



VALIDATION REPORT

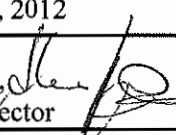
Hangjin Yihewusu Phase I 49.5MW Wind Power Project

04 September 2012

Japan Consulting Institute

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CDM Validation Report for Hangjin Yihewusu Phase I 49.5MW Wind Power Project

Date of first issue September 04, 2012	Report Number JCI-CDM-VAL-11-140	
Approved by Akio Yoshida,  Executive Director	Organizational Unit JCI CDM Center, Japan Consulting Institute (JCI)	
Client Climate Bridge Ltd.	Client ref., Mr. Paul Berdugo	
Project name	Hangjin Yihewusu Phase I 49.5MW Wind Power Project	
Host Country People's Republic of China	Methodology version ACM0002 version 12.3.0	Sectoral Scope Technical Area(s) Sectoral Scope 1, TA 1.2
Size Large Scale	ER estimate 105,520 t-CO₂e / year (average)	
GHG reducing Measure/ Technology	Grid connected wind power generation	

A summary of the validation process and its conclusions

Japan Consulting Institute (JCI) has performed a validation work of the "Hangjin Yihewusu Phase I 49.5MW Wind Power Project". The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

- Review of the Project Design Document (PDD) and the subsequent follow-up interviews have provided JCI with sufficient evidence to determine the fulfillment of stated criteria.
- The host country is People's Republic of China (PRC) and the Annex I country is United Kingdom (UK) of Great Britain and Northern Ireland. Both countries fulfil the participation criteria and have approved the project and authorized the project participants. The DNA from PRC confirmed that the project assists in achieving sustainable development.
- The project correctly applies ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 12.3.0 and referenced Tools.
- The total emission reductions from the project are estimated to be the average 105,520 tCO₂e per year over the selected 7 years crediting period. The starting date of crediting period was expected to be 01/12/2012 or the effective registration date, whichever is later. The emission reductions have been checked through the validation work and JCI considers all relevant assumptions for the above estimated emission reductions are appropriate.
- Adequate training and monitoring procedures have been implemented.

In summary, it is JCI's opinion that the Hangjin Yihewusu Phase I 49.5MW Wind Power Project as described in the PDD version 2.0 meets all relevant UNFCCC requirements for the CDM and all relevant host country's criteria and correctly applies the baseline and monitoring methodology ACM0002 version 12.3.0. JCI thus provides a positive opinion and requests the registration of the proposed project as a CDM project activity.

Date of revision	☒ No distribution without permission from the Client or responsible organisational unit ☐ Limited distribution ☐ Unrestricted distribution
Checked by Hideyuki Sato, Manager, Evaluation Group, JCI CDM Center 	
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Abbreviations

AEG	Annual Electricity Generation
BM	Build Margin
CAR	Corrective Action Request
CB	Climate Bridge Ltd. (PP & CDM consultant)
CDM	Clean Development Mechanism
CERs	Certified Emission Reductions
CL	Clarification Request
CM	Combined Margin
CNY	Chinese Yuan
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
DRC	Development and Reform Committee
EB	Executive Board
EIA	Environmental Impact Assessment
EF	Emission Factor
EPB	Environmental Protection Bureau
ERPA	Emission Reduction Purchase Agreement
ERs	Emission Reductions
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG	Greenhouse Gas
IMGNE	Inner Mongolia Guodian New Energy Co., Ltd. (PO)
IRR	Internal Rate of Return
JCI	Japan Consulting Institute
KP	Kyoto Protocol
LDC	Least Developed Country
LoA	Letter of Approval
NCPG	North China Power Grid
NDRC	The National Development and Reform Commission
OM	Operating Margin
O&M	Operation & Maintenance
PDD	Project Design Document
PGC	Power Grid Company
PLF	Power Load Factor
PO	Project Owner
PP	Project Participants
PRC	People's Republic of China
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Clean Development Mechanism Validation and Verification Manual

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I. VALIDATION OPINION

Japan Consulting Institute (JCI) has performed a validation work of the “Hangjin Yihewusu Phase I 49.5MW Wind Power Project”. The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

Review of the Project Design Document (PDD) and the subsequent follow-up interviews have provided JCI with sufficient evidence to determine the fulfillment of stated criteria.

The host country is People’s Republic of China (PRC) and the Annex I country is United Kingdom (UK) of Great Britain and Northern Ireland. Both countries fulfil the participation criteria and have approved the project and authorized the project participants. The DNA of PRC confirmed that the project assisted in achieving sustainable development.

The project correctly applies ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources (Version 12.3.0)”/2.01/ and referenced “Tool for the demonstration and assessment of additionality (Version 06.0.0)”/2.03/ and “Tool to calculate the emission factor for an electricity system (Version 02.2.1)”/2.02/.

JCI provides the validation opinion that the all of coverage for the project components or issues are deemed being validated through the validation process.

The total emission reductions from the project are estimated to be the average 105,520 tCO₂e per year over the selected 7 years crediting period. The starting date of crediting period is from 01/12/2012 or the effective registration date, whichever is later. The emission reduction has been checked through the validation work and JCI considers all relevant assumptions for the above estimated emission reduction is appropriate.

Adequate training and monitoring procedures have been implemented.

In summary, it is JCI’s opinion that the Hangjin Yihewusu Phase I 49.5MW Wind Power Project as described in the PDD version 2.0/1.02/ meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the baseline and monitoring methodology ACM0002 version 12.3.0.

JCI thus provides a positive opinion and requests the registration of the proposed project as a CDM project activity.

II. INTRODUCTION OF CDM VALIDATION

Climate Bridge Ltd. has commissioned JCI to perform a validation of the Hangjin Yihewusu Phase I 49.5MW Wind Power Project in China (hereafter called “the project”). This report summarizes the findings of the validation of the project, performed on the basis of CDM Validation and Verification Manual version 01.2, 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.

1. Objective of CDM Validation

The purpose of validation is to ensure a thorough, independent assessment of proposed project activities submitted for registration as a proposed CDM project activity against the applicable CDM requirements.

JCI reports the results of its assessment in a validation report. JCI submits this validation report, along with the supporting documents to the CDM Executive Board as part of the request for registration of a project activity as a proposed CDM project activity.

The validation report includes a positive validation opinion only if the proposed project activity complies with the applicable CDM requirements.

2. Validation approach

The CDM is a rules-based mechanism. Therefore, it is JCI's responsibility to ensure that, in accordance with the Validation and Verification Manual version 01.2 and CDM requirements, these rules are complied with for any project activities requesting registration as a proposed CDM project activity.

During validation, JCI assesses whether the project design of the proposed CDM project activity meets the CDM requirements. For this, JCI, using objective evidence, assesses the completeness and accuracy of the claims and conservativeness of the assumptions made in the PDD. The evidence used in this assessment is not limited to that provided by the project participants.

In assessing evidence, JCI does not omit evidence that is likely to alter the validation opinion. In the assessment of evidence, JCI uses the acceptable approaches as specified in section II to IV, below, and JCI ensures that the project activity complies with the relevant requirements set out in the CDM modalities and procedures, the applicability conditions of the selected methodology and guidance issued by the CDM Executive Board before submitting a request for registration.

In case the validation report includes a negative validation opinion the validation report shall be sent to the CDM Executive Board.

3. Validation methods

3.1 Means of validation

JCI applies standard auditing techniques to assess the correctness of the information provided by the project participants, including, where appropriate, but not limited to:

- (a) Document review, involving:
 - (i) Review of data and information to verify the correctness, credibility and interpretation of presented information;
 - (ii) Cross checks between information provided in the PDD and information from sources other than that used, if available, and if necessary independent background investigations
- (b) Follow-up actions (e.g., on-site visit and telephone or email interviews), including:
 - (i) Interviews with relevant stakeholders in the host country, personnel with knowledge of the project design and implementation;
 - (ii) Cross-check of information provided by interviewed personnel (i.e. by checking sources or other interviews) to ensure that no relevant information has been omitted from the validation;

- (c) Reference to available information relating to projects or technologies similar to the proposed CDM project activity under validation; and
- (d) Review, based on the approved methodology being applied, of the appropriateness of formulae and correctness of calculations.

3.2 Clarification requests, corrective action requests and forward action requests

If, during the validation of a project activity, JCI identifies issues that need to be further elaborated upon, researched or added to in order to confirm that the project activity meets the CDM requirements and can achieve credible emission reductions, JCI ensures that these issues are correctly identified, discussed and concluded in the validation report.

JCI raises a corrective action request (CAR) 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.

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

JCI raises a forward action request (FAR) 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.

JCI resolves or “closes out” CARs and CLs only if the project participants modify the project design, rectify the PDD or provide adequate additional explanations or evidences that satisfy JCI’s concerns. If this is not done, JCI does not recommend the project activity for registration to the CDM Executive Board.

JCI reports on all CARs, CLs and FARs in its validation report. This reporting is undertaken in a transparent and unambiguous manner that allows the reader to understand the nature of the issues raised the nature of the responses provided by the project participants, the means of validation of such responses and clear reference to any resulting changes in the PDD or supporting annexes.

The validation protocol consists of two tables. The different columns in these tables are described as followings.

Validation protocol tables

Table 1: Requirements checklist

- ✧ **Requirement (Checklist Question) :**
The various requirements in Table 1 are checklist questions the project should meet. The checklist is organised in different sections, following the logic of the latest VVM, the PDD Guidelines and the large-scale PDD template, version 03 - in effect as of: 28 July 2006. Each section is then further sub-divided.
- ✧ **Reference :**
Gives reference to documents where the checklist question or item is found. Paragraph No. of VVM is referred.
- ✧ **Check Comment :**
The column is used to elaborate and discuss the checklist question and/or the conformance to the question.
- ✧ **ID No. of CAR, CL and FAR :**
 - ***ID No. of CAR, CL and FAR is described.***
 - ***Corrective Action Request (CAR)** is used due to non-compliance with the checklist question.*
 - ***Clarification Request (CL)** is used when the validation team has identified a need for further clarification.*
 - ***Forward Action request (FAR)** is used to highlight issues related to project implementation that require review during the first verification of the project activity.*

Table 2: Resolution of Corrective Action and Clarification Requests

- ✧ **Clarifications and corrective action requests :**
*If the conclusions from the draft Validation are either a **CAR**, a **CL** or a **FAR**, these should be listed in this section.*
- ✧ **Ref. to checklist question in Table1 :**
*Reference to the checklist question number in Table1 where the **CAR**, **CL** or **FAR** is explained.*
- ✧ **Summary of project owner response :**
The responses given by the project participants during the communications with the validation team should be summarised in this section.
- ✧ **Validation team conclusion :**
This section should summarise the validation team's responses and final conclusions.

The completed validation protocol for the proposed project is enclosed in Appendix A to this report.

4. Stakeholder consultation process

JCI makes the PDD of the project activity under consideration publicly available in accordance with the latest version of the “Procedures for Processing and Reporting on Validation of CDM Project Activities”.

During the validation of the project activity, JCI takes into account the comments received and the validation report includes details of actions taken to take due account of the comments during the validation process.

If comments are not sufficiently substantiated or indicate that the project activity does not comply with the CDM requirements, then JCI requests further clarification from the entity providing the comment. However, JCI is not required to enter into a dialogue with Parties, stakeholders or NGOs that comment on the CDM requirements. If no additional information or substantiation is provided in response to a request for clarification, JCI proceeds to assess the comments as originally provided.

III. VALIDATION WORK

JCI carried out the validation work to ensure that the project activity complies with the requirements of paragraph 37 of the CDM modalities and procedures

1. Validation Team

Details of the validation team are shown in below Table.

Table III-1 Details of Validation Team members

Role/Qualification	Name	Qualified Technical Areas related to the Project	On-site Visit
All relevant issues / Team Leader	Moritaka KATO	1.2 Energy generation from renewable energy source	
CDM auditor / Team Member	Takayuki ABE	1.2 Energy generation from renewable energy source	✓
CDM auditor / Team Member	Toyoaki TSUNODA	-----	✓

Details of the technical reviewer are shown in below Table.

Name	Qualified Technical Areas related to the Project
Shigeo AOKI	1.2 Energy generation from renewable energy source

2. Appointment certificate of JCI's validation team member

The certificate of appointment of validation team member is attached in Appendix B to this report.

3. Quality Control within the team of the validation process

The validation report worked out by the team underwent an internal review process for the assurance of being in compliance with the applicable requirement of the latest version of VVM.

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JCI applies internally established Quality Management Program for the required review process, which is defined as follows;

- 1) Internal Review for the interim check by the internal audit team and the technical reviewer
- 2) The evaluation of the validation work in the CDM evaluation committee consists of outside experts
- 3) Internal review for the final check by the internal audit team and the technical reviewer

The review and evaluation including the technical review are implemented for every validation work by the competent personnel assigned in accordance with JCI's qualification scheme for CDM validation and verification.

4. Desk Review of Documents

JCI performed document desk review involving:

- (i) Review of data and information to verify the correctness, credibility and interpretation of presented information;
- (ii) Cross checks between information provided in the PDD and information from sources other than that used, if available, and if necessary independent background investigations

The following table outlines the documentation reviewed during the validation:

Table III-2 Document List

No.	Title
1.	< PDD, IRR Spreadsheet>
/1.01/	PDD for Hangjin Yihewusu Phase I 49.5MW Wind Power Project, version 1.0 dated 29/01/2012 (for GSC)
/1.02/	PDD for Hangjin Yihewusu Phase I 49.5MW Wind Power Project, version 2.0 dated 01/08/2012
/1.11/	IRR Spreadsheet
/1.12/	Emission reduction Calculation Spread Sheet
2.	<Methodology, Tool, Guideline and etc.>
/2.01/	ACM0002 (version 12.3.0) "Consolidated baseline methodology for grid-connected electricity generation from renewable sources"
/2.02/	Tool to calculate the emission factor for an electricity system (version 02.2.1)
/2.03/	Tool for the demonstration and assessment of additionality (version 06.0.0)
/2.04/	Guidelines for completing the project design document (CDM-PDD) and the proposed new baseline and monitoring methodologies (CDM-NM) (version 07.0)
/2.05/	Guideline on the Assessment of Investment Analysis (version 05)
/2.06/	Guideline on the demonstration and assessment of prior consideration of the CDM (version 04.0)
/2.07/	Guideline for the reporting and validation of plant load factors (version 01.0)
/2.08/	Glossary of the CDM terms (version 06)
/2.09/	Clean development mechanism validation and verification manual (version 01.2)
/2.10/	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 02.0)
3	< Codes, Regulations, Standards >
/3.01/	Standard of environmental noise of urban area (GB3096-93)
/3.02/	Discharge standard of pollutants for municipal wastewater treatment plant (GB 18918-2002)
/3.03/	Electricity meter installation technical management code (DL/T448 — 2000)
/3.04/	Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects

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No.	Title
4.	< Official books issued by the Government >
/4.01/	2011 Baseline Emission Factor for Regional Power Grids in China published by China's DNA
/4.02/	China Electric Power Yearbook (2005 - 2010)
/4.03/	China Energy Statistical Yearbook (2008 - 2010)
/4.04/	China Water Resource Yearbook (2005 - 2009)
/4.05/	2006 IPCC Guidelines for National Greenhouse Gas Inventories
5.	<Letters of Approval>
/5.01/	LOA (Letter of Approval) by PRC's DNA dated 15/06/2012
/5.02/	LOA (Letter of Approval) by UK's DNA dated 16/08/2012
/5.03/	Approval Letter for FSR by Local DRC dated 14/04/2008
/5.04/	Approval Letter of Change of investor by local DRC dated 23/02/2012
/5.05/	Approval Letter for EIA Report by Local EPB dated 01/02/2008
/5.06/	Business License for the PO dated 11/2010
/5.07/	Letter of permission of construction start dated 25/02/2009
/5.08/	Letter of permission of construction resumption dated 20/08/2010
6.	< Basic Study/Design Reports >
/6.01/	Feasibility Study Report by the Inner Mongolia Electric Power Survey & Design Institute dated on January 2008
/6.02/	EIA (Environmental Impact Assessment) Report by Inner Mongolia Hydro and Hydraulic design institute on January 2008
7.	<Contracts, Agreements >
/7.01/	Construction contract dated 28/08/2010
/7.02/	Equipment Purchase Agreement dated 07/07/2008
/7.03/	Grid Connection Agreement dated 26/02/2008
/7.04/	Emission Reduction Purchase and Sale Agreement (ERPA) dated 16/05/2011
/7.05/	CDM consultancy contract dated 15/01/2009
/7.06/	Termination of CDM consultancy contract dated 22/01/2010
/7.07/	Bank Loan Agreement dated 19/07/2011
/7.08/	Letter of Intent (LOI) dated 03/09/2010
8.	< Documentary Evidence, Records>
/8.01/	Minutes of Board meeting held on 05/05/2008 for the investment decision with CDM project dated 06/05/2008
/8.02/	Statement of annual average wind speed data in 2007-2010 by local weather station dated 05/2012
/8.03/	Actual project implementation schedule dated 03/2012
/8.04/	Correspondence of postponement of turbine delivery time dated 30/03/2009
/8.05/	Running log for the project dated 23/12/2011
/8.06/	CDM Monitoring and Management Manual dated 01/2012
/8.07/	Education/Training Program for operation and maintenance dated 05/2011
/8.08/	Operation and Maintenance Manual dated 05/2010
/8.09/	Statement on actual investment dated 07/2012
/8.10/	Comparison table of the basic financial parameters of the Equity IRR calculation between FSR and PDD dated 08/2012
/8.11/	On-site visit summary dated 24/03/2012
9.	< Stakeholders' Meeting>
/9.01/	Record of the stakeholder meeting
10.	< Drawings >
/10.01/	General arrangement drawing of wind turbine/generator dated 01/2008
/10.02/	Specification for the 1500kW wind turbine/generator dated 09/2008
/10.03/	System Diagram including equipment and monitoring meters dated 12/2011
/10.04/	Electrical Single Line Diagram dated 03/2012
11.	< Evidences for additionality >
/11.01/	Electricity tariff Indexes (Fagaijiage [2007] No.1260, Fagaijiage [2007] No.3303,

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No.	Title
	Fagaijiage [2008] No.1876, Fagaijiage [2009] No.1906)
/11.02/	Price indexes trend in China
/11.03/	Price indices for material and labor in Inner Mongolia

Main changes in the PDDs between the version published for the 30 days stakeholder commenting period and the final version submitted for registration are summarized below:

Table III-3 Major Changes in the Content of the PDDs

Subject and section in the PDD	Original content in the PDD/1.01/	Revised content in the PDD/1.02/	Issued CAR or CL. Relevant methodology, tool, guidance, or guidelines applied.
LoA issuance, A.3.	LoA of PRC, UK and Netherlands	LoA of PRC and UK	CAR-1, Para 45, 53, 126 of VVM
Section B.5. Step 1. Identification of alternatives	Not identified.	One alternative has been identified.	CL-15, ACM0002 (Version 12.3.0), Tool for the demonstration and assessment of additionality (Version 06.0.0)
Section C.2.1.1. Starting date of the first crediting period	01/08/2012	01/12/2012	-

5. Follow-up actions (Interviews with relevant stakeholders in the host country)

The on-site visit and interviews with project stakeholders were held on 22 to 24 March 2012 at the project site at Hangjin County, Ordos City, Inner Mongolia Autonomous Region in China.

The names of interviewees were listed in the following table.

Table III-4 List of Interviewees

No.	Date	Name	Organization	Topics
/8.11/	22/03/2012	Mr. Qi Xin Mr. Fu Chong Bin	IMGNE (PO)	<u>Interview with Project Owner</u> ♦ Outline of the Company ♦ Status of project implementation ♦ Confirmation of the following major items Timeline/milestones, O&M structure, Monitoring plan, etc.
/8.11/	23/03/2012	Mr. Dong Jian	CB	<u>Interview with PDD Author</u> ♦ PDD issues ♦ Document list ♦ Monitoring meters and location ♦ IRR issues ♦ Initial findings

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		Mr. Zhao Yan Fei	Hangjin County-DRC	<u>Interview with Local DRC</u> ♦ DR policy and FSR approval
		Mr. Wu Zhi Rong	EPB of Ordos	<u>Interview with Local EPB</u> ♦ EIAR approval ♦ Environmental and ecological issues
		Mr. Sui Jie	Ordos Power Grid	<u>Interview with Local Power Grid</u> ♦ Impacts on power grid
		Mr. Che Li Jun	Inner Mongolia Electric Power Survey & Design Institute	<u>Interview with FSR Author</u> ♦ FSR issues ♦ Wind analysis and assessment
/8.11/	24/03/2012	Mr. Bai Fu Xiang Mr. Li Zhan Xiong Mr. Bai Yong Xiang	Local residents	<u>Interview with Local Residents</u> ♦ Comments on the project ♦ Environmental or ecological issues ♦ Future concerns

IV. 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.

Findings issued through the validation

JCI issued 1 CAR, 15 CLs and 0 FAR as shown in the Validation Protocol, Appendix A of this report. These CAR and CLs have been all resolved and, then, closed out as shown in the Table 2 of the Appendix A.

Major issues and its resolution process through the CAR and CLs are described in the following items according to VVM/2.09/.

The final validation findings relate to the project design as documented and described in the revised and resubmitted project design documentation.

1. Approval

JCI has received the LoAs from the project participants (PP) through the CDM consultant with clearly referencing the letter itself and all supporting documentations;

- DNA of PRC issued LoA dated 15/06/2012 /5.01/, and
- DNA of UK issued LoA dated 16/08/2012 /5.02/

JCI has confirmed the LoA from DNA of PRC on the website of PRC DNA and, thus, it was authentic. JCI also validated and confirmed the following.

JCI has confirmed with the LoA issued by DNA of PRC that:

- 1) PRC ratified the Kyoto Protocol on 30 August 2002 and is a Party to the Kyoto Protocol.
- 2) It approved the project activity “Hangjin Yihewusu Phase I 49.5MW Wind Power Project” and authorized Inner Mongolia Guodian New Energy Co., Ltd as a voluntary participant to the project activity.
- 3) It addressed its assistance to sustainable development in the host country.
- 4) The title of the project activity mentioned in LoA is same as that mentioned in the PDD

being submitted for registration.

5) It is valid as on date.

JCI has also confirmed with the LoA issued by DNA of UK that:

- 1) The UK ratified the Kyoto Protocol on 31 May 2002;
- 2) The UK participates voluntarily in the CDM;
- 3) The DNA of UK approved the project activity “Hangjin Yihewusu Phase I 49.5MW Wind Power Project” and Climate Bridge Ltd. as a voluntary participant to the project activity.
- 4) The title of the project activity mentioned in LoA is same as that mentioned in the PDD being submitted for registration.

JCI validated and concluded that both LoAs issued by DNAs of PRC and UK are credible and fully comply with the requirements of the CDM per paragraph 45-48 of VVM/2.09/.

2. Participation

JCI confirmed that the project participants are Inner Mongolia Guodian New Energy Co., Ltd. of PRC and Climate Bridge Ltd. of UK as being listed in tabular form in section A.3 of the PDD/1.02/, and also confirmed that this information is consistent with the contact details provided in Annex 1 of the PDD/1.02/. It was also confirmed that no entities other than the approved project participants were included in these sections of the PDD/1.02/.

As described above, the project participants are authorized with the LoAs issued by the relevant DNAs as a voluntary participant to the project activity.

3. Project Design Document

Through desk reviews and Q&A sessions with the PP, JCI confirmed that the PDD was described based on and referring to the following relevant methodology, tools, guidance, guidelines and manual:

- (1) ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources (version 12.3.0)”/2.01/
- (2) Tool to calculate the emission factor for an electricity system (version 02.2.1) /2.02/
- (3) Tool for the demonstration and assessment of additionality (version 06.0.0) /2.03/
- (4) Guideline for completing the project design document (CDM-PDD) and the proposed new baseline and monitoring methodologies (CDM-NM) (version 07.0) /2.04/
- (5) Guidelines on the assessment investment analysis (version 05) /2.05/
- (6) Guideline on the demonstration and assessment of prior consideration of the CDM (version 04.0) /2.06/
- (7) Glossary of CDM terms (version 06) /2.08/
- (8) CDM VVM (version 01.2) /2.09/

The project design was described using the appropriate PDD template of the latest version 03 as shown in the PDD/1.02/ that was confirmed through comparison with the template listed on the UNFCCC website.

As described above, JCI has validated and concluded that the PDD was compiled with use of the appropriate format and was described based on appropriate tools, guidance, guidelines and manual which are specified and requested by the CDM procedures.

4. Project Description

Regarding the project description in PDD, JCI took the following process to validate its accuracy and completeness.

Process: Document desk review and Follow-up action (On-site visit with interviews).

Document review: FSR, FSR approval, Equipment Purchase Agreement, Technical specifications of Equipment and Design data/drawings.

Follow-up action: Observation/inspection of the physical layout during on-site visit

The context of the PDD Version 01/1.01/ was checked during the on-site visit conducted on 22 to 24 March 2012 with the following measures:

- 1) Observation of the project site.
- 2) Cross-check of the project design work with relevant drawings provided by the PP.
- 3) Interviews with the PP and local stakeholders.

As a result of the above steps, JCI had raised 1 CAR and 15 CLs, and all the CAR and CLs were resolved and then closed out as validated in this report as shown below.

JCI has validated and concluded that the descriptions of the PDD /1.02/ were corrected and its contents were sufficient, and well outlined the nature and technical aspects of the project activity.

The major features of the project activity described in the PDD are summarized below:

Table IV-1 Major feature of the project activity

Items				Evidence
1)	Project owner	Inner Mongolia Guodian New Energy Co., Ltd.		
2)	Wind turbines	Unit capacity(kW)	1500	FSR
		Quantity of turbine	33	
		Type of turbine	Three Propeller type	
		Rotor diameter (m)	82	
		Cut-in wind speed (m/s)	3	
		Rated wind speed (m/s)	10.5	
		Cut-out wind speed (m/s)	25	
		Rated voltage (V)	690	
		Operational life time (ys)	20	
3)	Physical location of the project site	At the center of the project area	E107.5411°, N40.0589°	WMS

JCI has confirmed the accuracy and completeness of the PDD /1.02/.

5. Baseline and monitoring methodology

5.1. Applicability of selected methodology to the project activity

JCI has validated and concluded that the applicability of ACM0002 version 12.3.0 /2.01/ “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” to the project was appropriate.

JCI has confirmed that all of the applicability stipulated in the methodology was applicable for this project activity from the following steps and viewpoints:

1) Document review

JCI has reviewed the FSR/6.01/, EIA Report/6.02/ of the proposed project and the project related documents, and confirmed that the proposed project is newly introduced to the grassland and the wind resources in the relevant region would be utilized for the power generation.

2) On-site visit on 22 to 24 March 2012

JCI has confirmed that the construction work of wind turbines was completed and the commissioning was on-going. JCI has confirmed by the documents that the total installed plant capacity was 49.5 MW consisting of each 1.5 MW x 33 sets and that the facilities were designed and constructed in accordance with the relevant National and Local law and regulations.

3) Confirmation of the Applicability

JCI has confirmed the applicability to the methodology as follows:

(a) 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.

- JCI confirmed by the document review /6.01/, /6.02/ and on-site visit/8.11/ that the project activity was the new installation of wind power plant in the relevant region.

(b) The methodology is not applicable to the following:

- Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site;
- Biomass fired power plants;
- Hydro power plants that result in new reservoirs or in the increase in existing reservoirs where the power density of the power plant is less than 4 W/m².

- JCI confirmed by the document review /6.01/, /6.02/ and on-site visit/8.11/ that the project activity was the wind power plant and did not involve switching from fossil fuels to renewable energy sources, biomass fired power plant and hydro power plant at the site of the project activity.

(c) In addition, the applicability conditions included in the tools referred to above apply.

- JCI confirmed by the document review /6.01/, /6.02/ and on-site visit/8.11/ that the project activity was the installation of a new grid-connected renewable power plant. JCI confirmed that the applicability conditions included in the tools specified in the Methodology were applied to the project activity.

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The project is eligible as a large scale CDM project activity and can apply the baseline methodology.

JCI has not identified the GHG emissions occurring within the proposed 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 emissions reductions, which are not addressed by the applied methodology.

5.2. Project boundary

JCI has identified the project boundary from the following steps and viewpoints;

1) Document review:

JCI has reviewed the FSR/6.01/ and the EIA Report/6.02/ and confirmed that the project activity is to construct a new wind power plant, and generated power is to be delivered to NCPG grid through the 220KV substation.

JCI has also confirmed the power connection to NCPG with the Grid connection agreement/7.03/.

2) On site visit on 22 to 24 March 2012

JCI has confirmed that the power delivery conditions through the interview with the PO /8.11/ during the on-site visit.

JCI has confirmed that PDD/1.02/ defined correctly the system boundary to include the project activity site and the energy source and gases, which are shown in the Figure B-1 and in the Table B-1 of B.3 in the PDD.

The electricity generated by the project activity is finally transmitted to NCPG and replaces part of electricity delivered from many fossil fuel-fired power plants within NCPG grid.

According to the applied methodology ACM0002/2.01/, the emissions sources are summarized in the following Table IV-2.

Table IV-2 Emissions sources

Emissions	GHGs involved	Requirement of Methodology	PDD	Description	Judgment
Baseline	CO ₂	Yes	Yes	Main emission source	OK
	CH ₄	No	No	Minor emission source	OK
	N ₂ O	No	No	Minor emission source	OK
Project activity	CO ₂	No	No	Not included	OK
	CH ₄	No	No	Not included	OK
	N ₂ O	No	No	Not included	OK

As shown in the Table IV-2 above, the project does not discharge emissions within the project boundary as a result of implementation of the project activity.

JCI has concluded that the project boundary and selected sources and gases are appropriately defined in the PDD/1.02/ and fully complied with the ACM0002/2.01/.

5.3. Baseline identification

JCI has confirmed that the baseline identification is appropriate for this project from the following steps and viewpoints:

1) Document review

JCI has reviewed the FSR/6.01/ and EIA Report/6.02/ and confirmed that the project activity is to construct new grid-connected wind power plant.

2) On-site visit on 22 to 24 March 2012

JCI has confirmed that the electricity delivery conditions through the interviews with PO /8.11/.

JCI has validated and concluded that the PDD/1.02/ appropriately identified “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’/2.02/ ” as the credible and feasible baseline scenario to the project activity, complying with the selected methodology ACM0002/2.01/.

It is also appropriately quoted in the PDD/1.02/ that the baseline emission is calculated in accordance with ACM0002/2.01/ and detailed calculations are as correctly defined in section B.6 and Annex3 of the PDD.

JCI confirmed the followings according to paragraph 87 of CDM VVM version 01.2 /2.09/;

- (a) All the assumptions and data used by the project participants are listed in the PDD, including their references and sources;
- (b) All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PDD;
- (c) Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable;
- (d) Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD;
- (e) The approved baseline methodology has been correctly applied to identify the most reasonable baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed CDM project activity.

JCI has further cross-checked the information contained in the PDD/1.02/ by the information or data of the similar CDM projects in the relevant region or actual evidences according to paragraph 88 of CDM VVM/2.09/.

5.4. Algorithms and/or formulae used to determine emission reductions

JCI has validated and concluded that the algorithms and/or formulae including data and values, used to determine the emission reductions of the proposed project in the PDD/1.02/ and the calculation spread sheets /1.12/, complied with the applied methodology ACM0002 /2.01/ and relevant tool /2.02/ through the document review and on-site visit.

JCI confirmed the followings in accordance with VVM /2.09/;

- (1) All the assumptions, data and references used in the PDD/1.02/ including their references and sources are appropriate.

- (2) All the documents used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PDD/1.02/ are correctly quoted and interpreted.
- (3) All the values used in the PDD/1.02/ are considered reasonable in the context of the proposed project activity.
- (4) The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakages and emission reductions.
- (5) All estimates of the baseline emissions can be replicated using the data and values provided in the PDD/1.02/.

5.4.1. Application of baseline and monitoring methodology

JCI has confirmed that the PDD/1.02/ fully complied with ACM0002/2.01/ based on the baseline scenario selected. The calculations were conducted to work out the emission reductions based on ACM0002/2.01/ and the baseline emission factor with the 6-step method specified by the relevant tool /2.02/.

Through cross-checks with comparison of the data of the website of CDM China, JCI has also confirmed that the data and parameters used in the calculations were sourced from appropriate documents /4.02/, /4.03/, and correctly interpreted and applied.

5.4.2. Project emissions (PE_y)

The project is a renewable energy project as wind power and there is no energy consumption to generate GHG emission in the project. Therefore the project emission PE_y is zero.

JCI has concluded that the project emission is calculated correctly to be zero complying with ACM0002/2.01/.

5.4.3. Baseline emission factor (BE_y)

JCI has confirmed that the baseline emission factor was appropriate for this project activity from the following steps and viewpoints:

- 1) JCI confirmed that NCPG is appropriately identified in Step-1 of the PDD/1.02/ as the relevant electricity system in the project boundary.
The following official data sources are appropriately used in the calculation of emission factors in the PDD/1.02/.
 - 2011 Baseline Emission Factor for Regional Power Grids in China (China's DNA website) /4.01/
 - China Electric Power Yearbook (2005 - 2009) /4.02/
 - China Energy Statistics Yearbook (2008 - 2010) /4.03/
 - 2006 IPCC Guidelines for National Greenhouse Gas Inventories /4.05/
- 2) JCI confirmed that OM emission factor is calculated correctly as per the "Tool to calculate the emission factor for an electricity system, version 02.2.1" /2.02/ as described below:
 - A) Option I is selected in Step-2 to include only grid power plants in the calculation.
 - B) The simple OM method is appropriately applied in Step-3 satisfying the applicable conditions specified by the relevant tool/2.02/: the dispatch data from the Grid in China is not publically available, and the low-cost/must-run resources constituted less than 50% of total power generation of NCPG and the relevant ratios were respectively 0.67%, 0.75%, 0.75%, 1.12% and 2.25% for 2005, 2006, 2007, 2008 and 2009. Hence, the low operating cost/must-run sources is much less than 50% of the total grid generation of NCPG, which complies with the defined condition of Option (a) Simple OM, but not Option (d) Average OM. Accordingly, Option (a) Simple OM

is appropriately selected to calculate the Operating Margin emission factor of the project.

The Ex-ante option is selected for the calculation of simple OM emission factor. JCI confirmed that the data to calculate the same are properly selected the period from 2007 to 2009, and that PDD is applied the latest version of “2011 Baseline Emission Factor for regional Grids in China” /4.01/.

- C) Option B is properly selected in Step-4 for calculation of the simple OM considering the following conditions of the connecting grid of NCPG:
- Necessary data, such as power generation data on each plant required for selecting Option A is not available in PRC.
 - Only nuclear and renewable power generations are considered as low-cost/must-run power sources in NCPG and the quantity of electricity supplied to NCPG by these sources is known.
 - Off-grid power plants are not included in the calculation.
- D) Calculations are correctly conducted in the PDD/1.02/ according to the relevant tool /2.02/. The data and parameters used are correctly derived from the data sources listed above /4.01/, /4.02/, /4.03/, /4.05/.

As a result, the simple OM emission factor is estimated to be 0.9803 tCO₂/ MWh, which is shown in Annex 3 in the PDD/1.02/, fully complying with ACM0002 /2.01/ and the relevant tool /2.02/.

- 3) JCI confirmed that BM emission factor is calculated correctly as described below:
- A) The Option 1, the ex-ante based option, is selected in Step-5 for the calculation of BM emission factor for the first crediting period.
JCI confirmed that the PDD applied the latest version of “2011 Baseline Emission Factor for regional Grids in China” /4.01/.
- B) As none of the procedures specified in the relevant tool/2.02/ can be selected, the deviations are adopted to calculate the BM emission factor in the PDD/1.02/. First, to calculate the newly added installed capacity and the contribution component of other various power generation technologies, then to calculate of the weight of newly added installed capacity of each power generation technology, and finally to calculate BM emission factor using the commercially optimal efficiency level of each power generation technology.
- C) According to the relevant tool/2.02/, the BM emission factor is calculated as the generation-weighted average emission factor of all power units during the most recent year for which power generation data is available.
- D) Since the generating capacity of coal-fired, oil-fired and gas-fired technologies cannot be separated from the existing statistical data, the following measures are taken for the calculation:
First, based on the available data of the latest year, the ratio of CO₂ emissions from coal, oil, and gas consumption for power generation to the total CO₂ emission is determined.
Second, the emission factor of the thermal power is calculated based on the weight of CO₂ emission from coal, oil, and gas, and the emission factors using commercial technologies with optimal efficiency.
Finally, the thermal emission factor is multiplied with the portion of the thermal power comprising 20% of the newly added capacity.
- E) The key parameters used to calculate BM emission factor include the low calorific value of each fossil fuel, the oxidation rate, the potential emission factors, and the

efficiency of various power generation technologies. The data and parameters used are correctly derived from the data sources listed above /4.01/, /4.02/, /4.03/, /4.05/.

JCI confirmed, as a result, BM emission factor calculation is correctly worked out and is estimated to be 0.6426 tCO₂/ MWh complying with the relevant tool /2.02/ as shown in Annex 3 of the PDD/1.02/.

- 4) JCI confirmed that CM emission factor calculation is correctly worked out based on the weighted average CM method and is estimated to be 0.8959 tCO₂/ MWh complying with the relevant tool /2.02/ as shown in Annex 3 of the PDD/1.02/. JCI also confirmed that the default weight value of 75% is applied to OM emission factor and that of 25% is applied to BM emission factor for the calculation of wind power project complying with the relevant tool /2.02/ as shown in Annex 3 of the PDD/1.02/.

5.4.4. Leakage

JCI has confirmed that the PDD/1.02/ appropriately estimated no leakage associated with the project activity according to the applied methodology ACM0002/2.01/.

5.4.5 Emission reductions

The PDD/1.02/ estimated appropriately both the project and leakage emissions to be zero complying with ACM0002/2.01/ and the emission reductions of the project activity to be 105,520 t CO₂e /year. JCI has confirmed that the calculations conducted in the PDD/1.02/ are appropriate and correct.

In conclusion, JCI has validated and concluded that the emission reductions are correctly worked out complying with ACM0002 /2.01/ and the relevant tool /2.02/, and the parameters and data used for the calculations are sourced from proper data sources listed above /4.01/, /4.02/, /4.03/, /4.04/.

In accordance with VVM ver. 01.2 paragraphs 92 /2.09/, JCI has confirmed that:

- (a) All assumptions and data used by the PP are listed in the PDD/1.02/, including their references and sources;
- (b) All documentation used by the PP as the basis for assumptions and source of data is correctly quoted and interpreted in the PDD/1.02/;
- (c) All values used in the PDD/1.02/ are considered reasonable in the context of the proposed CDM project activity;
- (d) The baseline methodology is applied correctly to calculate project emissions, baseline emissions, leakages and emission reductions;
- (e) All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD/1.02/.

6. Additionality of project activity

JCI assessed the additionality of the project activity with the following steps, complying with the following Manual and Guidelines:

- (1) Clean Development Mechanism Validation and Verification Manual (Version 01.2) /2.09/
- (2) Tool for demonstration and assessment of additionality (Version 06.0.0) /2.03/
- (3) Guidelines on the Demonstration and Assessment of Prior Consideration of the CDM (Version 04) /2.06/

6.1 Prior consideration of CDM

Since the project activity start date is 07/07/2008, which is before 02/08/2008, the PO indicated with the documented evidence that the CDM was seriously considered in the decision to implement the project activity in accordance with the guideline of CDM prior consideration /2.06/ and VVM /2.09/.

1. Project starting date definition

Through document reviewing and interview with the PO, JCI confirmed the project starting date of 07/07/2008 for the signature of equipment purchase agreement /7.02/ was the earliest real action of the project, which adequately stated in the Section C.1.1 of the PDD/1.02/, thus fully complied with the definition of the Glossary of CDM terms (version 06) /2.08/.

2. Prior consideration of CDM

Timeline of major milestones relevant to the prior and serious consideration of CDM are tabulated below, according to the guidelines of CDM prior consideration /2.06/.

The prior and serious consideration of CDM is appropriately described in the PDD/1.02/ and all the evidences of events listed below have been provided by the PO.

The consideration of CDM incentive was assessed in accordance with the evidences shown in the timeline and through the interview with the PO and the PDD author during the on-site visit /8.11/.

The financial study of FSR/6.01/ concluded that project would be financially acceptable only when CER revenue was considered.

In May 2008, the board of the Inner Mongolia Energy Power Generation Investment Co., Ltd. decided to develop the project as a CDM project to overcome the financial barriers it faced as shown in the minutes of the board meeting dated 06/05/2008 /8.01/.

Table IV-3 Timeline of major key activity

Time	Activities	Evidence
01/2008	The Feasibility Study Report was finalized.	FSR /6.01/
01/2008	The EIA was finalized.	EIA Report /6.02/
01/02/2008	The EIA was approved by the Inner Mongolia Environmental Protection Bureau.	Approval Letter /5.05/
14/04/2008	The Feasibility Study Report was approved by the Inner Mongolia DRC.	Approval Letter /5.03/
05/05/2008	Board resolution was made on implementing the project as a CDM project	Minutes of Board Meeting /8.01/
07/07/2008	Turbine Purchase Contract was signed between the Project Owner and the Equipment Supplier (Project start date).	Equipment purchase agreement /7.02/
15/01/2009	CDM consultancy contract signed with Beijing Xiangyuyingtai International Engineering Consulting Co., Ltd.	CDM consultancy contract /7.05/
25/02/2009	Project construction start permission was issued.	Letter of permission of construction start /5.07/
30/03/2009 ~ 20/08/2010	The project construction was suspended due to the restructuring of the project owner.	Correspondence of postponement of turbine delivery time/8.04/.

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22/01/2010	Termination of CDM consultancy contract.	CDM consultancy termination contract /7.06/
20/08/2010	Project construction resumption permission was issued.	Letter of permission of construction resumption /5.08/
03/09/2010	Letter of Intent was signed between the PO and Climate Bridge Ltd.	Letter of Intent (LOI) /7.08/
16/05/2011	ERPA was signed between the PO and Climate Bridge Ltd.	ERPA /7.04/
17/08~19/08/2011	Stakeholder CDM consultation meeting.	Record of the stakeholders meeting /9.01/
22/12/2011	The commissioning start date of the first wind turbine and generator.	Running log for the project/8.05/

3. Activities/events to achieve CDM

Key activities and events taken by the PO to achieve CDM are shown in Table IV-3 above and summarized as follows.

The CDM consultancy contract /7.05/ was signed between the PO and the Beijing Xiangyuyingtai International Engineering Consulting Co., Ltd. on 15/01/2009. Due to the suspension of the project's construction between March 2009 and August 2010, which was caused by the restructuring of the Inner Mongolia Energy Power Generation Investment Co., Ltd., which became the Inner Mongolia Guodian Energy Investment Co., Ltd. following the reorganization, the CDM consultancy contract was terminated on 22/01/2010. The CDM consultancy contract was commissioned with Climate Bridge Ltd. without any impact on the continuation of the project activity. After the resumption of the project, Emission Reduction Purchase Agreement (ERPA) negotiations were started with Climate Bridge Ltd., with a Letter of Intent (LOI)/7.08/ signed between the PO and Climate Bridge Ltd. on 03/09/2010. The ERPA contract /7.04/ was signed between the PO and Climate Bridge Ltd. on 16/05/2011. The stakeholder consultation process /9.01/ of the proposed CDM project was undertaken between 17/08/2011 and 19/08/2011.

According to the above information, JCI confirmed there was less than 2 years of a gap between the documented evidences and has concluded that continuing and real actions were taken to secure CDM status for the project activity.

In conclusion, according to paragraph 104 (c) of VVM version 01.2 /2.09/, JCI has concluded that the proposed CDM project activity complied with the requirements of the latest version of the guidelines of CDM prior consideration /2.06/.

6.2 Identification of alternative

According to "Tool for the demonstration and assessment of additionality (version 06.0.0)" /2.03/, the alternative to provide the same electricity service by NCPG, i.e., the equivalent electricity will continue to be provided by NCPG, was appropriately identified in the PDD/2.01/ as the credible and realistic baseline scenario to the proposed project activity.

JCI has, thus, validated and concluded that the identification of alternative was appropriate complying with the relevant methodology/2.01/ and referenced tool/2.03/.

6.3 Investment analysis

The Investment analysis specified in the Tool for demonstration and assessment of additionality (version 06.0.0) /2.03/ was carried out as shown in the PDD/1.02/.

(1) Benchmark Analysis

The PDD/1.02/ selected the benchmark analysis method for the investment analysis of the project activity with the following justifications:

- 1) Tool for the demonstration and assessment of additionality (version 06.0.0) /2.03/ provides 3 options for the methods of the investment analysis. Option I, the simple cost analysis, and Option II, the investment comparison analysis, however, are not applicable, since the project activity would earn revenue from electricity sale and the specified baseline scenario is not an investment project. Only Option III, the benchmark analysis, therefore can be applied to the project activity.
- 2) According to the Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects /3.04/, the investment benchmark of Equity IRR in the electric power industry is 10%. The project can only be financially feasible if the Equity IRR reaches the benchmark. This benchmark of 10% is widely used in the assessment and approval of electricity power projects in China. JCI confirmed the document as evidence and the value of 10 % as the benchmark of Equity IRR can be accepted. Therefore, it is applied in this analysis to determine whether the proposed project is financially feasible.

The Equity IRR was calculated to be 2.41 % without CER revenue, and 9.32 % with CER revenue. It is, therefore, concluded that the project activity is financially not attractive and not feasible without CDM revenue, of which processes are validated with below steps.

(2) Consistency between PDD and FSR

As shown in 6.1 Prior consideration of CDM, JCI has confirmed that the period of time between the completion of FSR /6.01/ and the investment decision /8.01/ was sufficiently short, and that the investment decision was made based on the FSR /6.01/.

JCI has reviewed the validity of the input values for the investment decision by comparing the input value of parameters between the FSR /6.01/ and the PDD/1.02/ as summarized in Table IV-4 below. The input values of major parameters used for the IRR calculation were validated as described in the paragraph 113 c) of VVM version 01.2 /2.09/.

JCI has carried out the detailed validations for the total static investment, the electricity tariff, the annual O&M cost and the annual electricity delivered to the grid, as described in the following (3).

Table IV-4 Comparison of parameters of investment analysis between PDD and FSR

Parameters	Unit	PDD/1.02/	FSR/6.01/ and others	Consistency
Installed capacity	MW	49.5	49.5	OK
Net electricity generation	MWh	117,784	117,784	OK
Total static investment	M-CNY	535.72	535.72	OK
Fixed asset	M-CNY	552.37	552.37	OK
Debt Ratio of the Total Investment	%	79.39	79.39	OK
Electricity tariff (VAT Incl.)	CNY/KWh	0.51	0.51	OK
Annual O&M costs	M-CNY	7.4236	7.4236	OK

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Parameters	Unit	PDD/1.02/	FSR/6.01/ and others	Consistency
Value added tax (VAT)	%	8.5	8.5	OK
Income tax	%	25	25	OK
Annual depreciation rate	%	6.33	6.33	OK
The expected price of CERs	€ /tCO ₂ e	10	(assumed market price)	OK
Exchange rate	CNY/Euro	8.7284	8.7284	OK
Project operational lifetime	year	20	20	OK
Power Load Factor (PLF)	%	27.16	27	OK
Staff annual salary	RMB	40,000	40,000	OK

(3) Cross check

For cross-checks, 111 large-scale CDM wind power projects were selected from the UNFCCC website as of May 2012 under the following conditions;

- (a) Registered project in Inner Mongolia of China,
- (b) The installed capacity is a range between 24.5 MW and 99 MW (49.5 ±50%) and the unit capacity of wind turbine is 1500 kW or 750 kW, which are most practical use in China.

Cross-check data of major parameters is summarized in Table IV-5 below for reasonability estimation purpose.

Table IV-5 Cross-check data summary table of major parameters

Wind Power Project	Installed capacity	PL factor	Total static investment	Annual O&M cost	Elec. tariff (Inc. VAT)
	MW	%	M-CNY	%	CNY/KWh
The Proposed Project	49.5	27.16	535.72	1.39	0.510
Other projects (Min.)	40.5	22.68	378.99	1.1	0.382
Other projects (Ave.)	49.3	26.74	487.21	2.2	0.521
Other projects (Max.)	50.5	31.00	584.43	3.9	0.612 (Note)

(Note) 0.612 CNY/KWh is an optimistically estimated tariff as per footnote 12 of project UNFCCC ref no. 1628.

1) Total static investment

The value of the total static investment of 535.72 Million CNY for the proposed project was considered within appropriate range of value in comparison with other projects as shown in the Table IV-5.

For further validation of the value, JCI compared the actual investment cost /8.09/ with the estimated investment cost in the FSR as tabulated in Table IV-6 below.

Table IV-6 Investment cost analysis between Actual and FSR

No.	Parameters	Estimated cost by FSR /6.01/ (M-CNY)	Actual investment cost /8.09/ (M-CNY)
1	Equipment and installation	387.39	371.54
	1.1 Turbine and generator	317.02	316.98
	1.2 Tower	50.01	43.22
	1.3 Box type transformer	10.54	7.69
	1.4 Main transformer	9.82	3.66
2	Other equipment	44.48	28.24
3	Construction	31.21	51.08
4	220KV transmission line	36.60	30.01

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No.	Parameters	Estimated cost by FSR /6.01/ (M-CNY)	Actual investment cost /8.09/ (M-CNY)
5	Others (Inc. land expropriation and design)	30.74	20.84
6	Reserve expense 1%	5.3	-
Total investment		535.72	501.70

JCI validated and confirmed that the total static investment cost estimated for the project activity was considered within appropriate range of value compared to other similar projects in Inner Mongolia. JCI further validated and confirmed that the actual investment cost /8.09/ of 501.70 Million CNY was about 94% of (6% less than) the estimated cost and was not less than the value to reach the equity IRR benchmark of 10%. JCI, thus, validated and justified that the total static investment was estimated reasonably.

2) Electricity tariff

The electricity tariff of 0.51 CNY/kWh (incl. VAT) in FSR /6.01/ applied in the investment analysis was derived from the tariff approvals (Fagaijiage [2007] No.3303 /11.01/) from the NDRC. The tariff was already fixed prior to the starting date of the project and is still valid. JCI also confirmed that the same tariff was also applied to the comparable wind power projects developed in western Inner Mongolia and that it represented a realistic assumption of the tariff of the proposed project at the time when the investment decision was made. JCI also cross-checked the applied tariff with other electricity tariff applied for other wind power projects as shown in Table IV-5 above and identified it was close to the average.

According to the “Information Note on the Highest Tariffs Applied by the Executive Board in Its Decisions on Registration of Projects in the People’s Republic of China (version 02)” /2.10/, JCI confirmed that the highest historical tariff in Inner Mongolia was 0.54 CNY/kWh (incl. VAT) and justified that the equity IRR benchmark was not reached even in case the highest historical tariff was applied.

3) Annual O&M cost

The level of O&M costs was mainly determined by the employee expenditure, maintenance and repair rate, material costs, and other costs. The employee expenditure, maintenance and repair rate, materials cost make up more than 87% of all O&M costs as indicated and used in IRR spread sheet /1.11/. The annual O&M cost of 7,423,600 CNY and 1.39% of total investment in FSR /6.01/ applied in the investment analysis was considered within appropriate range of value in comparison with other projects as shown in the Table IV-5. JCI also assessed the breakdown cost of annual O&M cost by referenced evidences and confirmed each breakdown cost item was satisfactory as shown in Table IV-7 below.

Table IV-7 Check for Breakdown items of O&M Cost

Cost Item	Value M-CNY/y	Share for total (%)	Share for total investment (%)	Evidence source	Check Result
Salary and welfare	0.846	11.4	0.16	15persons* 40kRMB* 141% FSR/6.01/ and others/11.03/	OK
Maintenance expenses	4.929	66.4	0.92	FSR/6.01/ and others/11.03/	OK
Material fee	0.707	9.5	0.13		OK

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Cost Item	Value M-CNY/y	Share for total (%)	Share for total investment (%)	Evidence source	Check Result
Miscellaneous expenses including administrative expense, business trip expense, education & training expense etc.	0.942	12.7	0.18		OK
Annual O&M cost included	7.423	100	1.39		OK

JCI, thus, validated and concluded that the annual O&M cost was estimated appropriately.

4) Annual electricity delivered to the grid

The annual electricity delivered to the grid is calculated by the annual electricity output (theoretical power generation) minus the energy loss factors. The calculation of the annual electricity output is carried out using professional WASP software in accordance with the “Wind Resources Evaluation method of Wind Farms” (GB/T 18710-2002), and it is based on the one-year wind resource measurement conducted on-site in 2006 as well as the available historical meteorological data of 30 years (1978-2006) obtained from the local Hangjin Yihewusu Weather Station as shown in Figure B-4 in the PDD/1.02/. Loss factors impacting the annual power supply, such as air density, wake flow loss, turbine load loss, blade contamination loss, power curve loss, internal consumption loss, and other losses have been taken into consideration and deducted from the annual electricity output, resulting in the generation of 117,784 MWh, which is the annual electricity delivered to the grid as shown in Table IV-4 above. JCI has assessed and confirmed that FSR/6.01/ took account loss factors into consideration to calculate total loss factor for the project as 28.52% appropriately. JCI also confirmed that according to the Statement on Chinese Wind Power Electricity Generation Loss Factor issued by Chinese DNA on 02/06/2009, the total loss factor used in the calculations of power generation in China is typically 20% - 45% and, thus, concluded that total loss factor for the project as 28.52% was within reasonable range and appropriate.

JCI checked the FSR/6.01/ and confirmed that the estimated value of the annual electricity delivered to the grid in the PDD/1.02/ is consistent and correctly referred to the FSR/6.01/.

The PLF (Plant Load Factor) is the comprehensive parameter to represent the efficiencies and reduction factors. The PLF figure of 27.16% of the project activity was determined in FSR /6.01/, which was completed by the qualified third party commissioned by the PO. The PLF was provided to the government while applying for implementation approval. JCI also confirmed the PLF through the interviews with PO at on-site visit was estimated appropriately.

JCI, for cross-check, validated and confirmed that the PLF of 27.16% of the project activity was estimated appropriately in comparison with other projects as shown in the Table IV-5.

The annual electricity delivered to the grid depends on the average wind speed at the project site and the attributes of the specific wind turbine, and it is in positive correlation with the wind speed. It can be concluded from Figure B-4 in the PDD/1.02/, which are based on the historical annual average wind speed data from 1978 to 2006 indicated in FSR /6.01/ and

the recent data from 2007 to 2010 by the local weather station/8.02/, that the annual average wind speed at the proposed project area kept decreasing slightly over the past 33 years.

In summary, JCI has concluded that the annual electricity delivered to the grid is appropriately estimated.

(4) Evaluation of IRR calculation

JCI has checked the appropriateness of the result of the IRR calculation, active spread sheet of which /1.11/ was provided by the PP. The PO made decision at the Board Meeting /8.01/ to apply CDM based on the financial analysis in the FSR /6.01/.

The input values related to IRR calculation are summarized in the Table IV-4 above.

As the result of IRR calculation, the equity IRR without CER revenue was calculated as 2.41 % which was much below the benchmark of 10 %, while the equity IRR with CER revenue was calculated as 9.32 % and greatly improved.

JCI has confirmed that IRR calculation is in accordance with Guidelines on the Assessment of Investment Analysis /2.05/ as follows:

- It is equity IRR calculation result.
- Post-tax benchmark is applied.
- The benchmark of equity IRR selected for the project is 10% according to the Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects /3.04/ and is widely used in the assessment and approval of electricity power projects in China.
- The debt is 79.39 % of the total static investment of the project.
- Loan interest rates are 7.83 % for long term and 7.47% for short term respectively, and are payable.
- Residue value is 5% of the total static investment of the project.

JCI, thus, concluded that the calculation of equity IRR as shown in the PDD/1.02/ is appropriate complying with Guidelines on the Assessment of Investment Analysis /2.05/. In conclusion, JCI has validated that the investment analysis in the PDD/1.02/ was appropriate.

(5) Sensitivity analysis

The sensitivity analysis has been validated with the following two steps:

- 1) Assessment of $\pm 10\%$ variation analysis
- 2) Assessment of the likelihood of variations to reach the benchmark IRR complying with relevant guideline /2.05/ and tool /2.03/.

- 1) $\pm 10\%$ variation analysis was conducted in the PDD/1.02/ using the following four parameters.

- (a) Total static investment
- (b) Annual electricity delivered to the grid
- (c) Annual O&M cost
- (d) Electricity tariff

The PDD/1.02/ shows the result of the analysis that the equity IRR would not reach the benchmark of 10% when any of those four parameters would vary within the $\pm 10\%$ variation range. JCI confirmed that the assessment of $\pm 10\%$ variation analysis was appropriately conducted and that, as shown in Figure B-3 in the PDD/1.02/, the IRR is

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mainly impacted by the total static investment, the annual electricity delivered to the grid, and the electricity tariff and that the impact of the annual O&M cost on the IRR is less significant. .

2) Assessment of the likelihood of variation to reach the benchmark IRR

JCI has checked the likelihood of four parameters at the time when the IRR reach to the benchmark of 10% and the result is shown in Table IV-8 below.

Table IV-8 Parameter changes when equity IRR reaches to benchmark

Parameter	Total static investment	Annual electricity delivered to the grid	Annual O&M cost	Electricity tariff
Critical variation to reach 10% benchmark	-18 %	+21 %	-172%	+20 %

The equity IRR of the project can only reach the benchmark if the total static investment is decreased by 18%. However, the actual investment has reached 501.70 M-CNY in 2011, as shown in the PDD/1.02/, which was over the critical investment to reach the benchmark (439 M-CNY).

The equity IRR of the project can reach the benchmark only if the annual electricity delivered to the grid is increased by 21%. However, such an increase is unlikely to happen since the annual electricity output is not anticipated to increase by 21% in the future even applying the highest PLF of the registered projects with the installed capacity of 49.5MW in Inner Mongolia. Thus, the equity IRR of the proposed project would not reach the benchmark.

O&M cost only has a small impact on the project's IRR. Taking the inflation as well as the increasing wages and prices of raw materials into account, a significant reduction in O&M cost is obviously unlikely. Even if annual O&M costs were assumed to be zero, the equity IRR would still only reach 6.84%, which is below the 10% benchmark.

The tariff needs to be increased by 20%, up to 0.612 CNY/kWh, for the proposed equity IRR to reach the benchmark. However, this scenario is highly unlikely as well since the electricity tariff of wind power projects is regulated by the central and local government in China. Based on the tariff notifications issued by the government for western Inner Mongolia in the past three years, it shows the tariffs for wind projects in the region have been kept the same since 2007. The tariff was already fixed prior to the starting date of the project and has been still valid. Even the highest historical tariff of 0.54 CNY/kWh (incl. VAT) in Inner Mongolia was less than 0.612 CNY/kWh to reach the equity IRR benchmark of 10%.

JCI has validated from the above arguments that it is unlikely that the equity IRR can reach the benchmark within reasonable variations of the financial parameters. JCI has, thus, concluded that the result of the above investment analysis with applying of the benchmark analysis was robust and then the project activity was financially unattractive without CDM.

6.4 Barrier analysis

According to the above arguments in 6.3 Investment analysis, JCI has concluded that the proposed CDM project activity was financially unattractive, hence, the barrier analysis provided in “Tool for the demonstration and assessment of additionality (version 06.0.0) /2.03/ was appropriately identified as not applicable in the PDD/1.02/ and was skipped.

6.5 Common practice analysis

JCI assessed the Common practice analysis described in the PDD/1.02/ according to “Tool for the demonstration and assessment of additionality (version 06.0.0) /2.03/ as follows:

The proposed project is the wind project, which was specified as “(b) switch of technology with or without change of energy source” in paragraph 6 of the referenced additionality tool /2.03/. Therefore, PDD/1.02/ carried out the study of the common practice analysis for identification of similar activities by the following 4 steps in accordance with paragraph 47 of the additional tool /2.03/.

- Step 1: Calculate applicable output range as +/-50% of the design output or capacity of the proposed project activity.
- Step 2: In the applicable geographical area, identify all plants that deliver the same output or capacity, within the applicable output range calculated in Step 1, as the proposed project activity and have started commercial operation before the start date of the project. Note their number N_{all} . Registered CDM project activities and projects activities undergoing validation shall not be included in this step;
- Step 3: Within plants identified in Step 2, identify those that apply technologies different that the technology applied in the proposed project activity. Note their number N_{diff} .
- Step 4: Calculate factor $F = 1 - N_{diff}/N_{all}$ representing the share of plants using technology similar to the technology used in the proposed project activity in all plants that deliver the same output or capacity as the proposed project activity.

JCI has validated and confirmed the followings for the each steps above:

Step 1: The installed capacity of the project is 49.5 MW and the applicable range is defined as 24.75~74.25MW.

Step 2: The applicable geographic area is the Inner Mongolia Autonomous Region considering the size of the PRC, the geographical differences as well as the social and economic differences between the provinces.

It is identified there are two operational wind power plants which deliver the output of 24.75~74.25MW electricity and started commercial operation before 07/07/2008 (the starting date of the proposed project activity), excluding registered CDM projects, within the applicable area according to the China Electricity Year Book (2005~2010) /4.02/ and the Water Resource Year Book (2005~2009) /4.04/ as shown in the PDD/1.02/. They are Dali wind Phase III project (Installed capacity is 31.2 MW and commissioned in 2004) and Bailingmiao Wind Phase I Project (Installed capacity is 50MW and commissioned in 2007). Therefore, $N_{all} = 2 + N_{coal\ power}$.

Step 3: It is defined different technologies are as those that have differing:

- (1) Energy sources: Coal power projects are included in N_{diff} ;
- (2) Financing access:

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- Dali wind Phase III project was financed by the NDRC and had the loans from the Netherlands government.
- Bailingmiao Wind Phase I Project has applied for voluntary emission reductions under the voluntary carbon scheme, the Gold Standard.

The two wind power projects, the Dali wind Phase III project and the Bailingmiao Wind Phase I Project, are included in N_{diff} . A total of 2 wind power projects have been excluded in Step 3, and are considered part of N_{diff} . Therefore, $N_{diff} = N_{coal\ power} + 2$.

Step 4: The factor F is calculated as below:

$$N_{diff} = N_{all}, \text{ thus, } N_{all} - N_{diff} = 0 < 3$$

$$F = 1 - N_{diff} / N_{all} = 1 - (N_{coal\ power} + 2) / (2 + N_{coal\ power}) = 0 < 0.2$$

As a result of common practice assessment, JCI has confirmed that the factor F is less than 0.2 and $N_{all} - N_{diff}$ is less than 3. Therefore, JCI has validated and concluded that the proposed project is not the common practice in accordance with the referenced additionality tool /2.03/.

6.6 Conclusion of assessment of additionality

JCI concluded that the PDD/1.02/ clearly demonstrated as shown in the above that the project activity is additional, not financially attractive and therefore, would not occur without CDM revenue provision. Serious consideration of CDM prior to the project decision by the PO was clearly and sufficiently demonstrated. Appropriate actions and events were taken by the PO/PP to achieve CDM well after the project decision up to the publication of the PDD/1.02/. The investment and sensitivity analyses clearly showed the project activity was not financially viable without CDM revenue. The common practice analysis concluded that the proposed project activity is not common practice.

7. Monitoring plan

7.1 Compliance with the requirements of the methodology

JCI has confirmed that the PDD /1.02/ determined the data and parameter monitored as $EG_{facility, y}$ “Net electricity delivered to the grid by the proposed project in year, y” complying with the requirements of the applied methodology ACM0002/2.01/.

7.2 The implementation plan of monitoring

The implementation plan of monitoring of the data and parameters described in the PDD /1.02/ was validated as follows.

1) Equipment for monitoring

JCI confirmed that the equipment installation plan is in accordance with the CDM requirements and a Chinese national standard “Electricity meter installation technical management code” (DL/T448-2000) /3.03/. The accuracy of meter will be determined according to the standard.

2) Monitoring organization

The PO set up a CDM monitoring management system, as described in the PDD/1.02/ and CDM monitoring and management manual/8.06/ to cover the entire process of the monitoring from meter readings through internal audits of monitoring reports.

3) Monitoring manual

The CDM monitoring and management manual /8.06/ is prepared by the PO, which covers CDM-related monitoring operation, information of metering equipment, and organization/responsibility and corrective action.

Complying with Para 124 of VVM ver. 01.2/2.09/, JCI confirmed that:

- a) The monitoring plan is complying with the relevant methodology /2.01/ and tool /2.02/;
- b) The monitoring arrangements described in the PDD/1.02/ are feasible within the project design through the interview with the PO /8.11/ and the on-site visit; and
- c) The PO has enough ability to implement the monitoring plan.

8. Sustainable development

JCI confirmed that the LoA /5.01/ issued by the DNA of the host Party PRC recognized the contribution of the proposed CDM project activity to the sustainable development of the host Party, which has been already described in Section IV 1.

9. Local stakeholder consultation

As described in the PDD/1.02/ and confirmed through the interviews with the PO and local stakeholders, the PO carried out a survey among local villagers and residents living in the project area between 17/08/2011 and 19/08/2011. The questionnaires used for assessing the project impacts on the local environment, as well as on the region's social and economic development were sent out to local villagers and residents. 50 questionnaires were distributed, and 46 questionnaires had been returned. The respondents are representative in terms of age, occupation and education, so their attitude towards the impacts of the project can therefore be seen as a comprehensive reflection of the attitudes of the residents possibly affected by the project. The survey showed that the local people supported and agreed with the construction of the project. They believe that the project would have a positive impact on the local economic development and their living conditions, without having negative impacts on the environment and the ecosystem.

At the on-site visit/12.03/, JCI interviewed with three (3) residents living near the project site, and confirmed that they were all supportive, satisfied with the project activity in terms of contributions to local society.

Based on the above information, JCI has concluded that the project activity is supported by local stakeholders and gives no significant adverse impacts on local environment, and instead contributes to the development of local economy.

Complying with Para 130 of VVM ver. 01.2/2.09/, JCI has confirmed and concluded that the local stakeholder consultation was conducted adequately.

10. Environmental impacts

The Environmental Impact Assessment (EIA) was conducted to ensure that the project complies with relevant national, regional and local regulations. The EIA Report/6.02/ was prepared by Inner Mongolia Hydro and Hydraulic design institute in January 2008 and approved by the Inner Mongolia Environmental Protection Bureau 01/02/2008/5.04/.

The EIA Report/6.02/ addressed anticipated environmental impacts by the project activity both during the construction period and after the operation start, and suggested mitigation

measures against anticipated pollution of wastewater, atmosphere, noise, solid waste and ecological impact. No significant negative impacts due to the project activity were anticipated.

Through the observation during the on-site visit, JCI confirmed that appropriate mitigation measures would be taken as described in the PDD/1.02/ and no serious issues were observed.

JCI validated and concluded that given the PO would take necessary mitigation measures after the operation start as well as during the construction period anticipated environmental impacts by the project activity would not be significant and be controlled at a minimum level.

11. Result of stakeholder consultation process

The PDD version 01 of 29/01/2012 was made publicly available on the UNFCCC website (<https://cdm.unfccc.int/Projects/Validation/DB/L01GTJ0EL7F958KCV24X9SP9O5MHO7/view.html>) and Parties, Stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from “08/02/2012” to “08/03/2012”.

As a result of consultation, no comment was received.

APPENDIX A: CDM VALIDATION PROTOCOL (REV. 02)

Hangjin Yihewusu Phase I 49.5MW Wind Power Project

1. INTRODUCTION

The validation protocol is prepared for the following purposes:

- To ensure that, in accordance with the Validation Verification Manual version 01.2 (Annex 1, CDM-EB55, "VVM"), and CDM requirements, these rules are complied with for any project activities requesting registration as a proposed CDM project activity.
- To ensure a thorough, independent assessment of proposed project activities submitted for registration as a proposed CDM project activity against the applicable CDM requirements.
- To assess whether the project design of the proposed CDM project activity meets the CDM requirements, using objective evidence, and to assess the completeness and accuracy of the claims and conservativeness of the assumptions made in the project design document.

The validation protocol is consisted of the following two types of tables, which are effective for the purposes of validation above.

TABLE-1 contains the checklist with questions along with the thematic chapter of VVM.

TABLE-2 shows the corrective actions or clarifications which are requested to be taken in **TABLE-1** and the response from the PP.

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TABLE-1 Requirements Checklist Page 1-1

TABLE-2 Resolution of Corrective Actions and Clarification Requests Page 2-1

2. CLARIFICATION REQUESTS, CORRECTIVE ACTION REQUESTS AND FORWARD ACTION REQUESTS

If, during the validation of a project activity, issues are identified that need to be further elaborated upon, researched or added to in order to confirm that the project activity meets the CDM requirements and can achieve credible emission reductions, these issues shall be ensured that are correctly identified, discussed and concluded in the validation report.

➤ **CAR** : a corrective action request (**CAR**) is raised, if one of the following occurs:

- (a) The PPs 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.

➤ **CL** : a clarification request (**CL**) is raised,

if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

➤ **FAR** : 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.

The CARs and CLs are resolved or "closed out" only if the project participants modify the project design, rectify the PDD or provide adequate additional explanations or evidences that satisfy the requirements. If this is not done, the project activity will not be recommended for registration to the CDM EB.

All CARs, CLs and FARs will be reported on in its validation report. This reporting shall be undertaken in a transparent and unambiguous manner that allows the reader to understand the nature of the issue raised, the nature of the responses provided by the project participants, the means of validation of such responses and clear reference to any resulting changes in the PDD or supporting annexes.

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Revision History of the Document

Revision No.	Date	Nature of revision(s)
00	May 01, 2012	Initial Issuance (Based on the PDD for GSC)
	May 15, 2012	The first response by PO
01	May 25, 2012	2 nd comments by DOE
	May 29, 2012	2 nd response by PO
02	June 08, 2012	3 rd comments by DOE. CL-15 added.
	June 27, 2012	3 rd response by PO
	July 04, 2012	4 th response by PO

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TABLE-1 REQUIREMENTS CHECKLIST		(OK/No/NA/Tbv)		
No.	Requirement	Refer. Para. VVM 01.2	Check Comment	ID. No.
1.	Approval	Para.44-50 VVM	--	--
	<Requirement to be validated> All Parties involved shall approve the project activity.	Para.44 VVM	--	--
	The LoA (Letter of Approval) s of all parties involved shall be provided together with its information source and route.			
1.1	The LoA shall confirm that: (a) The Party is a Party to the Kyoto Protocol (b) Participation is voluntary (c) The proposed CDM project activity contributes to the sustainable development of the country (d) It refers to the precise proposed CDM project activity title in the PDD being submitted for registration	Para.45 VVM	NO	CAR-1
2.	Participation	Para.51-54 VVM	--	--
	<Requirement to be validated> All project participants shall be listed in a consistent manner in the project documentation, and their participation in the project activity shall be approved by a Party to the Kyoto Protocol.	Para.51 VVM	--	--
2.1	The project participants shall be listed in tabular form in section A.3 of the PDD, and this information shall be consistent with the contact details provided in annex 1 of the PDD.	Para.52 VVM	OK	
1)	The participation of each project participant shall be approved by at least one Party involved, either in a letter of approval or in a separate letter specifically to approve participation.	ditto	NO	CAR-1
3)	No entities other than those approved as project participants shall be included in these sections of the PDD.	ditto	OK	
2.2	The approval of participation shall be issued from the relevant DNA.	Para.53 VVM	NO	CAR-1
3.	Project Design Document	Para.55-57 VVM	--	--
	<Requirement to be validated> The PDD used as a basis for validation shall be prepared in accordance with the latest template and guidance from the CDM Executive Board available on the UNFCCC CDM website. http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/index.html	Para.55 VVM PDDs Forms	--	--
3.1	The PDD shall be in accordance with the applicable CDM requirements for completing PDDs. < http://cdm.unfccc.int/Reference/Guidclarif/pdd/index.html >	Para.56 VVM	OK.	
3.2	PDD template shall not be altered, that is, shall be completed using the same font without modifying its format, headings or logo. 1) Tables and their columns shall not be modified or deleted. Rows may be added, as needed. If sections of the CDM-PDD are not applicable, it shall be explicitly stated that the section is left blank on purpose.	PDD Guidelines	OK	

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TABLE-1 REQUIREMENTS CHECKLIST		(OK/No/NA/Tbv)		
No.	Requirement	Refer. Para. VVM 01.2	Check Comment	ID. No.
2)	The presentation of values in the PDD should be international standard format.	ditto	OK	
4.	Project Description	Para.58-64 VVM	--	--
	<Requirement to be validated> The PDD shall contain a clear description of the project activity that provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation.	Para.58 VVM	--	--
4.1	Project description in section A.2 of the PDD (Max 1 page) shall be a brief summary of that in A.4.3 and B.3. This shall include: ● The purpose of the project activity ● The view of the project participants of the contribution of the project activity to sustainable development. and explain ● How the proposed project activity reduces GHG emissions.	PDD Guidelines	OK	
4.2	In section A.4.3 of the PDD, a description of how environmentally safe and sound technology and know-how to be used is transferred to the host Party(ies) shall be included. It should also further explain the purpose of the project. ● The scenario existing prior to the start of the project, with equipment list and systems in operation ● The scope of project, with equipment list and systems ● The baseline scenario, with equipment list and systems If the baseline scenario is the same as the scenario existing prior to the start of the project, there is no need to repeat, but only state that both are the same. The description of the scenario should include; ● A list and arrangement of the main manufacturing technologies, systems and equipment ● The emission sources and the GHG, and existing and forecast energy and mass flows and balances of the systems and equipment ● The types and levels of services	ditto	OK	CL-1
4.3	In section A.4.4 of the PDD, ● The chosen crediting period shall be indicated. ● The total estimation of emission reductions as well as annual estimates for the chosen crediting period shall be provided. ● Information on the emission reductions shall be indicated using the decided tabular format. ● International standard format for values shall be used.	ditto	OK	
4.4	If the DOE does not undertake a physical site inspection, it shall be appropriately justified.	Para.62 VVM	NA	
4.5	If the proposed CDM project activity involves the alteration of an existing installation or process, Does the project description clearly state the differences resulting from the project activity compared to the pre-project situation?	Para.63 VVM	NA	
5.	Baseline and monitoring methodology	Para.65-93 VVM	--	--

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TABLE-1 REQUIREMENTS CHECKLIST		(OK/No/NA/Tbv)		
No.	Requirement	Refer. Para. VVM 01.2	Check Comment	ID. No.
(a)	General requirement	Para.65-67 VVM	--	--
	The baseline and monitoring methodologies selected by the project participants shall comply with the methodologies previously approved by the CDM Executive Board.	Para.65 VVM	--	--
	To ensure that the project activity meets this general requirement, the followings shall be confirmed. (a) The selected methodology is applicable to the project activity; (b) The PP has correctly applied the selected methodology.	Para.66 VVM	--	--
	It shall also be ensured that the selected methodology is applicable to the project activity and has been correctly applied with respect to the followings: (a) Project boundary (b) Baseline identification (c) Algorithms and/or formulae used to determine emission reductions (d) Additionality (e) Monitoring methodology	Para.67 VVM	--	--
5.	Baseline and monitoring methodology	Para.65-93 VVM	--	--
(b)	Applicability of the selected methodology to the project activity	Para.68-77 VVM	--	--
	<Requirement to be validated> The selected baseline and monitoring methodology previously approved by the CDM Executive Board shall be validated to be applicable to the project activity, including that the used version is valid. Specific guidance provided by the CDM Executive Board in respect to any approved methodology shall be applied.	Para.68 VVM Para.69 VVM	--	--
5.1	The methodology shall be ensured to be correctly quoted and applied by comparing it with the actual text of the applicable version of the methodology available on the UNFCCC CDM website. Referring to the UNFCCC CDM web site for the title and reference list as well as the details of approved baseline methodologies, the following contents shall be indicated in section B.1 of the PDD. - the approved methodology - the version of the methodology that is used - any methodologies or tools which the approved methodology draws upon and their version	Para.70 VVM	OK	
5.2	1) The choice of methodology shall be justified and the project participants shall show that the project activity meets each of the applicability conditions of the approved methodology or any tool or other methodology component referred to therein in section B.2 of the PDD.	Para.71 VVM	OK	
	2) The documentation referred to in the PDD and its content shall be correctly quoted and interpreted in the PDD.	ditto	OK	
5.	Baseline and monitoring methodology	Para.65-93 VVM	--	--
(c)	Project boundary	Para.78-80 VM	--	--

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TABLE-1 REQUIREMENTS CHECKLIST		(OK/No/NA/Tbv)		
No.	Requirement	Refer. Para. VVM 01.2	Check Comment	ID. No.
	<Requirement to be validated> The PDD shall correctly describe the project boundary, including the physical delineation of the proposed CDM project activity included within the project boundary for the purpose of calculating project and baseline emissions for the proposed CDM project activity.	Para.78 VVM	--	--
5.3	The delineation in the PDD of the project boundary shall be correct and meet the requirements of the selected baseline methodology, which shall also be demonstrated by documented evidence and corroborated by a site visit.	Para.79 VVM	OK	
1)	All emission sources and GHGs required by the methodology shall be included within the project boundary for the purpose of calculating project emissions and baseline emissions, using the standardized table.	ditto	OK	
2)	If the methodology allows project participants to choose whether a source or gas is to be included within the project boundary, the project participants shall justify the choice by supporting documented evidences.	ditto	NA	
3)	In section B.3 of the PDD, a flow diagram of the project boundary shall be described including all the equipment, systems, flows of mass and energy, the emission sources/gases and the monitoring variables.	PDD Guidelines	OK	CL-2
4)				
5.	Baseline and monitoring methodology	Para.65-93 VVM	--	--
(d)	Baseline identification	Para.81-88 VVM	--	--
	<Requirement to be validated> The PDD shall identify the baseline for the proposed CDM project activity, defined as the scenario that reasonably represents the anthropogenic emissions by sources of GHGs that would occur in the absence of the proposed CDM project activity.	Para.81 VVM	--	--
	Any procedure contained in the methodology to identify the most reasonable baseline scenario, shall be correctly applied. If the selected methodology requires use of tools (such as the "Tool for the demonstration and assessment of additionality" and the "Combined tool to identify the baseline scenario and demonstrate additionality") to establish the baseline scenario, the methodology on the application of these tools shall be confirmed. In such cases, the guidance in the methodology shall supersede the tool. The each step in the procedure described in the PDD against the requirements of the methodology shall be checked.	Para.82 VVM	--	--
5.4	If the methodology requires several alternative scenarios to be considered in the identification of the most reasonable baseline scenario, it shall be determined whether all scenarios that are considered by the project participants and are supplementary to those required by the methodology, are reasonable in the context of the proposed CDM project activity and that no reasonable alternative scenario has been excluded.	Para.83 VVM	NA	
5.5	It shall be determined whether the baseline scenario identified is reasonable by validating the assumptions, calculations and rationales used, as described in the PDD.	Para.84 VVM	OK	

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TABLE-1 REQUIREMENTS CHECKLIST		(OK/No/NA/Tbv)		
No.	Requirement	Refer. Para. VVM 01.2	Check Comment	ID. No.
	The documents and sources referred to in the PDD shall be correctly quoted and interpreted. All data used to determine the baseline scenario shall be illustrated in a transparent manner, preferably in a table form.	ditto	OK	
5.6	All applicable CDM requirements shall be taken into account in the identification of the baseline scenario for the proposed CDM project activity, including "relevant national and/or sectoral policies and circumstances." (See decision 3/CMP.1, annex, paragraph 45, currently located at < http://cdmunfccc.int/Reference/COPMOP/08a01.pdf#page=6 >, and EB22, annex 3, "Clarifications on the consideration of national and/or sectoral policies and circumstances in baseline scenarios", currently located at < http://cdm.unfccc.int/EB/022/eb22_repan3.pdf >.)	Para.85 VVM Para.45 CDM/M&P Annex 3 EB22	OK	
5.7	The PDD shall provide a verifiable description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed CDM project activity.	Para.86 VVM	OK	
5.	Baseline and monitoring methodology	Para.65-93 VVM	--	--
(e)	Algorithms and/or formulae used to determine emission reductions	Para.89-93 VVM	--	--
	<Requirement to be validated> The steps taken and equations applied to calculate project emissions, baseline emissions, leakage and emission reductions shall comply with the requirements of the selected baseline and monitoring methodology.	Para.89 VVM	--	--
5.8	The equations and parameters in the PDD shall be correctly applied by comparing them to those in the selected approved methodology.	Para.90 VVM	OK	
	If the methodology provides for selection between different options for equations or parameters, adequate justification shall be provided (based on the choice of the baseline scenario, context of the project activity and other evidence) and the correct equations and parameters shall be used, in accordance with the methodology selected.	ditto	OK	
5.9	The justification shall be given in the PDD for the choice of data and parameters used in the equations.	Para.91 VVM	OK	
	If data and parameters will not be monitored throughout the crediting period of the proposed CDM project activity but have already been determined and will remain fixed throughout the crediting period, it shall be demonstrated that all data sources and assumptions are appropriate and calculations are correct, applicable to the proposed CDM project activity and will result in a conservative estimate of the emission reductions.	ditto	OK	
	If data and parameters will be monitored on implementation and hence become available only after validation of the project activity, it shall be demonstrated that the estimates provided in the PDD for these data and parameters are reasonable.	ditto	OK	
5.10	In section B.6.2 of the PDD, Where time series of data is used, where several measurements are undertaken or where surveys have been conducted, detail information shall be provided in Annex 3 of the PDD. The choice for the source of data shall be explained and justified. Clear and transparent references or additional documentation shall be provided in Annex 3 of the PDD..	PDD Guidelines	OK	

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TABLE-1 REQUIREMENTS CHECKLIST		(OK/No/NA/Tbv)		
No.	Requirement	Refer. Para. VVM 01.2	Check Comment	ID. No.
	Where values have been measured, a description of the measurement methods shall be included. More detail information can be provided in Annex 3 .			
5.11	In section B.6.3 of the PDD, a transparent ex-ante calculation of project emissions, baseline emissions and leakage emissions expected during the crediting period and applied all relevant equations in the approved methodology shall be provided and how each equation is applied shall be documented in a manner that enables the reader to reproduce the calculation.	ditto	OK	
5.12	In section B.6.4 of the PDD, the results of the ex-ante estimation shall be summarized using the standardized table.	ditto	OK	
6.	Additionality of a project activity	Para.94-121 VVM	--	--
	<Requirement to be validated> The PDD shall describe how a proposed CDM project activity is additional. In accordance with decision 3/CMP.1,annex, paragraph 43 “A CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity” (see decision 5/CMP.1, annex paragraph 18). While specific elements of the assessment of additionality are discussed in further detail in paragraphs 98-121 in VVM, not all elements discussed below will be applicable to all proposed CDM project activities.	Para.94 VVM Para.43 CDM/M&P	--	--
6.	Additionality of a project activity	Para.94-121VVM	--	--
(a)	Prior consideration of the clean development mechanism While specific elements of the assessment of additionality are discussed in further detail in Section 6.3 –6.15 below, not all elements discussed below will be applicable to all proposed CDM project activities	Para.98-104 VVM	--	--
	<Requirement to be validated> If the project activity start date is prior to the date of publication of the PDD for stakeholder comments it shall be demonstrated that the CDM benefits were considered necessary in the decision to undertake the project as a proposed CDM project activity.	Para.98 VVM	--	--
6.1	The start date of the project activity, reported in the PDD, shall be in accordance with the “Glossary of CDM terms”. http://cdm.unfccc.int/Reference/Guidclarif/glos_CDM_v03.pdf Glossary of CDM terms Version 05	Para.99 VVM	OK	
	The starting date of a CDM project activity is the date on which the implementation or construction or real action of a project activity begins. In section C.1 of the PDD, the description should contain not only the date, but also a description of how this start date has been determined, and a description of the evidence available to support this start date.	ditto	OK	CL-3
	In particular, for project activities that require construction, retrofit or other modifications, the date of commissioning cannot be considered the project activity start date.	ditto	OK	
6.2	It shall be identified whether it is a new project activity (a project activity with a start date on or after 02 August 2008) in accordance with the guidance from the CDM Executive Board, or an existing project activity (a project activity with a start date before 02 August 2008) (See Annex 22 of EB 49 report : Guidelines on the Demonstration and Assessment of Prior Consideration of the CDM)	Para.100 VVM Annex 22 EB49	OK	

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TABLE-1 REQUIREMENTS CHECKLIST		(OK/No/NA/Tbv)		
No.	Requirement	Refer. Para. VVM 01.2	Check Comment	ID. No.
6.3	For a new project activity, for which PDD has not been published for global stakeholder consultation or a new methodology proposed to the CDM Executive Board before the project activity start date, the DOE shall ensure by means of confirmation from the UNFCCC secretariat that PPs had informed the host Party DNA and the UNFCCC secretariat in writing of the commencement of the project activity and of their intention to seek CDM status. If such a notification has not been provided by the project participants within six months of the project activity start date, the DOE shall determine that the CDM was not seriously considered in the decision to implement the project activity. (See EB 48, annex 62, .Prior consideration of the CDM form, currently located at < https://cdm.unfccc.int/EB/048/eb48_repan62.pdf >, for the standardized form.	Para.101 VVM	NA	
6.4	For an existing project activity, for which the start date is prior to the date of publication of the PDD for global stakeholder consultation, the project participant's prior consideration of the CDM shall be demonstrated by providing the following evidence (preferably official, legal and/or other corporate). In such cases the PP shall provide an implementation timeline of the project in section B.5 of the PDD.	Para.102 VVM	OK	CL-3
(a)	Evidence to indicate awareness of the CDM prior to the project activity start date, and evidence to indicate that the benefits of the CDM were a decisive factor in the decision to proceed with the project shall be provided.	ditto	OK	CL-3
	Evidence to support this would include, inter alia, minutes and/or notes related to the consideration of the decision by the Board of Directors, or equivalent, of the project participant, to undertake the project as a proposed CDM project activity.	ditto	OK	CL-3
(b)	Reliable evidence that must indicate that continuing and real actions were taken to secure CDM status for the project in parallel with its implementation.	ditto	OK	CL-3
	Evidence to support this should include, inter alia, - contracts with consultants for CDM/PDD/methodology services, - Emission Reduction Purchase Agreements or other documentation related to the sale of the potential CERs (including correspondence with multilateral financial institutions or carbon funds), - Evidence of agreements or negotiations with a DOE for validation services, - Submission of a new methodology to the CDM Executive Board, - Publication in newspaper, - Interviews with DNA, - Earlier correspondence on the project with the DNA or the UNFCCC secretariat.	ditto	OK	CL-3
6.	Additionality of a project activity	Para.94-121 VVM	--	--
(b)	Identification of alternatives	Para.105-107 VVM	--	--
	<Requirement to be validated> The PDD shall identify credible alternatives to the project activity in order to determine the most realistic baseline scenario, unless the approved methodology that is selected by the proposed CDM project activity prescribes the baseline scenario and no further analysis is required.	Para.105 VVM	--	--
6.5 (a)	The list of alternatives shall includes as one of the options that the project activity is undertaken without being registered as a proposed CDM project activity;	Para.106 VVM	OK	CL-15

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TABLE-1 REQUIREMENTS CHECKLIST		(OK/No/NA/Tbv)		
No.	Requirement	Refer. Para. VVM 01.2	Check Comment	ID. No.
(b)	The list shall contains all plausible alternatives that are considered, on the basis of local and sectoral knowledge, to be viable means of supplying the outputs or services that are to be supplied by the proposed CDM project activity.	ditto	NA	
(c)	The alternatives shall comply with all applicable and enforced legislation.	ditto	NA	
6.	Additionality of a project activity	Para.94-121 VVM	--	--
(c)	Investment analysis	Para.108-114 VVM	--	--
6.6	<Requirement to be validated> If investment analysis has been used to demonstrate the additionality of the proposed CDM project activity, the PDD shall provide evidence that the proposed CDM project activity would not be: The most economically or financially attractive alternative; or Economically or financially feasible, without the revenue from the sale of certified emission reductions (CERs).	Para.108 VVM	--	--
6.7	Project participants can show this through one of the following approaches, by demonstrating that:	Para.109 VVM	--	--
(a)	Demonstrate that the proposed CDM project activity would produce no financial or economic benefits other than CDM-related income. Document the costs associated with the proposed CDM project activity and the alternatives identified and demonstrate that there is at least one alternative which is less costly than the proposed CDM project activity;	ditto	OK	
(b)	The proposed CDM project activity is less economically or financially attractive than at least one other credible and realistic alternative;	ditto	OK	
(c)	Financial returns of the proposed CDM project activity would be insufficient to justify the required investment.	ditto	OK	
6.8	The DOE shall comply with the latest version of the “Guidelines on the Assessment of Investment Analysis” as provided by the CDM Executive Board and with other relevant guidance including the latest guidelines on plant load factors “guidelines for the reporting and validation of plant load factors” (See EB 51 report, annex 58 currently located at < http://cdm.unfccc.int/Reference/Guidclarif/reg/reg-guid03.pdf >.)	Para.110 VVM Annex 58 EB51		
	Project participants should provide spreadsheet versions of all investment analysis. All formulas used in this analysis be readable and all relevant cells be viewable and unprotected.	Annex 58 EB51	OK	
	The evidences on which input values in the investment analysis are based shall be provided.	ditto	OK	
6.9 (a)	All parameters and assumptions used in calculating the relevant financial indicator shall be validated thoroughly, and the accuracy and suitability of these parameters shall be verified using the available evidence and expertise in relevant accounting practices.	Para.111 VVM	OK	CL-5 CL-6 CL-7 CL-8
	Input values used in all investment analysis should be valid and applicable at the time of the investment decision taken by the project participant.	Annex 58 EB51	OK	
	The cost of financing expenditures (i.e. loan repayments and interest) should not be included in the calculation of project IRR.	ditto	OK	
	In the case of project activities for which implementation ceases after the commencement and where implementation is recommenced due to consideration of the CDM the investment analysis should reflect the economic decision making context at point of the decision to	ditto	NA	

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TABLE-1 REQUIREMENTS CHECKLIST		(OK/No/NA/Tbv)		
No.	Requirement	Refer. Para. VVM 01.2	Check Comment	ID. No.
	recommence the project. Therefore capital costs incurred prior to the revised project activity start date can be reflected as the recoverable value of the assets, which are limited to the potential reuse/resale of tangible assets.			
	Only variables, including the initial investment cost, that constitute more than 20% of either total project costs or total project revenues should be subjected to reasonable variation (all parameters varied need not necessarily be subjected to both negative and positive variations of the same magnitude), and the results of this variation should be presented in the PDD and be reproducible in the associated spreadsheets.. Where a variable which constitute less than 20% has a material impact on the analysis, this variable shall be included in the sensitivity analysis. As a general point of departure variations in the sensitivity analysis should at least cover a range of +10% and –10%, unless this is not deemed appropriate in the context of the specific project circumstances.	ditto	OK	
	Such evidence for the evaluation of investment analysis as invoices, receipts, price indices, feasibility reports, public announcements, audited actual project cost and annual financial reports shall be provided upon request of the DOE.	ditto	OK	
6.10	The suitability of any benchmark applied in the investment analysis:	Para.112 VVM	--	--
(a)	In cases where a benchmark approach is used the applied benchmark shall be appropriate to the type of IRR calculated. Local commercial lending rates or weighted average costs of capital (WACC) are appropriate benchmarks for a project IRR. Required/expected returns on equity are appropriate benchmarks for an equity IRR. Benchmarks supplied by relevant national authorities are also appropriate if the DOE can validate that they are applicable to the project activity and the type of IRR calculation presented.	Annex 58 EB51	OK	CL-4
	If the proposed baseline scenario leaves the project participant no other choice than to make an investment to supply the same (or substitute) products or services, a benchmark analysis is not appropriate and an investment comparison analysis shall be used. If the alternative to the project activity is the supply of electricity from a grid this is not to be considered an investment and a benchmark approach is considered appropriate.	ditto	NA	
(b)	The effectiveness of the applied benchmark shall be demonstrated with appropriate evidence.	ditto	OK	
(c)	The PPs shall demonstrate that it is reasonable to assume that no investment would be made at a rate of return lower than the benchmark by, for example, showing previous investment decisions by themselves involved and demonstrating that the same benchmark has been applied, or if there are verifiable circumstances that have led to a change in the benchmark.	Para.112 VVM	OK	
6.11	The CDM Executive Board clarified that in cases where project participants rely on values from Feasibility Study Reports (FSR) that are approved by national authorities for proposed CDM project activities, it is required to ensure that: (See the EB 38 report, paragraph 54, currently located at < http://cdm.unfccc.int/EB/038/eb38rep.pdf >.	Para.113 VVM Para.54 EB38	--	--

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TABLE-1 REQUIREMENTS CHECKLIST			(OK/No/NA/Tbv)	
No.	Requirement	Refer. Para. VVM 01.2	Check Comment	ID. No.
(a)	The period of time between the finalization of the FSR and the investment decision shall be sufficiently short for the DOE to confirm that it is unlikely in the context of the underlying project activity that the input values would have materially changed;	ditto	OK	
(b)	The values used in the PDD and associated annexes shall be fully consistent with the FSR, and where inconsistencies occur the appropriateness of the values shall be explained.	ditto	OK	CL-5 CL-6 CL-7
(c)	It shall be confirmed that the input values from the FSR are valid and applicable at the time of the investment decision.	ditto	OK	CL-5 CL-6 CL-7
6.	Additionality of a project activity	Para.94-121 VVM	--	--
(d)	Barrier analysis Barriers are issues in project implementation that could prevent a potential investor from pursuing the implementation of the proposed project activity. The identified barriers are only sufficient grounds for demonstration of additionality if they would prevent potential project proponents from carrying out the proposed project activity undertaken without being registered as a CDM project activity.	Para.115-118 VVM	--	--
6.12	<Requirement to be validated> If barrier analysis has been used to demonstrate the additionality of the proposed CDM project activity, the PDD shall demonstrate that the proposed CDM project activity faces barriers as below.	Para.115 VVM	--	--
	(a) Prevent the implementation of this type of proposed CDM project activity; (See EB 50, annex 13 .guidelines for objective demonstration and assessment of barriers., currently located at < http://cdm.unfccc.int/EB/050/eb50_repan13.pdf >. (b) Do not prevent the implementation of at least one of the alternatives.	Para.115 VVM	NA	
6.13	Issues that have a clear direct impact on the financial returns of the project activity cannot be considered barriers and shall be assessed by investment analysis. This does not refer to either (a) Risk related barriers, for example risk of technical failure, that could have negative effects on financial performance, or (b) Barriers related to the unavailability of sources of finance for the project activity.	Para.116 VVM	NA	
6.14	The available evidence shall be provided and/or interviews with relevant individuals (including members of industry associations, government officials or local experts if necessary) shall be arranged to demonstrate that the barriers listed in the PDD exist.	Para.117 VVM	NA	
	The existence of barriers shall be substantiated by independent sources of data such as relevant national legislation, surveys of local conditions and national or international statistics.	ditto	NA	
6.	Additionality of a project activity	Para.94-121 VVM	--	--
(e)	Common practice analysis	Para.119-121 VVM	--	--

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TABLE-1 REQUIREMENTS CHECKLIST		(OK/No/NA/Tbv)		
No.	Requirement	Refer. Para. VVM 01.2	Check Comment	ID. No.
	<Requirement to be validated> For proposed large-scale CDM project activities, <u>unless the proposed project type is first-of-its kind</u> , common practice analysis shall be carried out as a credibility check of the other available evidence used by the project participants to demonstrate additionality. This is to confirm that the project activity is not widely observed and commonly carried out in the region..	Para.119 VVM	--	--
6.15	The project participants shall clearly define “activities that are similar to the proposed project activity” in terms of technology and scale and justify the definition in CDM-PDD.	Additional Tool	OK	
	Screening (selection) criteria for common practice analysis shall be demonstrated with appropriate evidences and justification.	ditto	OK	
	The relevant geographical area for undertaking the common practice analysis should in principle be the host country of the proposed CDM project activity. A region within the country could be the relevant geographical area if the framework conditions vary significantly within the country.	ditto	OK	
	All the data used in the implementation of common practice analysis and reported in the PDD shall be supported by documentation and the PDD shall clearly state the complete reference of such documentation to enable access to it by a third party.	ditto	OK	CL-9
	Where documented information may be difficult to access or unavailable, local expert analysis on a common practice shall be provided.	ditto	OK	CL-9
7.	Monitoring plan	Para.122- 124 VVM	--	--
	<Requirement to be validated> The PDD shall include a monitoring plan. This monitoring plan shall be based on the approved monitoring methodology applied to the proposed CDM project activity.	Para.122 VVM	--	--
7.1	<u>Compliance of the monitoring plan with the approved methodology</u>	Para.123 VVM	OK	
(a)	(i)- The list of parameters required by the selected approved methodology shall be identified.			
	(ii) The monitoring plan shall contain all necessary parameters, and the means of monitoring described in the plan shall comply with the requirements of the methodology;	ditto	OK	
	For each parameter, the following information shall be explicitly described in the standardized table in the PDD. ● Source of data ● Value of data applied ● Description of measurement methods and procedures ● QA/QC procedures ● Any comment, if any (Note): Data monitored and required for verification and issuance are to be kept for two (2) years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later.	PDD Guidelines	OK	
	The operational and management structure that the project operator will implement in order to monitor emission reductions and leakage effects generated by the project activity shall be clearly described in the PDD (section 7.2) including the responsibilities for and institutional arrangements for data collection and archiving.	ditto	OK	

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TABLE-1 REQUIREMENTS CHECKLIST		(OK/No/NA/Tbv)		
No.	Requirement	Refer. Para. VVM 01.2	Check Comment	ID. No.
(b)	<u>Implementation of the plan</u>			
	(i) The monitoring arrangements described in the monitoring plan shall be feasible within the project design;	Para.123 VVM	OK	CL-10 CL-11
	(ii) The means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, shall be sufficient to ensure that the emission reductions achieved by/resulting from the proposed CDM project activity can be reported ex post and verified.	ditto	OK	CL-10 CL-11
7.2	Relevant further background information, if any, shall be provided in Annex 4 of the PDD.	PDD Guidelines	OK	CL-12
8.	Sustainable development	Para.125- 127 VVM	--	--
	<Requirement to be validated> CDM project activities shall assist Parties not included in Annex I to the Convention in achieving sustainable development.	Para.125 VVM	--	--
8.1	The letter of approval by the DNA of the host Party shall confirm the contribution of the proposed CDM project activity to the sustainable development of the host Party.	Para.126 VVM	NO	CAR-1
9.	Local stakeholder consultation	Para.128- 130 VVM	--	--
	<Requirement to be validated> Local stakeholders shall be invited by the PPs to comment on the proposed CDM project activity prior to the publication of the PDD on the UNFCCC website. See glossary of CDM terms, currently located at < http://cdm.unfccc.int/Reference/Guidclarif/glos_CDM.pdf >, for definition of stakeholders.	Para.128 VVM Glossary of CDM terms	--	--
9.1 (a)	Comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity shall be invited in an open and transparent manner.	Para.129 VVM	OK	CL-13
(b)	The summary of the comments received as provided in the PDD shall be complete.	ditto	OK	
(c)	The project participants shall demonstrate that they have taken due account of any comments received and shall describe/explain this process in the PDD.	ditto	OK	CL-13
10.	Environmental impacts	Para.131- 133 VVM	--	--
	<Requirement to be validated> Project participants shall submit documentation to the DOE on the analysis of the environmental impacts of the project activity in accordance with paragraph 37(c) of the CDM modalities and procedures.	Para.131 VVM Para.37(c) CDM/M&P	--	--
10.1	Project participants shall submit documentation to the DOE on the analysis of the environmental impacts of the project activity	Para.131 VVM	OK	
10.2	Project participants shall also provide all references to support documentation of a EIA if required by the host Party	Para.132 VVM	OK	CL-14

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TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CAR	Corrective Action Requests			
CAR-1	The LoAs (Letter of Approval) of all parties involved shall be provided.	1.1 2.1 2.2 8.1	<i>China LoA dated 15/06/2012 was issued and has been provided to JCI. The UK LoA dated 16/08/2012 was issued and has been provided to JCI.</i>	China LoA was provided by the PP through the PDD consultant and JCI confirmed the LoA is appropriate and credible. UK LoA was also provided by the PP through the PDD consultant and JCI confirmed the LoA is appropriate and credible. This finding was resolved and closed out.

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No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CL	Clarification Requests			
CL-1	A.4.3 Technology to be employed (1) It is requested to clarify whether the project selected state of the art technology and /or does the technology result in a significantly better performance than any commonly used technologies in China. (2) It is requested to clarify why the PO selected 1500kw capacity type of the wind turbine in China's standardization of them. (3) It is requested to clarify the equipment lifetime of the proposed project in accordance with "Tool to determine the remaining lifetime of equipment" and to have the evidences of their lifetime. (4) It is requested to have the estimated/actual project implementation schedule for the references.	4.2	(1)&(2): <i>"A part copy of Chapter 5 of FSR with English summary" has been submitted to JCI, from which it can be concluded that the selected technology and capacity can result a better performance and make use of the local wind resource more efficiently, which has been confirmed with the FSR author when onsite.</i> (3): <i>It is mentioned in "Specification of wind turbine and generator (with comments)", which has been submitted to JCI, that the lifetime is 20 years. While, in the "Tool to determine the remaining lifetime of equipment" the default lifetime for onshore wind turbine is 25 years. The former is more practical and widely used for wind projects in China, so it is applied in the investment decision of the project.</i> (4): <i>The "Actual project implementation schedule" has been submitted to JCI.</i>	The required clarification with evidential documents for the equipment selection, lifetime and project schedule has been provided appropriately and confirmed OK. The finding of CL-1 was resolved and closed out.
CL-2	Figure B-1. Boundary of the proposed project It is requested to provide the overall view drawing showing the location and layout of the equipment included in the project.	5.3	<i>The "General Arrangement Drawings/ for the overall drawing" has been submitted to JCI, based on which the boundary of the project is clear.</i>	The general arrangement drawing has been provided and confirmed OK. The finding of CL-2 was resolved and closed out.
CL-3	Table B-2. Timeline of the project implementation and CDM consideration It is requested to provide the project milestones and to clarify the detail historical	6.1 6.4	<i>The "Actual project implementation schedule" and "Minutes of Board Meeting for serious consideration of CDM application (Inc. English summary)" have been submitted to JCI.</i>	The required clarification with documents for the timeline of the project implementation and CDM consideration has been

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No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
	events for the prior considerations for CDM project to overcome the investment barrier to the investment decision of the PO's Board with the evidences.			provided appropriately and confirmed OK. The finding of CL-3 was resolved and closed out.
CL-4	Sub-step 2b. Apply benchmark analysis It is requested to show the relevant evidential part of the document of "Interim Rule on Economic Assessment of Electrical Engineering Retrofit Projects" such as for the benchmark of 10% as referred.	6.10	<i>The "Interim Rule on Economic Assessment of Electrical Engineering Retrofit Projects" (with English summary) has been submitted to JCI.</i>	The required evidential document has been provided and confirmed OK. The finding of CL-4 was resolved and closed out.
CL-5	Sub-step 2c. Calculation and comparison of financial indicators Table B-3. Basic parameters for financial evaluation 1) It is requested to clarify the basis of the Net electricity generation of FSR, especially the basis and evidences of the wind turbine capacity and the load factor. 2) It is requested to clarify the breakdown of; (a) Total static investment (b) Annual O&M costs - The employee expenditure - maintenance and repair rate - material cost It is also requested to submit the evidence and calculation methodology of the estimated basis of FSR. 3) It is requested to submit the basis and evidences of FSR for the estimation of the following items; (a) Income Tax	6.9 6.11	1) <i>The "Chapter 5 of FSR_Yihewusu (Inc. English summary)" has been submitted to JCI, in which the basis of net electricity generation and load factor are expressly described.</i> 2) <i>The "the breakdown of parameters" has been submitted to JCI.</i> 3) <i>The FSR and tariff trend based on policies have been submitted to JCI, based on which income tax, VAT and tariff are clear.</i> 4) <i>The CERs price is the expected market price.</i> In 2008, the spot price of CERs is more than €10.0/ tCO ₂ e (http://ideacarbon.org/), so the PO assumed the market price of €10.0/ tCO ₂ e conservatively.	The required clarification with documents has been provided appropriately and confirmed OK. The finding of CL-5 was resolved and closed out.



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No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
	(b) VAT (c) Electricity tariff (VAT Incl.) 4) It is requested to clarify the basis of the expected price of CERs and to submit the evidences.			
CL-6	Sub-step 2d. Sensitivity analysis It is requested to provide the official documents for the long term (at least 10 years) inflation rate for the equipment, the commodities and also the labor costs in western Inner Mongolia.	6.9 6.11	<i>The “evidence for Price Indexes in China” has been submitted to JCI.</i>	The required document has been provided and confirmed OK. The finding of CL-6 was resolved and closed out.
CL-7	Sub-step 2d. Sensitivity analysis It is requested to provide the evidential document of approval of NDRC for the tariff of the project.	6.9 6.11	<i>The tariff trend based on policies has been submitted to JCI.</i>	The required document has been provided and confirmed OK. The finding of CL-7 was resolved and closed out.
CL-8	Annual electricity delivered to the grid Figure B-4. The changes of the annual average wind speed It is requested to justify or provide the evidential data of the wind speed data for year of 2007 and afterwards.	6.9	<i>The “Statement of wind speed by local weather station” has been submitted to JCI.</i>	The evidential document for wind speed data has been provided and confirmed OK. The finding of CL-8 was resolved and closed out.
CL-9	Step 4 Common practice analysis It is requested to provide the evidential document of the list in Table B-8.	6.15	<i>The evidence or common practice based on Yearbook has been submitted to JCI.</i>	The required document has been provided and confirmed OK. The finding of CL-9 was resolved and closed out.



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No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CL-10	B.7.2. Description of the Monitoring plan It is requested to submit the following documents; (1) Monitoring Manual and/or CDM Management Manual (Draft) including procedures for records handling, dealing with possible monitoring data adjustments and uncertainties (2) Education/Training Manual for operation, maintenance and monitoring (3) Operation and Maintenance Manual	7.1	<i>1) The "Monitoring Manual and CDM management Manual" has been submitted to JCI. (2)&(3): The "Operation and Maintenance Manual" and "Education and Training Program for operation and maintenance" organized by the equipment supplier and the PO have been submitted to JCI. In addition, qualifications for operation were issued by Power Grid after attending the training and passing the tests, most of the employees have the qualification. Qualification of employee has been submitted to JCI.</i>	The required documents for the monitoring plan have been provided appropriately and confirmed OK. The finding of CL-10 was resolved and closed out.
CL-11	B.7.2. Description of the Monitoring plan It is requested to clarify how the PO estimates the line loss from the 35 kV unit transformers to the main metering system at the 220 kV transformers station and Grid substation at the remote-end. It is also requested to clarify the condition in terms of the metering of electricity.	7.1	<i>Because the main meter system, on which the power purchase is based, is installed at the substation, the measured electricity has deducted the line loss (and transformer loss) from the 35 kV unit transformers to the 1# main transformers installed at onsite transformer station and the line loss (and transformer loss) from transformer station to the Balagong substation. There is no need to account the specific line loss mentioned above.</i>	JCI confirmed the clarification of the line loss is appropriate. The finding of CL-11 was resolved and closed out.
CL-12	B.7.2. Description of the Monitoring plan It is requested to provide the national standard "Electricity meter installation technical management code" (DL/T448-2000).	7.2	<i>The "Electricity meter installation technical management code" (DL/T448-2000)" has been submitted to JCI.</i>	The required document has been provided and confirmed OK. The finding of CL-12 was resolved and closed out.

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No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CL-13	E. Stakeholders' comments (1) It is requested to provide the evidence of the initial information of the proposed project to the stakeholders. (2) It is requested to provide the evidence of the stakeholders' meeting. (3) It is requested to provide the evidence of the questionnaires distribute to /collected from the stakeholders.	9.1	<i>The stakeholder consultancy evidence has been submitted to JCI.</i>	The required evidence has been provided and confirmed OK. The finding of CL-13 was resolved and closed out.
CL-14	D.1. Documentation on the analysis of the environmental impacts, including transboundary impacts It is requested to indicate the numerical limit value, if available, for the waste water, noise pollution, air pollution, solid waste and ecological impact during the construction phase and the operating phase with their name of the regulatory law and/or standard as applicable.	10.1	<i>The limits are as per the documents below.</i> - Waste water: GB18918-2002 class A - Noise pollution:GB3096-1993 class I <i>The referenced documents have been submitted to JCI.</i>	The required information and documents have been provided appropriately and the PDD has been revised properly. The finding of CL-14 was resolved and closed out.
CL-15	Step 1. Identification of alternatives to the project activity consistent with current laws and regulations It is requested to identify that there is at least one credible and feasible alternative that would be more attractive than the proposed project activity according to "Tool for the demonstration and assessment of additionality" (Version 06.0.0)	6.5	<i>One alternative "Continuation of the current situation" is added in B.5 of the updated PDD.</i>	The PDD has been revised to include a description of one alternative appropriately. The finding of CL-15 was resolved and closed out.

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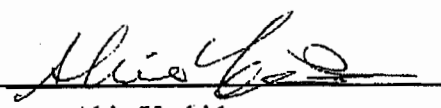
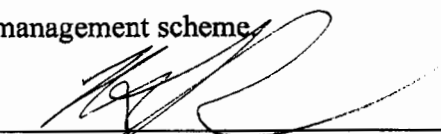
No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
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FAR	Forward Action Requests			
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Minor comments and requests

No.	Section in PDD (Page No.)	Minor comments, requests and confirmation by validation team	Summary of project owner response	Validation team Confirmation
1	All	Please check all the I.D number of Table and Figure with Section and Serial number, such as A.1, A.2, etc.	All the I.D number of Table and Figure are checked.	JCI confirmed that the PDD has been checked and revised appropriately. This finding was closed out.

APPENDIX B**Certificate of Appointment of Validation Team**

Project Title	Hangjin Yihewusu Phase I 49.5MW Wind Power Project
Applied Methodology	ACM0002
	Sectoral Scope 1
Date: February 10, 2012	
Designated Operational Entity: Japan Consulting Institute (JCI)	
Reflecting the competence criteria of JCI in accordance with "Criteria for operational entities of LIST of SECTORAL SCOPES", this is to certify the appointment of validation team of JCI specified below for the CDM project activity above, as per CDM Project Activity Registration Form, "F-CDM-REG" adopted at the 24th Meeting of CDM Executive Board, and Validation Procedure established by JCI CDM Center. Signature  Akio Yoshida, Executive Director, JCI CDM Center	
Date: 14 Feb 2012	
Client: Climate Bridge Ltd.	
Reflecting the curricula vitae provided, this is to agree the validation team of JCI specified below for the CDM project activity above, as per Validation Procedure established by JCI CDM Center. It is also agreed that Mr. Mutsuo KATO of JCI participates in the validation activities of the said project for the quality issues under its quality management scheme. Signature  (Name) MARK J LAABS (Title) COO	

Validation Team

Validation Team	Name	Qualified Technical Areas related to the Project
Leader	Moritaka KATO	Technical Area 1.2
Member	Takayuki ABE	Technical Area 1.2
	Toyoaki TSUNODA	-----
Technical Reviewer	Shigeo AOKI	Technical Area 1.2