic trends and political aspirations.		OK
B.4.7	Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced?	/1/ /29/	DR	The baseline scenario determination has been directly determined in accordance with the methodology ACM0002, Version 12.1.		OK
B.4.8	Is the baseline determination adequately documented in the PDD? <ul style="list-style-type: none"> All assumptions and data used by the project participants are listed in the PDD and related document to be submitted for registration. The data are properly referenced. All documentation is relevant as well as correctly quoted and interpreted. Assumptions and data can be deemed reasonable Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD. The methodology has been correctly applied to identify what would occurred in the absence of the proposed CDM project activity 	/1/ /29/	DR	The baseline scenario determination has been directly determined in accordance with the methodology ACM0002, Version 12.1.		OK
B.5 Additionality determination (VVM para 94-121 and VVM para 137 for small-scale project activities, as applicable)						
B.5.1	What approach/tool does the project use to assess additionality? Is this in line with the methodology? In case of	/1/ /29/	DR	The <i>Tool for demonstration and assessment of additionality</i> version 5.2 was used to assess		OK

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small-scale CDM project activities, is Attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities applied considering also the “Non-binding best practice examples to demonstrate additionality for SSC project activities”.		/30/		additionality of the project which is in line with the methodology ACM0002 Version 12.1. The proposed project activity is not a small scale project activity.		
B.5.2	Have the regulatory requirements correctly been taken into account to evaluate the project activity and the alternatives?	/1/	DR	During the determination of the project’s baseline scenario and the following investment analysis, the regulatory requirements have correctly been taken into account to evaluate the project activity and the alternatives.		OK
B.5.3	Is sufficient evidence provided to support the relevance of the arguments made?	/1/	DR	In the following detailed additionality determination, sufficient evidences have been provided to support the relevance of the arguments made.		OK
B.5.4	What is the project additionality mainly based on (Investment analysis or barrier analysis)?	/1/ /30/	DR	The additionality of the project is based on investment analysis.		OK
Prior consideration of CDM (VVM para 98-103)						
B.5.5	What is the evidence for serious consideration of CDM prior to the time of decision to proceed with the project activity?	/1/ /2/ /6/ /7/ /8/ /10/ /11/ /73/	DR CC I	The decision to proceed with the project activity was made on 1 September 2010 when the wind turbine purchase agreement was signed. Prior to the time of decision to proceed with the project activity, the serious consideration of CDM can be evidenced through the following issue: <ul style="list-style-type: none"> • The FSR was completed in March 2010, where the CDM was seriously considered as the key solver to the financial unfeasibility. • The FSR was approved by the NDRC on 31 May 2010. • Board meeting was held to decide the development of CDM project on 2 June 2010. • ERPA was signed between Carbon Resource 		OK

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				<p>Management S.A. and CECIC Wind Power (Xinjiang) Co., Ltd. on 22 June 2010.</p> <ul style="list-style-type: none"> Notification of the project commissioning date and its intension to seek CDM support to Chinese DNA on 2 August 2010. And it has been confirmed on 9 August 2010. Notification of the intension to seek CDM support was issued to the UNFCCC on 2 August 2010. And it has been confirmed by the EB on 22 July 2010. 		
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/ /10/ /11/	DR CC	The DNA and UNFCCC have confirmed that the project participants have informed in writing of the project's intention to seek CDM status.		OK
Continuous efforts to secure CDM status (only to be completed if starting date is before 2 August 2008)						
B.5.7	What initiatives where taken by the project participants from the starting date of the project activity to the start of validation in parallel with the physical implementation of the project activity?	/1/	DR	It is not applicable to the proposed project activity as its starting date is after 2 August 2008.		OK
B.5.8	When did the construction of the project activity start?	/1/	DR	It is not applicable to the proposed project activity as its starting date is after 2 August 2008.		OK
B.5.9	When was the project commissioned?	/1/	DR	It is not applicable to the proposed project activity as its starting date is after 2 August 2008.		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	It is not applicable to the proposed project activity as its starting date is after 2 August 2008.		OK

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Investment analysis (VVM para 108-114) <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 PDD?	/1/	DR	Yes. The proposed project activity will generate economic profit through the electricity sales apart from CDM related income which is reflected in the PDD.		OK
B.5.12	Do any of the alternatives to the project activity involve investment? Is this reflected in the PDD?	/1/	DR	The alternative for the baseline scenario of the project is not a new investment project, which has been reflected in the PDD.		OK
B.5.13	Is the choice of benchmark analysis, investment comparison or simple cost analysis correct?	/1/ /30/	DR	As is stated in sections B.5.11 and B.5.12, the proposed project will generate economic benefit other than CDM related income. The alternative for baseline scenario of the project is not a new investment project. Therefore, the selection of benchmark is deemed to be correct and consistent with the <i>Tool for demonstration and assessment of additionality</i> .		OK
B.5.14	Is the benchmark/discount rate the latest available at the time of decision?	/1/ /41/	DR CC	According to the <i>Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects</i> , in China an IRR of 8% (post 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% (post tax) is thus deemed to be 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 post		OK

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			tax and the investment analysis for this project will be post tax; 3. This <i>Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects</i> refers to the risk premiums of the wind power projects.		
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/	DR	The project IRR is the financial indicator. It is on project basis. And it is post tax and in correspondence with the benchmark.		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	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/ /47/	DR CC	<p>The income tax calculation takes depreciation into account. The depreciation period lasts 14 years with the fixed residual rate of 3%.</p> <p>According to the <i>Law of People's Republic of China on Enterprise Income Tax</i>, an enterprise shall begin computing depreciation for a fixed asset in the month following the month in which the asset is into service, and shall cease computing depreciation for a fixed asset in the month following in which the asset's use is ceased. The minimum number of years for computing depreciation of fixed assets is 10 years for the manufacturing and business operations. Therefore, the depreciation period of 20 years for the proposed project is in line with the <i>Law of People's Republic of China on Enterprise Income Tax</i>.</p> <p>Furthermore, the depreciation period of the proposed project have been cross checked with other similar projects. It was found to be within the range of other wind projects in Xinjiang</p>		OK

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			<p>Uygur Autonomous Region. The range was 12 to 17 years.</p> <p>Therefore, the depreciation periods (14 years) for the proposed project activity are verified to be reasonable and in accordance with normal accounting practice in the host country China.</p>		
<p>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?</p>	<p>/1/ /47/</p>	<p>DR</p>	<p>DNV has reviewed the FSR and IRR calculation spreadsheet and was able to confirm the following issues:</p> <ul style="list-style-type: none"> • The 20 years of the investment analysis and operating time of the project is realistic, which is with normal accounting practice of similar wind power projects in China, and can be substantiated by the FSR. • The residue value rate of 3% has been taken into account, which is in line with normal accounting practice of industry in China. <p>The working capital will be returned in the last year of operation.</p>		<p>OK</p>
<p>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?</p>	<p>/1/ /2/</p>	<p>DR CC</p>	<p>The FSR for CECIC Urumqi Tuoli Phase I Wind Farm Project was developed by Xinjiang Survey and Design Institute of Water Resources and Hydropower Ministry of Water Resources in March 2010 and approved by the Development and Reform Commission of Xinjiang Uygur Autonomous Region on 31 May 2010.</p> <p>DNV compared the input parameters for the financial analysis included in the PDD with the parameters stated in the FSR and confirmed that</p>		<p>OK</p>

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			<p>the values applied in the table 5 of PDD are consistent with the value stated in the FSR.</p> <p>The FSR was approved on 31 May 2010 and thus only 3 months prior to the decision to proceed with the project activity on 1 September 2010 (the date when the turbine purchase agreement was signed). 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.</p>		
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/	DR CC	<p><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</p> <p><input checked="" type="checkbox"/> The plant load factor determined by a third party contracted by the project participants (e.g. an engineering company)</p> <p><input type="checkbox"/> Other approach.</p> <p><i>Provide details on how the load factor was validated:</i></p> <p>As stated in the FSR for the proposed project, the annual electricity generation hours for the proposed project are 2 536.</p> <p>What type of data has been used to estimate the electricity generation? For which vintage years is the data available? The software systems used for optimization should be described.</p>	CL2	OK

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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/ /2/ /8/ /32/ /54/ /55/ /56/ /57/ /58/ /59/ /60/	DR CC	<input checked="" 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> <p>The assumed tariff of 0.51 RMB/kWh (Incl. VAT) in the PDD is from the FSR. Considering the FSR was approved by the Development and Reform Committee of Xinjiang Uygur Autonomous Region on 31 May 2010 only after it got through the expert evaluation, it is reasonable to regard the tariff as valid and applicable at the time of the investment decision (1 September 2010).</p> <p>For the proposed project, the expected feed-in tariff of 0.51 RMB/kWh (Incl. VAT) was the most recently available tariff at the time of the investment decision for the proposed project on 1 September 2010.</p> <p>Due to the <i>Notice of improving tariff regulation for wind power projects</i> (Fa Gai Jia Ge [2009]1906) issued by NDRC on 20 July 2009, four different wind resource regions were divided based on wind resource status, project construction conditions and the guiding tariffs.</p> <p>As per the definition of four wind resource regions, the proposed project is located in Urumqi city which corresponds to region I. The stipulated tariff for this region is 0.51 RMB/kWh</p>		OK

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			<p>(Incl.VAT).</p> <p>The <i>Notice of improving tariff regulation for wind power projects</i> indicates the tariffs for different regions in China. All the stipulated tariffs are in force since 1 August 2009. From then on, the newly installed wind power projects should implement the stipulated on-grid tariffs. Finally, tariff determination system for wind power projects stabilized due to this regulation. Therefore, it can be concluded that the tariff in Xinjiang has been maintained at 0.51 RMB/kWh (Incl. VAT).</p> <p>Based on the discussion given above, it is confirmed by DNV that the tariff of 0.51 RMB/kWh (Incl. VAT) for the proposed project assumed in FSR is in line with the trend of wind electricity tariff in the Xinjiang Autonomous Region.</p> <p>In addition, DNV has also validated whether the project IRR will exceed the benchmark by applying the highest tariff occurring in Xinjiang Autonomous Region.</p> <p>Based on the <i>Information note on the highest tariffs applied by the executive board in its decisions on registration of projects in the People's Republic of China</i>, the applicable highest tariff for wind power projects in Xinjiang Uygur Autonomous Region in accordance with the Executive Board's request is 0.533 RMB/kW (Incl. VAT). With the application of this highest tariff to proposed project, its IRR would be still</p>		

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			lower than the benchmark of 8%. Therefore, it is demonstrated the tariff adopted by the proposed project is appropriate and reasonable.		
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 CC	<input checked="" 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 MW applied in the project financial analysis have been justified by cross-checking with the similar wind power projects in Xinjiang Uygur Autonomous Region. The investment costs used in the financial analyses were compared with the data reported for other similar proposed CDM projects in the region, i.e. other wind power projects in Xinjiang Uygur Autonomous Region. The investment costs per kW of the proposed project (9 805 RMB/kW) were found to be in the range of the other projects. The range of investment costs per kW was 7 680 to 10 310 RMB/kW. The total investment applied in the financial analysis of the proposed project activity has been verified to be reasonable based on comparing the parameters with parameters reported for other similar projects.		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 CC	<input checked="" type="checkbox"/> Cross-check against third-party or publicly available sources (e.g. invoices or price indices)		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	<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&M costs were validated:</i> The O&M costs mainly consist of materials fee, salary and social welfare, repair cost, insurance fee and miscellaneous fee. For the proposed project activity, the annual O&M costs are 17.52 million RMB, which is 3.61% of the total investment (485.37 million RMB). The O&M costs for the proposed project were assessed by cross-checking with the similar wind power projects. The range of O&M costs compared to total investment costs was 2.48% to 5.30%. The O&M costs compared to the total investment of the proposed project activity (3.61%) were verified to be within the range of other projects. The O&M costs applied in the financial analysis of the proposed project activity have been checked to be reasonable based on comparing the parameters with parameters reported for other similar projects.		
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/ /43/ /44/ /50/ /51/	DR CC	<input checked="" 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>		OK

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			<p>(a) Miscellaneous fee</p> <p>The miscellaneous fee applied in the project financial analysis should be justified by cross-checking or other appropriate manner with the similar wind power projects in Xinjiang Uygur Autonomous Region.</p> <p>The breakdown of “other fees” needs to be clarified.</p> <p>(b) VAT rate</p> <p>VAT is a tax that applies to most business transactions involving the transfer of goods and services. It is thus applicable to the proposed project activities. When the business is registered for VAT, it will pay VAT on its purchase of equipments and charge VAT on its sales.</p> <p>Referring to the PDD and FSR, the VAT rate applied by the proposed project activity was 17%.</p> <p>According to the Interim Regulation of the People’s Republic of China on Value Added Tax (No.134 [1993]), the VAT occurred on the sales of electricity was stipulated to be 17%.</p> <p>However, on 9 December 2008, the “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” (No.156 [2008]) was issued. As stipulated in this notice (No.156 [2008]), VAT refund half upon levy shall be applicable for selling the electricity</p>	CL-3	

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			<p>generation from wind power etc. The regulation entered into force on 1 January 2009 and the former regulation was repealed simultaneously.</p> <p>Based on the document introduced above, the VAT rate adopted by the proposed project is 17%. Half of the VAT incurred by the electricity sales has been annually recovered from the 6th year to 20th year after the equipment VAT is fully recovered.</p> <p>(c) Rate of Enterprise Income Tax</p> <p>According to the <i>Law of People's Republic of China on Enterprise Income Tax</i>, the enterprise income tax shall be levied at the rate of 25%. The rate of income tax (25%) applied in the financial analysis of the proposed project is derived from the FSR, which is in line with the <i>Law of People's Republic of China on Enterprise Income Tax</i>, issued by the State Council, State Council No.137. The document was still valid at the time of making investment decision on 1 September 2010.</p> <p>As for the proposed project, the IRR benchmark of 8% is post tax and the interest payable has been verified to be included in the calculation of the income tax.</p> <p>(d) Period of Depreciation</p> <p>The proposed project applies a depreciation period of 20 years in accordance with the FSR. According to the <i>Law of People's Republic of China on Enterprise Income Tax</i>, an enterprise</p>		

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			<p>shall begin computing depreciation for a fixed asset in the month following the month in which the asset is into service, and shall cease computing depreciation for a fixed asset in the month following in which the asset's use is ceased. The minimum number of years for computing depreciation of fixed assets is 10 years for the manufacturing and business operations. Therefore, the depreciation period of 14 years for the proposed project is in line with the <i>Law of People's Republic of China on Enterprise Income Tax</i>.</p> <p>Furthermore, the depreciation period of the proposed project activity has been cross checked with other similar projects. It was found to be within the range of other wind projects in Sichuan province. The range was 12 to 17 years.</p> <p>(e) Rate of Residual Rate</p> <p>The rate of residual value (3%) is driven from the FSR and is recovered at the end of operation period in the project IRR calculation spreadsheet. According to the <i>Law of People's Republic of China on Enterprise Income Tax</i>, the net residual value of a fixed asset shall be reasonably determined by an enterprise according to the nature and condition of the fixed asset. It may not be changed once determined. The residual value of the proposed project has been cross-checked with the other similar projects. The range is from 0% to 5%. Therefore, the rate of residual value (5%) applied to the proposed project activities is deemed to be acceptable.</p>		

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			<p>(f) Rate of Education Surtax</p> <p>The proposed project activity applies an education Surtax (of the VAT) of 3%. DNV has verified that the rates applied are in accordance with the <i>Provisional Regulations of People's Republic of China on Education Added Tax Law</i>, issued by State Council, State Council No.448. The document (State Council No.448) was entered into power since 1 October 2005 and valid at the time of making investment decision for the project activity.</p> <p>(g) Rate of Urban Maintenance and Construction Tax</p> <p>The proposed project activity applies a rate of urban maintenance and construction tax (of the VAT) of 5%, which is in accordance with the <i>Provisional Regulations of the People's Republic of China on Urban Maintenance and Construction Tax</i>, Guofa [1985] No.19. The document ([1985] No.19) was entered into force since 1 January 1985 and valid at the time of making the investment decision for the project activity.</p>		
B.5.25 Was the financial calculation spreadsheet verified and found to be correct?	/1/	DR	Yes, the financial calculation spreadsheet was verified and found to be correct.		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	/1/	DR	The key parameters contributing to more than 20% of the revenues/costs have been identified in the sensitivity analysis of PDD.		OK

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between the parameters been considered?				None of the parameters in the sensitivity analysis are considered to have any significant correlation.		
B.5.27	Sensitivity analysis: Is the range of variations is reasonable in the project context?	/1/	DR	The likelihood of reducing the total static investment by 17.9% to reach the benchmark shall be substantiated.	CL 4	OK
B.5.28	Have the key parameters been varied to reach the benchmark and the likelihood of this to happen been justified to be small?	/1/	DR	The likelihood of reducing the total static investment by 17.9% to reach the benchmark shall be substantiated.	CL 4	OK
Barrier analysis (VVM para 115-118)						
B.5.29	Are the barriers identified complimentary to a potential investment analysis? Does the barrier have a clear impact on the financial returns so that it can be assessed in an investment analysis? Each barrier is discussed separately.	/1/	DR	Not Applicable		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	Not Applicable		OK
B.5.31	How does CDM alleviate the investment barriers?	/1/	DR	Not Applicable		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	Not Applicable		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	Not Applicable		OK
B.5.34	How does CDM alleviate the technological barriers?	/1/	DR	Not Applicable		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	Not Applicable		OK

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B.5.36	How were the <u>barriers due to prevailing practise</u> assessed to be real? Are the barriers due to prevailing practise substantiated by a source independent of the project participants?	/1/	DR	Not Applicable		OK
B.5.37	How does CDM alleviate the barriers due to prevailing practise?	/1/	DR	Not Applicable		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	Not Applicable		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	Not Applicable		OK
B.5.40	How does CDM alleviate the other barriers?	/1/	DR	Not Applicable		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	Not Applicable		OK
Common practice analysis (VVM para 119-121)						
B.5.42	What is the geographical scope of the common practice analysis? Is this justified?	/1/ /53/	DR	Yes. The geographical scope of the common practice analysis is Xinjiang Uygur Autonomous Region. Xinjiang Uygur Autonomous Region 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, market conditions for wind power projects development has changed significantly since then. Hence the chosen geographical scope of the		OK

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			common practice analysis is reasonable.		
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 this been justified?	/1/	DR	The scope of technology for the common practice analysis is wind power. Since the other scopes of technology are not comparable to the proposed project activity. The scope of size for the common practice analysis is with capacity of more than 15 MW (using the same definition used by the UNFCCC). It is DNV's opinion that the scope of technology and size of the common practice analysis is reasonable.		OK
B.5.44 What is the data source(s) used for the common practice analysis?	/1/ /43/	DR CC	The data sources used for the common practice of the referred compared projects is <i>Statistics of Domestic Wind Farm Installation Capacity in 2007</i> and UNFCCC website.		OK
B.5.45 How many similar non-CDM-projects exist in the region within the scope?	/1/	DR	There are no similar projects except for the CDM project activities (registered projects or applying for the CDM registration).		OK
B.5.46 How were possible essential distinctions between the project activity and similar activities assessed?	/1/	DR	No similar project activities other than the CDM project activities have been identified.		OK
B.5.47 What is the conclusion of the common practice analysis?	/1/	DR	The conclusion is that it is not the common practice to develop the proposed project without applying for CDM support.		OK
Conclusion					
B.5.48 What is the conclusion with regard to the additionality of the project activity?	/1/	DR	The conclusion will be generated after the above CARs/CLs resolved.	CL-2 CL-3 CL-4	OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
B.6 Calculations of GHG emission reductions					
Data and parameters that are available at validation and that are not monitored (VVM para 199-203)					
B.6.1 How was the $FC_{i,y}$ verified?	/1/ /39/	DR	$FC_{i,y}$ Different fuel consumptions for power Generation in NWPG in 2005 – 2007. The parameter is sourced with the <i>China Energy Statistical Yearbook 2006 - 2008</i> , which the official data can be identified.		OK
B.6.2 How was the $EG_{grid,y}$ and $EG_{m,y}$ verified?	/1/ /38/	DR CC	$EG_{grid,y}$ and $EG_{m,y}$, the electricity supplied to the NWPG by included sources in the year y. This parameter has been verified through cross-checking the reported data in PDD and the EF calculation spreadsheet with <i>China Electric Power Yearbook 2006 – 2008</i> .		OK
B.6.3 How was the $NCV_{i,y}$ verified?	/1/ /39/	DR CC	$NCV_{i,y}$ Average low calorific values of fuels for electricity generation (unit: GJ/mass or volume). The parameter can be sourced from the <i>China Energy Statistical Yearbook 2006 – 2008</i> , where the official data can be identified.		OK
B.6.4 How was the $EF_{CO2,i,y}$ and $EF_{CO2,m,y}$ verified?	/1/ /39/	DR CC	$EF_{CO2,i,y}$ and $EF_{CO2,m,y}$ The CO2 emission factor of fossil fuel type I in year y. It has been cross checked with the official statistics of official data from the Chinese DNA.		OK
B.6.5 How was the <i>Efficiency of the best technology commercially</i> verified?	/1/	DR CC	Best commercial available efficiency of coal, gas, oil fuel power plant. Best commercial efficiency for coal, oil and gas is respectively 38.10%, 49.99% and 49.99%. It has been cross check with the official national statistics issued by the DNA.		OK

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B.6.6 How was the <i>Installed Capacity</i> verified?	/1/ /38/ /39/	DR CC	<i>Installed Capacity</i> , the installed capacity by different sources of the NWPG in 2005 - 2007. The parameter has been verified through cross checking the reported data in the EF calculation spreadsheet with the <i>China Electric Power Yearbook 2006 - 2008</i> .		OK
Baseline emissions (VVM para 89-93)					
B.6.7 Are the calculations documented according to the approved methodology and in a complete and transparent manner?	/1/	DR CC I	The emission reduction calculation process has been transparently documented in EF calculation spreadsheet. It has been cross-checked by the published data from NDRC to demonstrate that all the data and calculation in the provided EF calculation spreadsheet is correct.		OK
B.6.8 Have conservative assumptions been used when calculating the baseline emissions?	/1/ /30/ /36/	DR CC	Yes. All the used assumptions are in line with the <i>Tool to calculate the emission factor for an electricity system</i> version 2.0 and Guidance for request for deviation titled <i>Application of AM0005 and AMS-I.D in China</i> from EB.		OK
B.6.9 Are uncertainties in the baseline emission estimates properly addressed?	/1/	DR	There are no uncertainties identified in the baseline emission estimates.		OK
Project emissions (VVM para 89-93)					
B.6.10 Are the calculations documented according to the approved methodology and in a complete and transparent manner?	/1/ /29/	DR	The proposed project activity is a newly built power project, which has been verified through reviewing the FSR and its approval. Therefore, the project emission can be considered as zero according to the applied methodology ACM0002 version 12.1.		OK
B.6.11 Have conservative assumptions been used when calculating the project emissions?	/1/ /29/	DR	The proposed project activity is one wind power project generating electricity from wind power, which has been verified through reviewing the		OK

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				FSR and its approval. Therefore, the project emission can be considered as zero according to the applied methodology ACM0002 version 12.1.		
B.6.12	Are uncertainties in the project emission estimates properly addressed?	/1/ /29/	DR	The proposed project activity is a renewable project generating electricity from wind power, which has been verified through reviewing the FSR and its approval. Therefore, the project emission can be considered as zero according to the applied methodology ACM0002 version 12.1.		OK
Leakage (VVM para 89-93)						
B.6.13	Are the leakage calculations documented according to the approved methodology and in a complete and transparent manner?	/1/	DR	None of the energy generating equipments have been transferred from another activity, therefore the leakage can be considered as zero.		OK
B.6.14	Have conservative assumptions been used when calculating the leakage emissions?	/1/	DR	None of the energy generating equipments have been transferred from another activity, therefore the leakage can be considered as zero.		OK
B.6.15	Are uncertainties in the leakage emission estimates properly addressed?	/1/	DR	None of the energy generating equipments have been transferred from another activity, therefore the leakage can be considered as zero.		OK
Emission Reductions (VVM para 89-93)						
B.6.16	Algorithms and/or formulae used to determine emission reductions: <ul style="list-style-type: none"> All assumptions and data used by the project participants are listed in the PDD and related document submitted for registration. The data are properly referenced All documentation is correctly quoted and interpreted. All values used can be deemed reasonable in the context of the project activity 	/1/ /2/	DR	The algorithms and/or formulae have been correctly used to determine emission reductions: <ol style="list-style-type: none"> All data in the PDD used to determine the calculation are from the FSR, China Electric Power Yearbook, China Energy Statistical Yearbook, IPCC 2006 and other reference document. The data are properly referenced. According to the reference list, all documents of the calculations were correctly 		OK

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<ul style="list-style-type: none"> The methodology has been correctly applied to calculate the emission reductions and this can be replicated by the data provided in the PDD and supporting files to be submitted for registration. 			<p>quoted and interpreted.</p> <p>3) All values used are deemed reasonable in the context of the project activities because all values are either derived from the public national or IPCC data available or the FSR which can be considered information provided by a trustworthy and recognized source.</p> <p>4) The approved baseline and monitoring methodology ACM0002 as well as its tools have been correctly applied to calculate the emission reductions. And the emission reductions can be replicated by using the data and parameter provided in the PDD and supporting files submitted for registration. The data sources mentioned have been verified by DNV.</p>		
B.7 Monitoring plan (VVM para 122-124)					
Data and parameters monitored					
B.7.1 Do the means of monitoring described in the plan comply with the requirements of the methodology?	/1/	DR	Yes. The means of monitoring described in the plan complies with the requirements of the methodology.		OK
B.7.2 Does the monitoring plan contains all necessary parameters, and are they clearly described?	/1/	DR	The monitoring plan in the PDD contains the necessary parameters to be monitored. The data unit, source of data, measurement procedures, monitoring frequency, QA/QC procedures of the monitored parameters have been clearly described.		OK
B.7.3 In case parameters are measured, is the measurement equipment described? Describe each relevant parameter.	/1/	DR	The net electricity supplied by the proposed project activity, i.e. $EG_{facility}$ will be continuously		OK

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			<p>measured.</p> <p>The parameter $EG_{facility}$ will be measured by the main meter installed at the grid substation. When the main meter fails breaks down, the readings of the backup meter installed at the grid substation will be accepted.</p> <p>In case the additional capacity is involved with the project activity (i.e. either an additional wind farm or expansion of this wind farm), and shares the same transmission facilities, the following parameters will be monitored to calculate the net electricity supplied by the project activity ($E_{facility, y}$),</p> <ul style="list-style-type: none"> • $EG_{total, y}$ the quantity of total net electricity supplied to the grid by the project activity and additional capacity. It will be continually monitored by the bidirectional main meter at the substation and calculated as exports minus imports. • $E_{facility, y}$ the quantity of electricity generation by the proposed project activity. It will be continually monitored by the bidirectional onsite backup meter. • $E_{additional, y}$ the quantity of electricity generated by the additional installed capacity. It will be continually measured by the directional onsite backup meter. 		
B.7.4 In case parameters are measured, is the measurement accuracy addressed and deemed appropriate? Describe each	/1/	DR	The net electricity supplied by the proposed project activity, i.e. $EG_{facility}$ will be measured. The measurement accuracy of monitoring		OK

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relevant parameter.			<p>equipments shall not exceed 0.5%, which is considered to have met the national standards.</p> <p>In case the additional capacity is involved with the project activity (i.e. either an additional wind farm or expansion of this wind farm), and shares the same transmission facilities, the parameters (EG_total,y, E_facility,y, E_additional,y) will be monitored to calculate the net electricity supplied by the project activity (E_facility, y).</p> <p>The accuracy of monitoring equipment to measure the parameter EG_total,y is at least 0.5S, which meets the national standards and is thus deemed to be appropriate.</p> <p>The accuracy of monitoring equipment to measure the parameter E_facility,y is at least 0.5S, which meets the national standards and is thus deemed to be appropriate.</p> <p>The monitoring equipment to measure the parameter E_additional,y has the accuracy level of at least 0.5S, which meets the national standards and is thus deemed to be appropriate.</p>		
B.7.5 In case parameters are measured, are the requirements for maintenance and calibration of measurement equipment described and deemed appropriate? Describe each relevant parameter.	/1/	DR	The calibrating frequency of monitoring equipments should be identified in the PDD.	CL-5	OK
B.7.6 Is the monitoring frequency adequate for all monitoring parameters? Describe each parameter.	/1/ /29/	DR	The monitoring parameter EG _{facility} will be continually monitored as stated in the PDD. The monitoring frequency is in accordance with the applied methodology ACM0002 version 12.1 and thus considered to be adequate.		OK

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			<p>In case the additional capacity is involved with the project activity (i.e. either an additional wind farm or expansion of this wind farm), and shares the same transmission facilities, the parameters (EG_total,y, E_facility,y, E_additional,y) will be monitored to calculate the net electricity supplied by the project activity (E_facility, y).</p> <p>These parameters (EG_total,y, E_facility,y, E_additional,y) will be continuously monitored.</p> <p>The monitoring frequency is verified to be in accordance with the applied methodology ACM0002 version 12.1 and thus considered to be adequate and is considered to be appropriate.</p>		
B.7.7 Is the recording frequency adequate for all monitoring parameters? Describe each parameter.	/1/ /29/	DR	<p>The recording frequency for the monitoring parameters $EG_{facility}$ is on the monthly basis. It meets the requirement in the ACM0002 version 12.1 and is thus considered to be adequate.</p> <p>In case the additional capacity is involved with the project activity (i.e. either an additional wind farm or expansion of this wind farm), and shares the same transmission facilities, the parameters (EG_total,y, E_facility,y, E_additional,y) will be monitored to calculate the net electricity supplied by the project activity (E_facility, y).</p> <p>These parameters (EG_total,y, E_facility,y, E_additional,y) will be monthly recorded.</p> <p>The recording frequency is verified to be in accordance with the applied methodology ACM0002 version 12.1 and thus considered to be adequate and is considered to be appropriate.</p>		OK

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Ability of project participants to implement monitoring plan						
B.7.8	How has it been assessed that the monitoring arrangements described in the monitoring plan are feasible within the project design?	/1/	DR	The procedures with regards to how to deal with erroneous measurements and especially to identify the measurement in case the meter installed is failed, which has been identified in the PDD.		OK
B.7.9	Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)?	/1/	DR	Yes. The procedures for records handling have been identified in the PDD.		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/	DR	Yes. The detailed procedures related to data management, quality assurance and quality control have been elaborated in the PDD. These will be maintained and presented to the verification agency or DOE for the verification of emission reductions.		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/	DR	Yes. As described in the PDD, all parameters monitored under the monitoring plan will be archived electronically and be kept at least for 2 years after the end of last crediting period.		OK
Monitoring of sustainable development indicators/ environmental impacts						
B.7.12	Is the monitoring of sustainable development indicators/ environmental impacts warranted by legislation in the host country?	/1/	DR	China legislation authorities do not require the collection and archiving of relevant data concerning sustainable development indicators. The monitoring of environmental impacts is conducted by the local environmental authority.		OK
B.7.13	Does the monitoring plan provide for the collection and archiving of relevant data concerning environmental, social	/1/	DR	Neither Chinese legislation authorities nor the methodology ACM0002 requires any collection		OK

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and economic impacts?	/29/		and archiving of data related to environmental, social and environmental impacts.		
B.7.14 Are the sustainable development indicators in line with stated national priorities in the host country?	/1/	DR	Monitoring of sustainable development indicators, namely environmental, social and economic are in line with national priorities in China.		OK
C Duration of the project activity / crediting period					
C.1.1 Start date of project activity (VVM para 99-100, 104)					
C.1.2 How has the starting date of the project activity been determined? What are the dates of the first contracts for the project activity? When was the first construction activity?	/1/ /8/ /16/ /63/ /73/	DR CC I	Therefore, it can be confirmed that the earliest financial commitment was made on 1 September 2010 when the equipment purchase agreement was signed. The construction contract of tower basement, onsite substation and roads was signed with the Zhengzhou City Zhengyan Construction Co., Ltd. on 13 September 2010. The construction permission of turbine basement, onsite substation and roads was signed with Xinjiang Kunlun Engineering Supervision Co., Ltd. on 30 November 2010. Based on the documents listed above, the earliest investment decision was determined on 1 September 2010. Therefore, the starting date of the proposed project activity has thus been confirmed to be 1 September 2010.		OK
C.1.3 Is the stated expected operational lifetime of the project activity reasonable?	/1/	DR	DNV has reviewed other similar projects and considered that the stated expected operational lifetime of 20 years for the project activities is reasonable.		OK
C.1.4 Is the start date, the type (renewable/fixed) and the length of	/1/	DR	A renewable crediting period of 7 years is		OK

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the crediting period clearly defined and reasonable?			selected, starting on 1 May 2011 (or the date of registration, whichever is later), which is deemed to be reasonable.		
D Environmental Impacts (VVM para 131-133 and VVM para 136 (d) for small-scale project activities, as applicable))					
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? For small-scale project activities, is an assessment of the environmental impacts of the proposed CDM project activity is required by the host Party?	/1/ /3/	DR CC	<p><i>Environmental Protection Law of the People's Republic of China</i> was issued on 28 October 2002 and requires the EIA for the construction project.</p> <p>The EIA for the proposed project has been completed by the Xinjiang Environmental Protection Technology Consultation Center on 4 May 2008.</p> <p>The EIA report has been approved by the Environmental Protection Bureau of Xinjiang Uygur Autonomous Region on 2 June 2008.</p> <p>The EIA report does not contain any indicators to be monitored.</p>		OK
D.1.2 Does the project comply with environmental legislation in the host country?	/1/ /51/ /52/	DR	Yes. The project complies with the <i>Law of the People's Republic of China on Evaluation of Environmental Effects</i> and <i>Environmental Protection Law of the People's Republic of China</i> since it has been approved by the local Environmental Protection Bureau.		OK
D.1.3 Will the project create any adverse environmental effects?	/1/	DR	According the EIA and its approval, the proposed project will cause no significant adverse impacts on the environment.		OK

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D.1.4	Have identified environmental impacts been addressed in the project design?	/1/	DR	Yes. The identified environmental impact has been addressed in the PDD.		OK
D.1.5	Has an analysis of the environmental impacts of the project activity been sufficiently described?	/1/	DR	Yes. The possible environmental impacts of the project activity have been sufficiently described which has been verified by DNV.		OK
D.1.6	Are transboundary environmental impacts considered in the analysis?	/1/	DR	No transboundary environmental impacts were considered in the analysis.		OK
E Stakeholder Comments (VVM para 128-130)						
E.1.1	Have relevant stakeholders been consulted?	/1/ /9/	DR CC	<p>In May 2010, carried out a survey of the local residents by the means of distributing questionnaires.</p> <p>The questionnaires were distributed to the local residents in the nearby areas of the proposed project. The investigated local stakeholders mainly live near the project site and were selected from different genders, ages and education levels with proper proportion.</p> <p>During the survey, 40 copies of questionnaires for the proposed project activity were distributed to local stakeholders and 40 answered questionnaires were returned giving a 100% response rate. DNV has checked all the questionnaires received. The survey shows that 100% of the investigated people are supportive to the project construction and no negative opinions received.</p>		OK
E.1.2	Have appropriate media been used to invite comments by local stakeholders?	/1/	DR	Yes. The distribution of questionnaires to local stakeholders has been used to invite the		OK

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Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
				comments from the local stakeholders.		
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/ /51/	DR	Yes. The stakeholder consultation process is in accordance with <i>Law of the People's Republic of China on Evaluation of Environmental Effects</i> .		OK
E.1.4	Is a summary of the stakeholder comments received provided?	/1/	DR	Yes. A summary of the stakeholder comments has been provided in section E.2 of PDD.		OK
E.1.5	Has due account been taken of any stakeholder comments received?	/1/	DR	The survey shows that 100% of the investigated people are supportive to the project construction and no negative comments are received.		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>CL 1</p> <p>Project participants are requested to clarify whether the public funding from Parties included in Annex I is used for the project activity.</p>	A.5.1	<p>There is no public funding from Parties included in Annex I involved in this project. However, the loan contract of the proposed project had been provided to validation team as evidence.</p>	<p>The loan contract for the 80% of total static investment has been verified by DNV. Therefore, DNV confirms that no public funding from Parties included in Annex I is used for the proposed project activity. Therefore, the CL 1 is closed.</p>
<p>CL 2</p> <p>As stated in the FSR for the proposed project, the annual electricity generation hours for the proposed project are 2 536.</p> <p>What type of data has been used to estimate the electricity generation? For which vintage years is the data available? The software systems used for optimization should be described.</p>	B.5.20 B.5.48	<p>The annual electricity in the FSR is calculated based on detailed information of onsite measurement, meteorological data of the wind resource in the local area for recent 27 years (1982-2008) and equipment characteristics, using a scientific approach applied internationally.</p> <p>As per the FSR, the estimated net supplied power is calculated from the turbine availability, grid availability and the wind speed. The professional software WASP version 9.0 was used to select the rich wind source area, and then using software Wind farmer 3.6.1 to optimize the distribution of each turbine for maximize power generation. 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. The method of anticipating power generation is also approved by the</p>	<p>Referring to the FSR completed by the qualified third party, the annual electricity generation is estimated on the basis of 27 years wind resource data kept by the local weather station. The data from the local authority are considered to be creditable.</p> <p>The wind resource data was processed by the professional software WASP to determine the annual operation hours, which is the prevailing practice in China. Therefore, the CL 2 is closed.</p>

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
		government and is widely used in China for wind energy. The description has been added in B.5.	
<p>CL 3</p> <p>The miscellaneous fee applied in the project financial analysis should be justified by cross-checking or other appropriate manner with the similar wind power projects in Xinjiang Uygur Autonomous Region.</p> <p>The breakdown of “miscellaneous fee” needs to be clarified.</p>	<p>B.5.24</p> <p>B.5.48</p>	<p>The miscellaneous fee for the proposed project consists of the other manufacture expenses, general administrative expenses and operating expenses. (<i>Economic Evaluation Code and Parameters for Construction Project (version 3), P7</i>) The miscellaneous fee rate of proposed project is 50 RMB/kW, which is comparable to the range (25 RMB/kW – 50 RMB/kW) of other similar projects in Xinjiang Uygur Autonomous Region. All the description about the miscellaneous fee has been added in PDD.</p>	<p>The composition of miscellaneous fee has been identified in the <i>Economic Evaluation Code and Parameters for Construction Project</i>. The miscellaneous fee rate (50 RMB/kW) of the proposed project, is verified to be within the range (from 15 to 50 RMB/kW) of registered CDM wind power projects in Xinjiang. Therefore, the suitability of miscellaneous fee has been confirmed.</p> <p>Therefore, the CL 3 is closed.</p>
<p>CL 4</p> <p>The likelihood of reducing the total static investment by 17.9% to reach the benchmark shall be further substantiated.</p>	<p>B.5.27</p> <p>B.5.28</p> <p>B.5.48</p>	<p>For wind farm projects, the costs of turbines, engineering construction and related accessories comprise the main budget of static investment. As prices of turbines and other related equipment have been increasing in recent years, a decrease of the static investment is unlikely. Indeed, the final price of the contracted equipments (including turbines ,towers and transformers is 347.58 million RMB) was higher than that estimated in FSR (320.57 million RMB).Also the final contracted value of the main construction was 31.6 million RMB, higher than that estimated in FSR (27.73 million RMB). And the actual</p>	<p>DNV has cross-checked the total static investment with the already signed contracts for equipments and construction-related service. And it was found the actual expenses, which accounts for 79% of total investment, is slightly higher than the estimated value in the FSR. Therefore, DNV confirms that the total investment has been estimated in the conservative and realistic way.</p> <p>Therefore, the CL 4 is closed.</p>

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
		value of the main contracts and some other contracts of the proposed project is accounted for 82.95% (402.63 million RMB) of the estimated static investment in the FSR (485.37 million RMB). All the contracts have been provided to validation team. Therefore, it was not realistic for the developer to assume that investment costs could decrease by 17.9% in order to reach the benchmark.	
CL 5 The calibrating frequency of monitoring equipments should be identified in the PDD.	B.7.5	The metering equipments of the proposed project will be calibrated annually. The calibrating frequency has been added in monitoring plan in B.7.	The calibration interval, “once a year”, is verified to comply with <i>Technical administrative code of electric energy metering (DL/T 448-2000)</i> . Therefore, the CL 5 is closed.

Table 4 Forward action requests

Forward action request	Reference to Table 2	Response by project participants
Not applicable	Not applicable	Not applicable

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APPENDIX B

CURRICULA VITAE OF THE VALIDATION TEAM MEMBERS



CURRICULA VITAE OF THE VALIDATION TEAM MEMBERS

Ms. Xue Yanju, Andi: holds a Master Degree in Applied Chemistry having an overall experience of around four 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 two years in validation and verification of numerous CDM projects in DNV, majoring in China. Her qualification, industrial experience and experience in CDM demonstrate her sufficient sectoral competence in “Energy Generation from Renewable Energy Sources”.

Ms. 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”.