



# VALIDATION REPORT CARBON RESOURCE MANAGEMENT S.A.

## VALIDATION OF THE QINGHAI DELINGHA XIEHE SOLAR PV POWER GENERATION PROJECT

REPORT No.CHINA-VD/6207/2012

REVISION No.01

BUREAU VERITAS CERTIFICATION

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## VALIDATION REPORT

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|---|---|
| Date of first issue:<br><b>03/09/2012</b>         | Organizational unit:<br><b>Bureau Veritas Certification Holding SAS</b> |
| Client:<br><b>Carbon Resource Management S.A.</b> | Client ref.:<br><b>Ms. Qian Yiwen</b>                                   |

## Summary:

Bureau Veritas Certification has conducted the validation of Qinghai Delingha Xiehe Solar PV Power Generation Project, owned by Delingha Xiehe Solar PV Power Generation Co., Ltd, which is located in Delingha City, Qinghai Province, People's Republic of China, on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study, monitoring plan and other relevant documents, and consisted of the following three phases: i) desk review of the project design document and additional background documents; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final validation report and opinion. The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the validation process is a list of Clarification Requests, Corrective Actions Requests, and Forward Actions Requests (CLs, CARs and FARs), presented in Appendix A. Taking into account this output, the project proponent revised its project design document.

In summary, it is Bureau Veritas Certification's opinion that the project correctly applies the baseline and monitoring methodology ACM0002 Version 12.3.0 and meets all relevant UNFCCC requirements for the CDM and the relevant host country criteria. Bureau Veritas Certification thus requests the registration of the project as a CDM project activity.

|   |                              |
|---|------------------------------|
| Report No.:<br><b>China-VD/6207/2012</b>  | Subject Group:<br><b>CDM</b> |
| Project title:<br><b>Qinghai Delingha Xiehe Solar PV Power Generation Project</b> |                              |
| Work carried out by:<br><br><b>Mr. Gabriele Limonta - Team Leader</b>             |                              |
| Internal Technical Review carried out by:<br><b>Mr. Peter Huang Qin</b>           |                              |
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## Indexing terms

Work approved by:

Flavio Gomes

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## Abbreviations

|        |   |
|--------|---|
| BVCH   | Bureau Veritas Certification Holding SAS              |
| CAR    | Corrective Action Request                             |
| CDM    | Clean Development Mechanism                           |
| CER    | Certified Emission Reductions                         |
| CL     | Clarification Request                                 |
| CO2    | Carbon Dioxide  |
| CO2e   | Carbon Dioxide Equivalent                             |
| DOE    | Designated Operational Entity                         |
| FAR    | Forward Action Request                                |
| GHG    | Green House Gas(es)                                   |
| MoV    | Means of Verification                                 |
| MP     | Monitoring Plan                                       |
| PDD    | Project Design Document                               |
| PLF    | Plant Load Factor                                     |
| PP     | Project Participant                                   |
| PPA    | Power Purchase Agreement                              |
| UNFCCC | United Nations Framework Convention on Climate Change |
| VVS    | Validation and Verification Standard                  |



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## 1. INTRODUCTION

Carbon Resource Management S.A. has commissioned Bureau Veritas Certification to validate the CDM project Qinghai Delingha Xiehe Solar PV Power Generation Project (hereafter called "the Project") owned by Delingha Xiehe Solar PV Power Generation Co., Ltd at Delingha City, Qinghai Province, People's Republic of China.

This report summarizes the findings of the validation of the Project, performed on the basis of UNFCCC criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

### 1.1. Objective

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

### 1.2. Scope

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against the requirements of paragraph 37 of the CDM M&Ps, the applicability conditions of the selected methodology and guidance issued by the Board.

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

### 1.3. Validation Team

The assessment team and internal technical reviewer team consist of the following personnel:

| FUNCTION                          | NAME                 | TA 1.2                              | TASK PERFORMED*  |
|-----------------------------------|----------------------|-------------------------------------|--|
| Team Leader                       | Mr. Gabriele Limonta | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> DR <input checked="" type="checkbox"/> SV <input checked="" type="checkbox"/> RI <input type="checkbox"/> TR |
| Team Member                       | N.A.                 | <input type="checkbox"/>            | <input type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RI <input type="checkbox"/> TR                                  |
| Technical Specialist              | N.A.                 | <input type="checkbox"/>            | <input type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RI <input type="checkbox"/> TR                                  |
| Internal Technical Reviewer (ITR) | Mr. Peter Huang Qin  | <input checked="" type="checkbox"/> | <input type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RI <input checked="" type="checkbox"/> TR                       |



|                                  |      |                          |   |
|----------------------------------|------|--------------------------|---|
| <b>Specialist supporting ITR</b> | N.A. | <input type="checkbox"/> | <input type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RI <input type="checkbox"/> TR |
|----------------------------------|------|--------------------------|---|

\*DR = Document Review; SV = Site Visit; RI = Report issuance; TR = Internal Technical Review

## 2. METHODOLOGY

The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

In order to ensure transparency, a validation protocol was customized for the project, according to the version 02.0 of the Clean Development Mechanism Validation and Verification Standard, issued by CDM Executive Board at its 65<sup>th</sup> meeting on 25/11/2011 (Ref-No.39). The protocol shows, in a transparent manner, criteria (requirements), means of validation and the results from validating the identified criteria. The validation protocol serves the following purposes:

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

The completed validation protocol is enclosed in Appendix A to this report.

### 2.1. Review of Documents

The Project Design Document (PDD) submitted by Carbon Resource Management S.A. and additional background documents related to the project design and baseline were reviewed (Ref.No.-1).

Furthermore, cross checks were made between information provided in the PDD and information from sources other than those used, and the DOE's sectoral or local expertise.

To address Bureau Veritas Certification corrective action and clarification requests, Carbon Resource Management S.A. revised the PDD and resubmitted it on 15/09/2012(Ref-No.2).

The validation conclusions presented in this report relate to the project as described in the PDD version 1.1.

### 2.2. Follow-up Interviews

On 30/05/2012, Bureau Veritas Certification performed a site visit and interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Delingha Xiehe Solar PV Power Generation Co., Ltd and Carbon Resource Management S.A. were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

| Interviewed organization | Interview topics  |
|--------------------------|---|
| Delingha Xiehe Solar PV  | ➤ Project background information and CDM consideration. |



|  |   |
|--|---|
| Power Generation Co., Ltd<br>(the Project Owner)       | <ul style="list-style-type: none"> <li>➤ Project technology, operation and maintenance.</li> <li>➤ Project approval and implementation status.</li> <li>➤ Project management and monitoring plan.</li> <li>➤ Stakeholder consultation process.</li> <li>➤ Common practice in the area.</li> <li>➤ Government policies related to the project activity.</li> </ul> |
| Local Stakeholder                                      | <ul style="list-style-type: none"> <li>➤ Project background in details</li> <li>➤ Stakeholder comments</li> <li>➤ Social and environmental impact of the project</li> </ul>   |
| Carbon Resource<br>Management S.A. (the<br>Consultant) | <ul style="list-style-type: none"> <li>➤ Applicability of selected methodology.</li> <li>➤ Baseline determination.</li> <li>➤ Emission reductions calculation.</li> <li>➤ Emission reduction monitoring plan.</li> </ul>  |

### 2.3. Resolution of Clarification, Corrective and Forward Action Requests

The objective of this phase of the validation is to resolve issues that require further elaboration, research or expansion prior to Bureau Veritas Certification's positive conclusion on the project design.

A Corrective Action Request (CAR) is raised, if one of the following situations occurs:

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

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

A Forward Action Request (FAR) may also be raised during validation, to identify issues related to project implementation that require review during the first verification of the project activity.

To guarantee the transparency of the validation process, the issues raised, the responses provided by the project participants, the means of validation of such responses and references to any resulting changes in the PDD or supporting annexes are documented in the Validation Protocol in Appendix A.

### 2.4. Internal Technical Review

The validation report underwent an Internal Technical Review (ITR) before requesting registration of the project activity.

The ITR is an independent process performed to examine thoroughly that the process of validation has been carried out in conformance with the requirements of the validation scheme as well as internal Bureau Veritas Certification procedures.



The Team Leader provides a copy of the validation report to the reviewer, including any necessary validation documentation. The reviewer reviews the submitted documentation for conformance with the validation scheme. This will be a comprehensive review of all documentation generated during the validation process.

When performing an Internal Technical Review, the reviewer ensures that:

- The validation activity has been performed by the team by exercising utmost diligence and complete adherence to the CDM rules and requirements.
- The review encompasses all aspects related to the project which includes project design, baseline, additionality, monitoring plans and emission reduction calculations, internal quality assurance systems of the project participant as well as the project activity, review of the stakeholder comments and responses, closure of CARs and CLs during the validation exercise, review of sample documents.

The reviewer may raise Clarification Requests to the validation team and will discuss these matters with the Team Leader.

After the agreement of the responses to the Clarification Requests from the validation team as well as the PP(s), the finalized validation report is accepted for further processing such as uploading via the UNFCCC interface.

### 3. VALIDATION CONCLUSIONS

In the following sections, the conclusions of the validation are stated.

The findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are described in the Validation Protocol in Appendix A.

The Clarification, Corrective and Forward Action Requests are stated, where applicable, in the following sections and are further documented in the Validation Protocol in Appendix A. The validation of the Project resulted in **8** CAR(s), **8** CL(s) and **0** FAR(s).

The CARs and CLs were closed out based on adequate responses from the Project Participant(s) which meet the applicable requirements. They have been reassessed before their formal acceptance and closure.

The number between brackets at the end of each section corresponds to the VVS paragraph.

#### 3.1. Approval (43-44)

The letters of approval have been received and the following support documentation has been verified by Bureau Veritas Certification:

The DNA of China has issued a Letter of Approval (No. 3951) in April 2012 authorizing Delingha Xiehe Solar PV Power Generation Co., Ltd as the Project Participant and confirms that the Project contributes to China's Sustainable development. /Ref No.-3/





The DNA of United Kingdom of Great Britain and Northern Ireland has issued a Letter of Approval (Ref-No.EA/CRMSA/32/2012) on 27/06/2012, authorizing Carbon Resource Management S.A. as the Project Participant for the Project in China. (Ref-No.4)

Bureau Veritas Certification received these letters of approval from the project participants and does not doubt the letters' authenticity.

The letters of approval do not refer to a specific version of the validation report.

In accordance with para. 39 – 42/VVS, Bureau Veritas Certification considers that:

- (a) Each letter confirms the Party is a Party to the Kyoto Protocol;
- (b) Each letter confirms the participation is voluntary;
- (c) In the case of the host Party, the letter confirms that the proposed project activity contributes to the sustainable development of the country;
- (d) Each letter refers to the precise proposed project activity title in the PDD being submitted for registration.
- (e) The letter(s) of approval is unconditional with respect to the items above.
- (f) The letter(s) of approval has been issued by the respective Party's DNA and is valid for the proposed project activity under validation.

### **3.2. Authorization (49)**

The participation for each project participant has been authorized by a Party of the Kyoto Protocol.

The validation team concludes this by verifying the information on UNFCCC website i.e.

<http://maindb.unfccc.int/public/country.pl?country=CN>; and

<http://maindb.unfccc.int/public/country.pl?country=GB>

### **3.3. Sustainable Development (52)**

The host Party's DNA has confirmed the contribution of the Project to the sustainable development of the host Party. Please refer to section 3.1 of this report.

### **3.4. Modalities of Communications (58,61)**

The validation team has performed due diligence on the MoC statement (Ref-No.5) and validated the corporate identity of all project participants and focal points included in the Modalities of Communication (MoC) statement, as well as the personal identities, including specimen signatures and employment status, of their authorized signatories.

Bureau Veritas Certification confirms that the MoC statement complies with all relevant forms and requirements.



### 3.5. Project Design Document (63)

Bureau Veritas Certification hereby confirms that the PDD complies with the latest forms of the guidance documents for completion of PDD.

### 3.6. Changes in the Project Activity (17)

During the site visit, no physical changes pertaining to the project design was observed as compared to details mentioned in the webhosted PDD.

The major differences between the final version PDD and the webhosted PDD are listed in Table 2 below:

Table 2 Changes between the final PDD and the webhosted PDD

| Item                                      | PDD version 1.0<br>(Webhosted) | PDD version 1.1<br>(Final)  | Validation Opinion  |
|---|--------------------------------|---|---|
| Number and location of monitoring meters. | Not clearly specified          | The monitoring plan has been revised indicating the precise number and location of monitoring meters. | The revised monitoring plan specified in the updated PDD has been verified and is deemed correct reflecting good practice and ensuring consistent and reliable measurement of the net electricity supplied by the Project.<br><br>For details, please refer to CL 2 |

### 3.7. Project Description (69)

The Project is a newly built photovoltaic power plant located in Delingha City, Qinghai Province, People's Republic of China, which has geographical coordinates of north latitude 37°21'10.29" (37.35286°) and east longitude 97°10'23.7" (97.17325°).

In accordance with the design of the approved FSR (Ref-No.6) (Ref-No.7), the project installs 128,400 pieces of 235Wp solar cell modules for a total installed capacity of 30.174MWp (235Wp\*128,400/1000000=30.174MWp), estimated annual average electricity generation in the first 7 years and the total 25 years lifetime is 51,914.12MWh and 48,084.39MWh respectively and PLF is circa 1,594hrs (18.2%). The PLF value was determined also taking into account a 20% degeneration factor over the 25 years operation period. The decrease is caused by the deterioration of the solar modules which due to time, use and high temperatures see their efficiency diminishing. This is consistent with what reported in the 'Solar Energy Technology Multi Year Program Plan' 2007-2011 issued by the U.S. Department of Energy. According to the report "most crystalline-silicon manufacturers offer warranties of 25 years, typically guaranteeing that the power output of the module will not decrease by more than 20% over this period" (Ref-No.27).



The electricity produced by the project will be exported to the Northwest China Power Grid (NWPG). As the NWPG is dominated by thermal power generation, the establishment of the Project is expected to reduce GHG emissions.

The Project will result in annual emission reductions of 46,530tCO<sub>2</sub>e during the seven years of its first renewable crediting period.

The validation team confirms that the estimated 25 years average PLF of 18.2% is sourced from the approved FSR of the Project determined by a qualified third party contracted by the PP, which is complying with the Para. 3 (b) of "Guidelines for the Reporting and Validation of Plant Load Factors" version 01 (Ref-No.45).

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

The processes undertaken by the validation team to validate the accuracy and completeness of the project description include conducting a physical site inspection, sampling, reviewing available designs and feasibility studies, conducting comparison analysis with equivalent projects.

Bureau Veritas Certification hereby confirms that the project description in the final PDD is accurate and complete in all respects.

### **3.8. Baseline and Monitoring Methodology**

#### **3.8.1. Applicability of the selected Methodology (77)**

The Project uses the approved consolidated baseline and monitoring methodology ACM0002 Version 12.3.0 – "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" dated 02/03/2012 (Ref-No.40).

The applicability of the selected methodology is justified and assessed as follows:

- (1) The Project is a grid-connected renewable solar PV power project that install a new power plant at a site where no renewable power plant was operated prior to the implementation of the Project (green-field plant);
- (2) The Project does not involve switching from fossil fuels to renewable energy at the site of the Project.

The validation team verified the above criteria by means of onsite assessment and review of project approvals.

Bureau Veritas Certification hereby confirms that the selected baseline and monitoring methodology, tool and other methodology component is previously approved by the CDM Executive Board, and is applicable to the Project, which, complies with all the applicability conditions therein.



### 3.8.2. Project Boundary (86-87)

The validation team has validated the project boundary by:

- (a) Assessing the relevant documents including the FSR and project's approvals.
- (b) Observing the physical site and equipment used in the process.

The spatial extent of the project boundary is clearly defined in line with ACM0002 Version 12.3.0 as the physical, geographical site of Project and all other power plants connected physically to the NWPG that the Project is connected to. This is in line with the delineation of grid boundaries as provided in the version of "2011 Baseline Emission Factors for Regional Power Grids in China" published by NDRC (China's DNA) on 20/10/2011 (hereafter called "China-Grid EF") (Ref-No.22).

The greenhouse gases and emission sources included in the project boundary are CO<sub>2</sub> emissions from the electricity generation in fossil fuel fired power plants that are displaced due to the project activity.

Bureau Veritas Certification hereby confirms that the identified boundary and the selected sources and gases are justified for the project activity. The validation team did not identify any emission sources that will be affected by the implementation of the proposed project activity and which are expected to contribute more than 1% of the overall expected average annual emissions reductions, and are not addressed by the selected approved methodology.

### 3.8.3. Baseline Identification (94-95)

The procedure contained in the methodology to identify the most reasonable baseline scenario has been correctly applied.

The Project is the installation of a newly built and grid-connected renewable power plant that delivers the generated electricity to the NWPG, hence, according to methodology ACM0002, the baseline scenario is determined properly as:

Electricity delivered to the grid by the Project 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" version 02.2.1 (hereafter called "Tool-Grid EF") (Ref-No.41).

According to the "China-Grid EF", the delineation of grid boundary of the Project is the NWPG. Furthermore, the baseline of the Project determined in the PDD i.e. "electricity delivered to the grid by the Project would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources" is transparent and deemed to be reasonable.

Bureau Veritas Certification hereby confirms that:

- (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 plausible baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed project activity.

### 3.8.4. Algorithms and/or Formulae used to determine Emission Reductions (99-100)

The steps taken and the equations and parameters applied in the PDD to calculate project emissions, baseline emissions, leakage and emission reductions comply with the requirements of the selected methodology including applicable tool(s).

As per “Tool-Grid EF” version 02.2.1, six steps therein are applied to calculate the emission factor.

As per baseline methodology ACM0002, the emission reduction  $ER_y$  during the crediting period is the difference between baseline emissions, project emissions and leakage. These are:

- 1) Baseline emissions: baseline emissions  $BE_y$  ( $tCO_2$ ) are equal to baseline emission factor  $EF_{grid,CM,y}$  ( $tCO_2/MWh$ ) times the net electricity supplied to the grid  $EG_{PJ,y}$  (MWh) (the Project is a Greenfield wind power plant, therefore  $EG_{PJ,y}$  equals to  $EG_{facility,y}$  that is quantity of net electricity generation supplied by the project plant/unit)
- 2) Project Emissions: the project emissions are regarded as zero as per methodology ACM0002 version 12.3.0..
- 3) Leakage: no leakage need to be considered as per methodology ACM0002 version 12.3.0.
- 4) Emission reductions:

$$ER_y = BE_y - PE_y = BE_y = EF_{grid,CM,y} \times EG_{PJ,y} = EF_{grid,CM,y} \times EG_{facility,y}$$

According to the baseline methodology ACM0002 version 12.3.0 and “Tool-Grid EF” version 02.2.1 (Ref-No.41), the baseline emission factor was calculated as six steps. In addition, the calculation in the PDD refers to the “China-Grid EF” published on 20/10/2011 (Ref-No.22), which is the most recent information available at the time of CDM-PDD submission to Bureau Veritas Certification for validation.

Bureau Veritas Certification has checked the “China-Grid EF” and can confirm that the emission factor calculation is in accordance with data in the China Electric Power Yearbook from 2006 to 2010 and China Energy Statistical Yearbook from 2008 to 2010, and also complies with requirement of the Tool-Grid EF. According to the China-Grid EF”, the Simple OM emission factor ( $EF_{grid,OM,y}$ ) of NWPG is calculated as  $1.0001tCO_2e/MWh$ . Similarly, the build margin emission factor ( $EF_{grid,BM,y}$ ) of the NWPG is calculated as  $0.5850tCO_2e/MWh$ .

According to the “Tool-Grid EF”, the default weights  $\omega_{OM} = 0.75$  for Operating Margin and  $\omega_{BM} = 0.25$  for build Margin in the first crediting period of PV solar Power Projects are adopted.



Therefore, the combined baseline emission factor is determined ex-ante and will remain fixed during the first crediting period, viz.

$$EF_{grid,CM,y} = 1.0001 \times 0.75 + 0.5850 \times 0.25 = 0.8963 \text{ tCO}_2\text{e/MWh}$$

As a consequence, the estimated annual average emission reductions of the Project are 46,530 tCO<sub>2</sub>e (=0.8963 tCO<sub>2</sub>e/MWh x 51,914.12 MWh) during the first crediting period. This is considered to be a reasonable estimation using the assumptions given by the Project.

Bureau Veritas Certification hereby confirms that:

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

### 3.9. Additionality (104)

As required by the selected methodology, the additionality of the Project has been demonstrated by applying “Tool for Demonstration and Assessment of Additionality” version 6.0.0 dated 25/11/2011 (hereinafter called “Tool-Additionality”) (Ref-No.42), “Guidance on the demonstration and assessment of prior consideration of the CDM” version 04 (EB62, Annex 13) (Ref-No.43) and the “Guidelines on the Assessment of Investment Analysis” version 05 (Ref-No.46).

#### 3.9.1. Prior consideration of the Clean Development Mechanism (112)

The timeline of the Project has been validated as in Table 3 below:

Table 3 Timeline of the Project

| Date       | Events  | Reference |
|------------|---|-----------|
| 05/2011    | The feasibility study report (FSR) of the proposed project was completed, in which the Project IRR without CDM of the proposed project was lower than the benchmark of 8%, and the CDM revenue has been considered. | Ref-No.6  |
| 26/05/2011 | Based on the conclusion of FSR, PP decided to seek CDM support to the Project.  | Ref-No.8  |
| 01/07/2011 | Emission Reductions Purchasing Agreements (ERPA) was signed between the PP and Carbon Resource Management S.A.  | Ref-No.9  |





|            |  |           |
|------------|--|-----------|
| 05/07/2011 | Inverter contract was signed (Project starting date)                                   | Ref-No.10 |
| 05/07/2011 | Solar cell module purchase contract was signed   | Ref-No.11 |
| 17/07/2011 | Mounting brackets contract was signed  | Ref-No.12 |
| 21/07/2011 | Construction contract was signed   | Ref-No.13 |
| 22/07/2011 | Start of construction  | Ref-No.14 |
| 23/11/2011 | The notification for the prior consideration of the CDM was sent to UNFCCC secretariat | Ref-No.15 |
| 27/12/2011 | The notification for the prior consideration of the CDM was sent to the China DNA      | Ref-No.16 |
| 19/04/2012 | The PDD of the project was published for global stakeholder consultation               | Ref-No.1  |

From the table above, the validation team is able to verify that the project activity start date determined as 05/07/2011 in the PDD is appropriate and is the earliest of the dates at which either the implementation or construction or real action of the Project began. This is in accordance with the latest CDM glossary (Ref-No.44).

It is a project activity with a start date after 2 August 2008, for which a PDD had not been published for global stakeholder consultation before the project activity start date. By referring to the list of prior consideration notifications from the UNFCCC website and communication between the project proponent, the secretariat (on 23/11/2011) and the host Party DNA (on 27/12/2011) regarding the commencement of a new project activity, the validation team confirms that the notifications have been provided by the project participants within 180 days of the project activity start date.

Bureau Veritas Certification hereby confirms that the proposed project activity complies with the requirements related to the prior consideration of the CDM.

### 3.9.2. Identification of Alternatives (116)

The plausible and credible alternatives to the Project were identified as per as per the “*Tool-Additionality*” Version 06.0.0 (Ref-No.42) and methodology ACM0002 Version 12.3.0 (Ref-No.40).

The alternatives available to the proposed project that provide outputs or services comparable with the proposed project activity include:



**Alternative 1:** The project activity not implemented as a CDM project;

**Alternative 2:** Continuation of the current situation, i.e. electricity delivered to the grid will continue to be generated by operation of grid-connected power plants and by the addition of new generation sources.

Bureau Veritas Certification considers the listed alternatives to be credible and complete.

### 3.9.3. Investment Analysis (123)

#### *Analysis method*

Since the Project will generate economic benefits from electricity sale other than CERs income, simple cost analysis is not applicable. Taking into consideration that the alternative to the project activity is the supply of electricity from a grid this is not to be considered an investment, a benchmark analysis is applied and considered to be appropriate.

#### *Benchmark*

The Project IRR of 8% (post-tax) sourced from the “Interim Rules on Economic Assessment of Electric Power Engineering Retrofit Projects” issued by State Power Corporation of China in 2002, was employed by the Project as benchmark (Ref-No.23). Bureau Veritas Certification has verified this benchmark and confirms that it is widely applied in the Chinese power generation industries.

The validation team considers that the type of benchmark applied is suitable for the type of financial indicator presented; it is reasonable to assume that no investment would be made at a rate of return lower than the benchmark.

#### *Data source*

The input values are taken from the approved FSR, which was compiled by North China Power Engineering Co.,Ltd (Ref-No.6) (Ref-No.7). The validation team confirms that the values used in the PDD and associated annexes are fully consistent with the FSR.

The FSR was finalized on 05/2011. Based on the conclusion of the FSR, the PP decided to proceed with the Project on 26/05/2011 with the consideration of CDM revenues (Ref-No.8). Given the short period of time between the FSR and the decision to proceed with the Project, Bureau Veritas Certification was therefore confident that it is unlikely in the context of the underlying Project that the input values would have materially changed, which is in line with the report **Para. (a) 122/VVS**.

In accordance with **Para. (b) 122/VVS**, Bureau Veritas Certification has compared the input values of IRR calculation in financial analysis in the PDD and the FSR, and confirms that all the input parameters used in the financial analysis are consistent with the approved FSR.

#### *Input values*

With regard to **Para. (c) 122/VVS**, Bureau Veritas Certification has reviewed the Project IRR calculation sheet and cross-checked the major input values using local knowledge as well as sectoral and financial expertise and confirms that:





- The **operation period** of 25 years was selected reasonably following the requirements of “Interim Rules on Economic Assessment of Electric Power Engineering Retrofit Projects” (Ref-No.23)
- The **residual value rate** of 5% was in compliance with relevant regulation in China, i.e. Enterprise Income Tax Law Implementation Regulations of People's Republic of China (The People's Republic of China State Council Order No. 512) (Ref-No.24).
- The **total static investment** in the approved FSR is 549.8525 million RMB and unit investment is circa 18,223 RMB/kW
- Bureau Veritas Certification has checked the basic input values of the registered CDM solar PV projects located in Qinghai Province available on the UNFCCC website to assess the Project.

**Table 3 – Input Values of registered CDM PV solar projects located in Qinghai Province**

| Project Name  | CDM Ref. No. | Installed Capacity (MW) | Unit investment (RMB/kW) | PLF (%)     |
|---|--------------|-------------------------|--------------------------|-------------|
| Qinghai Golmud 20MWP (Phase I) Photovoltaic Power Generation Project                  | 5148         | 20.24                   | 17,178                   | 17.9        |
| Qinghai Golmud Solar Power Project  | 5379         | 20.160934               | 19,337                   | 18.8        |
| Huaneng Geermu Solar Power Generation Project   | 5628         | 20                      | 20,242                   | 19.1        |
| CGN Qinghai Xitieshan Phase I 10MW Grid-connected Solar PV Power Generation Project   | 5763         | 10                      | N.A.                     | 18.6        |
| CGN Qinghai Xitieshan Phase II 30MWp Grid-connected Solar PV Power Generation Project | 5952         | 30                      | 22,180                   | 19.1        |
| SDIC Qinghai Golmud 30MWP (Phase II) Photovoltaic Power Generation Project            | 6091         | 30.644                  | 21,857                   | 19.9        |
| Qinghai Golmud Phase II Solar Power Project   | 6289         | 30.456                  | 19,873                   | 19.5        |
| Huaneng Geermu Phase II Solar Power Generation Project                                | 6414         | 30                      | 16,621                   | 18.9        |
|   |              |                         |                          |             |
| <b>MAX</b>  | -            | -                       | <b>22,180</b>            | <b>19.9</b> |
| <b>MIN</b>  | -            | -                       | <b>16,621</b>            | <b>17.9</b> |
|   |              |                         |                          |             |
| <b>The Project</b>  | <b>N.A.</b>  | <b>30.174</b>           | <b>18,223</b>            | <b>18.2</b> |

- As it can be noticed from the above table, the unit of total static investment for registered CDM PV projects in Qinghai province spans from a maximum of 22,180 RMB/kW to a minimum of 16,621RMB/kW. The unit total static investment of the Project is circa 18,223RMB/kW and falls in this range.
- Bureau Veritas Certification has crosschecked the estimated total static investment against the main signed contracts for the project (construction, solar cells, inverters and



mounting brackets – Ref-No.10, Ref-No.11, Ref-No.12, Ref-No.13) and verified that these equal to circa 478,612,000RMB which represents 87.04% of the total static investment determined in the approved FSR.

Taking into consideration that the financial closure of the project is not yet available and the above analysis the validation Team considers the value assumed in the FSR reliable and appropriate.

- The **tariff** used in the PDD is taken from the government approved FSR which was completed by an accredited third party in May 2011.
  - The tariff of 1.15 RMB/kWh (incl. VAT) in the FSR was sourced from the only public available tariff approval - *Fa Gai Jia Ge [2010] No. 653* issued by NDRC on 02/04/2010 (Ref-No.26) - where the tariff of four solar projects\* developed in Ningxia Hui Autonomous Region, nearby the project location, was approved at 1.15 RMB/kWh (incl. VAT).
  - After it, on 24/07/2011 the tariff of the PV solar projects in China was unified and officially determined by NDRC throughout document *Fa Gai Jia Ge [2011] No. 1594* (Ref-No.25). As per document the tariff of 1.15 RMB/kWh (incl. VAT) will be assigned to projects approved before 01/07/2011 and which have started commissioning before 31/12/2011. All other solar projects, excluding those in Tibet, will receive a feed-in tariff of 1.00 RMB/kWh (incl. VAT).
  - Hence, in accordance with the tariff notification *Fa Gai Jia Ge [2011] No. 1594*, the highest tariff obtainable by the Project is 1.15 RMB/kWh (incl. VAT). This is in line with the tariff used in the approved FSR and IRR calculations.

Therefore, Bureau Veritas Certification is of the opinion that the tariff employed in FSR, PDD and IRR is valid and applicable to the Project at the time of investment decision.

- The **generation/plant load factor** of the Project was determined by a qualified third party contracted with the PP based on the latest 31 years historical local solar radiation data (from 1978 to 2008) using professional software.
  - The plant load factor of 18.2% was determined based on the information from the FSR, which was developed by an accredited third party (North China Power Engineering Co., LTD) contracted with the PP and approved by Qinghai Province Development and Reform Commission. This value was determined also taking into account a 20% degeneration factor over the 25 years operation period. The decrease is caused by the deterioration of the solar modules which due to time, use and high temperatures see their efficiency diminishing. This is consistent with what reported in the 'Solar Energy Technology Multi Year Program Plan' 2007-2011 issued by the U.S. Department of Energy. According to the report "most crystalline-silicon manufacturers offer warranties of 25 years, typically guaranteeing that the power output of the module will not decrease by more than 20% over this period" (Ref-No.27). Therefore, Bureau Veritas Certification confirms that the plant load factor determined in the FSR complies with the requirement of "Guidelines for the Reporting and Validation of Plant Load Factors version 01" (EB48,

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\* 1. CECIC Taiyangshan Grid-connected Solar PV Power Generation Phase I project, 2. CECIC Shizuishan Grid-connected Solar PV Power Generation Phase I project, 3. Ningxia Taiyangshan Phase I 10MWp Solar Photovoltaic Power Project 4. Huadian Ningxia Ningdong 10MWp Solar PV Power Station Project, all applying CDM



annex 11) (Ref-No.45). In addition, even not considering the 20% degeneration over 25 years, the IRR of the project would still be below the 8% benchmark

- Lastly, Bureau Veritas Certification has also checked the plant load factor of all registered CDM solar projects in Qinghai Province and found that plant load factor varies from 17.9% to 19.9% (Refer to Table 3). The PLF of the Project is 18.2%, falls in the range and is verified to be appropriate.
- Bureau Veritas Certification confirms that the **annual O&M costs** include the staff cost, material and maintenance costs, insurance fee and miscellaneous costs which was studied based on “Economic Evaluation Method and Parameters for Project Construction” (version 3) (Ref-No.28).
  - Each individual item of O&M cost is computed using input values from the approved FSR. Bureau Veritas Certification has checked the calculation and found it correct. It has also been demonstrated that the application of two different maintenance rates for the first ten years of operation (0.5% of dynamic investment excluding equipment VAT) and from year 11 to year 25 (1% of dynamic investment excluding equipment VAT), is in accordance with section 4, page 96 of Economic Evaluation Method and Parameters for Project Construction (version 3) (Ref-No.28) for China which specifies that the maintenance rate can be adjusted discontinuously from lower value to higher value for the impairment of the equipment. Bureau Veritas Certification has checked the calculation and found it correct. In addition, Bureau Veritas Certification verified that, even employing the fixed maintenance rate of 0.5% of dynamic investment excluding equipment VAT for all the assessment period, the post-tax project IRR does not cross the benchmark.
  - In addition, according to “Technology data for Energy plants” published in June 2010 by the Danish Energy Agency (Ref-No.47), the O&M costs of solar PV projects are circa 32€/MWh. The O&M costs of the project are 157.29RMB/MWh, circa 20€/MWh, lower than 32€/MWh and hence conservative. As a matter of facts lower O&M costs infer lower costs, and in turn higher profits and a higher IRR.
  - Hence Bureau Veritas Certification confirms that O&M costs input values and calculations are correct and appropriate.
- A post-tax benchmark is applied for the investment analysis of the Project. Bureau Veritas Certification has checked the IRR calculation sheet and confirms that the interest has been taken into account in the calculation of income tax. The **loan value** has been verified to be equal to 80% of the total static investment in the FSR (439,882,000RMB) in accordance with the loan commitment letter signed between the PP and Bank of China (Ref-No.17). Concerning the loan **interest rates**, it is 6.80% for long-term loan interest rate and 6.31% for short-term loan interest rate in the approved FSR, in line with national short and long term loan interest valid at the time of FSR finalization and investment decision (Ref-No.29). In addition, Bureau Veritas Certification crosschecked the interest rates used in the IRR calculations with those currently available in China and verified that the interest rate for long-term loans is 6.55% while for short-term loans is 6.00% as per latest interest rates issued by Bank of China in July 2012 (Ref-No.30). By applying these long and short loan interest rates the IRR results lower, and thus less conservative, than the one using the data from the approved FSR available at the time of the investment decision. Hence the values used in the IRR calculations sourced from the FSR are considered correct and appropriate.



- Bureau Veritas Certification has checked the IRR calculation sheet (Ref-No.18) and confirms that **depreciation** has been deducted in estimating gross profits on which tax is calculated, and added back to net profits for the purpose of calculating the financial indicator. The depreciation period of 19 years is in line with the national regulation which requires that the depreciation should be larger than 10 years (Ref-No.31). Bureau Veritas Certification confirms that the depreciation calculated complies with “Economic Evaluation Method and Parameters for Project Construction” (version 3) (Ref-No.28).
- Bureau Veritas Certification has also verified values of various **taxes** through crosschecking against the taxation rules conducted by local government and found to be fully consistent.
  - The income tax of 25% complies with Enterprise Income Tax Law of China which is effective from 01/01/2008. (Ref-No.31).
  - As to the VAT

On 09/12/2008, Ministry of Finance and the State Administration of Taxation issued the Notice of Value Added Tax Policy Regarding Products Using Certain Synthesized Resources and Other Products (Cai Shui [2008]156) (Ref-No.32).

Subsequently the Ministry of Finance and the State Administration of Taxation issued the Notice about Implementation of VAT Reform in the Whole Country (Cai Shui [2008]170) on 19/12/2008, which entered into effect on 01/01/2009 (Ref-No.33).

According to Cai Shui [2008]156 and Cai Shui [2008]170, for PV projects, the VAT is calculated at 17% and the input VAT of newly purchased equipments can be deducted from the output VAT of sales of the electricity. This calculation is fully consistent with the approved FSR (Ref-No.6) and the regulations above.
  - The education tax of 4% complies with the Interim Regulation on Education Tax (Ref-No.33), and the city build tax of 5% for enterprises complies with the Provisional Rules for City Construction Surtax (Ref-No.34).

### ***Indicator Calculation***

Based on the input values from the FSR that are valid and applicable at the time of investment decision, the project IRR (post-tax) of the Project without CDM revenues is 6.05%, lower than the benchmark, which shows that the Project is not financially attractive in the absence of CDM benefits.

The validation team has reviewed the IRR calculation spreadsheet (Ref-No.18) and confirms that the calculation and presentation is consistent with the “Guidelines on the assessment of investment analysis” version 05. The data sources as well as the analysis approach is reliable and in accordance with local accounting regulations or international best practice.

### ***Sensitivity Analysis***

Variables including the initial investment cost, that constitute more than 20% of either total project costs or total project revenues were taken as uncertainty factors for sensitive analysis to determine under what conditions variations in the result would occur, and the likelihood of these condition:



Four financial parameters were taken as uncertain factors for sensitive analysis of financial attractiveness:

- Total Static Investment
- Tariff (incl. VAT)
- Generation/Plant Load Factor
- O&M costs

According to "Code on compiling feasibility study report of wind power projects" published by NDRC (Ref-No.38), total static investment, O&M costs, electricity generation (PLF) and tariff should be taken as uncertain factors to do sensitivity analysis, and  $\pm 10\%$  variation of above factors shall be considered in the sensitivity analysis. In the IRR calculations the key parameters are correctly subjected to the range of  $\pm 10\%$  variations in the sensitivity analysis independently of each other, "ceteris paribus", i.e. all other things remaining equal, in line with normal practice in financial analysis. Therefore when the investment is varied by  $\pm 10\%$ , this affects investment and depreciation, but not the estimated O&M costs which remain as per the FSR estimated value.

Bureau Veritas Certification confirms that the variables and the  $\pm 10\%$  variations performed for sensitivity analysis is deemed to be appropriate for the Project, and the IRR of the Project does not reach the benchmark under these variations.

- With a decrease in total static investment by 15.9%, the Project IRR may reach 8%. However, it has been verified that the total value of already signed contracts of main equipments and construction related (construction, solar cells, inverters and mounting brackets – Ref-No.10, Ref-No.11, Ref-No.12, Ref-No.13) accounts for 87.04% of total static investment estimated by the approved FSR. Thus, Bureau Veritas Certification confirms that the static investment won't decrease by 15.9%.
- With an increase in tariff (incl. VAT) by 17.6%, the Project IRR will reach 8%. However, in accordance with the tariff notification *Fa Gai Jia Ge [2011] No. 1594* issued by NDRC on 24/07/2011, the highest tariff obtainable by the project is 1.15 RMB/kWh (incl. VAT). This is in line with the tariff used in the approved FSR and IRR calculations. Therefore, Bureau Veritas Certification concludes that it is unlikely that the tariff could increase to make IRR reach benchmark of 8%.
- With an increase by 17.6% in Generation/Plant Load Factor, the project IRR will reach the benchmark. By checking the FSR, the electricity generation of the Project is based on local historical solar resource data (from 1978 to 2008) and determined by a qualified third party contracted with the PP. Therefore, Bureau Veritas Certification confirms that it is unlikely that the annual Power delivered to the grid could increase by 17.6% during the whole life of the Project.
- The O&M cost comprises staff cost, material and maintenance costs, insurance fee and miscellaneous costs. All of these costs are determined by a qualified third-party entity based on long-term operational experience. Even if O&M cost would decrease to 0 (zero) the IRR of the Project would still be below the benchmark.

The validation team considers that the range of variations is reasonable in the project context. The analysis provided a cross-check on the suitability of the assumptions used in the development of the investment analysis. The conclusion that the project activity is unlikely to be financially/economically attractive is robust to reasonable variations in the critical assumptions.





Bureau Veritas Certification hereby confirms that the underlying assumptions regarding investment analysis are appropriate and the financial calculations are correct.

### 3.9.4.Barrier Analysis (127)

The PP has not used the barrier analysis to demonstrate the additionality of the Project.

### 3.9.5.Common Practice Analysis (130)

The Common practice analysis was addressed as per Step 4 of “Tool-Additionality” and latest rules issued by EB.

In line with the “Tool for the Demonstration and Assessment of Additionality” version 06.0.0, the measure of the Project has been verified to belong to measure (b) “Switch of technology with or without change of energy source (including energy efficiency improvement as well as use of renewable energies)”. Thus, the common practice analysis has been identified and discussed through the following steps:

**Step 1: Calculate applicable output range as +/-50% of the design output or capacity of the proposed project activity.**

The total installed capacity of the Project is 30.174MW, therefore the applicable output range is from 15.087MWp to 45.261MWp.

**Step 2: In the applicable geographical area, identify all plants that deliver the same output or capacity, within the applicable output range calculate 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 project activities undergoing validation shall not be included in this step.**

The policies and regulations are made normally at province basis in China. Projects located in different provinces of China don't have the same solar resources, grid structure, geological and transportation conditions and economic development. Therefore the applicable geographical area is defined as the province where the Project is located in. For the Project, Qinghai Province is defined as the applicable geographical area.

In addition, considering that the starting date of the Project was 05/07/2011; the common practice analysis covers all plants delivering the same output or capacity, within the applicable output range calculated in above Step 1 which started commercial operation before 05/07/2011.

$$N_{all} = N_{all,PV} + N_{all,other}$$

Where

$N_{all}$  is all plants within the applicable output range and applicable geographical area, which started the commercial operation before the starting date of the Project (05/07/2011);

$N_{all,PV}$  is the number of all PV projects within the applicable output range and applicable geographical area, which started the commercial operation before the starting date of the Project (05/07/2011);

$N_{all,other}$  is the number of all non-PV plants within the applicable output range and applicable geographical area, which started the commercial operation before the starting date of the Project (05/07/2011).

Bureau Veritas Certification has checked the public available sources (Ref-No.36), information on UNFCCC website and VCS databases and information on the NDRC website (Ref-No.37)



and found that all PV projects developed in Qinghai Province which satisfies the above requirements (i.e. installed capacity between 15.087MWp to 45.261MWp, and started the commercial operation before the starting date of the Project) have been registered as CDM or are undergoing the CDM validation procedures.

Hence,  $N_{all,PV}=0$

Therefore  $N_{all} = N_{all,PV} + N_{all,other} = 0 + N_{all,other} = N_{all,other}$

**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  $N_{diff}$ .**

$N_{diff} = N_{diff,PV} + N_{diff,other}$

Where

$N_{diff}$ : Number of all plants within the applicable output range and applicable geographical area, which started the commercial operation before the starting date of the Proposed Project Activity (05/07/2011), that apply technologies different with the technology applied in the proposed project activity;

$N_{diff,PV}$ : Number of solar PV projects within the applicable output range and applicable geographical area, which started the commercial operation before the starting date of the Proposed Project Activity (05/07/2011), that apply technologies different with the technology applied in the proposed project activity;

$N_{diff,other}$ : Number of all projects that are included in  $N_{diff}$  but not included in  $N_{diff,PV}$ .

Since in Sub-step 2 it was verified that  $N_{all,PV} = 0$ ,

As a consequence  $N_{diff,PV} = 0$ .

Therefore  $N_{diff} = N_{diff,PV} + N_{diff,other} = 0 + N_{diff,other} = N_{diff,other} = N_{all,other} = N_{all}$

**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.**

Considering that  $N_{all} = N_{diff}$ ,

$F=1-(N_{diff}/N_{all}) = 1 - 1 = 0$ ;

#### Conclusion:

According to the "Tool for the Demonstration and Assessment of Additionality" (version 06.0.0), if the factor F is greater than 0.2 and  $N_{all}-N_{diff}$  is greater than 3, then the proposed project activity is a "common practice".

Since  $F=0$  and  $N_{all} - N_{diff} = 0$ , Bureau Veritas Certification hereby confirms that the proposed CDM project activity is not common practice.

In conclusion, as demonstrated in accordance with "Tool for Demonstration and Assessment of Additionality" version 6.0.0 dated 25/11/2011, the proposed CDM project activity is additional.



### 3.10. Monitoring Plan (133)

The Project uses the approved consolidated monitoring methodology ACM0002 Version 12.3.0.

Applicability of this methodology is justified in the PDD as it involves grid connected renewable power generation using solar energy. Referring to the discussions on the applicability of the methodology in section 3.8.1 above, the validation team considers that the selected monitoring methodology is applicable to the Project.

#### ***Data and Parameters Monitored***

The combined margin emission factor is determined ex-ante based on the most recent information available. According to the applied methodology ACM0002 Version 12.3.0 – “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” and considering the project type, the parameters to be monitored is  $EG_{\text{facility},y}$  (the quantity of net electricity generation supplied by the project plant/unit to the grid in year y)

$EG_{\text{facility},y}$  will be calculated as the quantity of electricity supplied by the project/plant to the grid minus the quantity of electricity delivered to the project plant/unit from the grid. Two meters (one main meter, one backup meter) installed at the onsite substation will continuously measure and at least monthly record the quantity of electricity supplied by the project/plant to the grid and the quantity of electricity delivered to the project plant/unit from the grid.

Both meters are expected to be calibrated annually with an accuracy of at least 0.5s. Readings will be checked against the records for sold electricity.

The validation team considers that the description of the monitoring plan contains all necessary parameters, that they are described and that the means of monitoring described in the plan complies with the requirements of the methodology including applicable tool(s).

#### ***Implementation of the Monitoring Plan***

Operational management for the project activity is comprehensively detailed in PDD and this includes description of the responsibility, training, quality control, reporting and record management, calibration& installation specifications and procedures.

By means of review of the documented procedures, interviews with relevant personnel, project plans and physical inspection of the proposed project activity site, the validation team considers that the means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, are sufficient to ensure that the emission reductions achieved by/resulting from the proposed project activity can be reported ex post and verified.

Bureau Veritas Certification hereby confirms that the monitoring plan complies with the requirements of the methodology including applicable tool(s), the monitoring arrangements described in the monitoring plan are feasible within the project design and the project participants are able to implement the described monitoring plan.





### **3.11. Environmental Impacts (137)**

In accordance with Chinese regulations, the project participants conducted an analysis of the environmental impacts of the proposed project activity, including transboundary impacts on the basis of the Environmental Impact Assessment carried out by Qinghai Academy of Environmental Science in May 2011 (Ref-No.19) and approved by the Qinghai Province Environmental Protection Bureau in June 2011 (Ref-No.20) as required by the host Party.

The environmental impacts caused by the Project have been identified and analyzed in the PDD. By checking the EIA report and its approval, Bureau Veritas Certification is able to ensure that the environment impact is caused by waste water, noise, dust, solid waste. All above impacts would be controlled within an acceptable limit by implementing corresponding mitigation measures as per the statement of the EIA. The impacts mentioned above were insignificant according to the conclusion of the EIA.

Bureau Veritas Certification hereby confirms that the project participants have undertaken an analysis of environmental impacts and an environmental impact assessment in accordance with procedures as required by the host Party.

### **3.12. Local Stakeholder Consultation (140)**

The project participants have completed a local stakeholder consultation process and due steps were taken to engage stakeholders and solicit comments for the proposed project activity.

Prior to the publication of the PDD on the UNFCCC website, the PP conducted a survey on local stakeholders in May 2011. Totally 50 copies of questionnaires were distributed and all of them had been returned (Ref-No.21).

During the on-site visit, Bureau Veritas Certification has conducted interviews with local stakeholders and confirms that the stakeholders affected had been invited in a transparent manner. The interviews with stakeholders and review of returned questionnaires shows that the summary of the comments received has been completely provided in the PDD and due account of the comments has been described in the PDD. It has been verified that the local stakeholders are supportive of the proposed project activity, and there have been no comments to be taken in account that could affect the project design.

Bureau Veritas Certification hereby confirms that comments that are relevant for the proposed project activity have been invited from local stakeholders, the summary of the comments received as provided in the PDD is complete, the project participants have taken due account of all comments received and have described this process in the PDD.

## **4. COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS**

The PDD using methodology ACM0002 Version 12.3.0 – “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” was web-hosted on the UNFCCC for global stakeholders’ comments as per CDM requirements. The project was web-hosted from 19/04/2012 to 18/05/2012.

No comments were received during this period.



## 5. VALIDATION OPINION

Bureau Veritas Certification has performed a validation of the Qinghai Delingha Xiehe Solar PV Power Generation Project, which is located in Delingha City, Qinghai Province, People's Republic of China. The validation was performed on the basis of UNFCCC criteria for the CDM, and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The validation consisted of the following three phases: i) desk review of the project design document and additional background documents; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final validation report and opinion.

The project correctly applies the approved consolidated baseline and monitoring methodology ACM0002 Version 12.3.0 and uses the latest tool for demonstration of the additionality.

By installing a new PV power plant, the project is likely to result in reductions of GHG emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

Given that the project is implemented and maintained as designed, the project is likely to achieve the estimated annual average emission reductions of 46,530tCO<sub>2</sub>e during the seven years of its first renewable crediting period.

The review of the project design documentation and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM and the relevant host country criteria. Bureau Veritas Certification thus requests registration of the project as a CDM project activity.

Mr. Peter Huang Qin  
Internal Technical Reviewer  
08/10/2012

Mr. Gabriele Limonta  
Team Leader  
08/10/2012



## 6. REFERENCES

### Category 1 Documents:

Documents provided by project participants that relate directly to the GHG components of the project.

- /1/ PDD version 1.0 dated 16/04/2012 and web-hosted on 19/04/2012  
(<http://cdm.unfccc.int/Projects/Validation/DB/L4ZIBGVVZJTAEBPHML64ZHRPI6EWJ4/view.html>)
- /2/ PDD version 1.1 dated 15/09/2012
- /3/ Letter of Approval from DNA of China (Host country) dated April 2012 (Ref-No.3951)
- /4/ Letter of Approval from DNA of United Kingdom of Great Britain and Northern Ireland (Annex I party) (Ref-No.EA/CRMSA/32/2012) dated 27/06/2012
- /5/ Modalities of Communication Form dated 28/08/2012 signed by Delingha Xiehe Solar PV Power Generation Co., Ltd and Carbon Resource Management S.A., written confirmation signed by Ms. Li Ying, project manager of Carbon Resource Management S.A. on 29/08/2012 and letter issued by the project participants confirming that Ms. Li Ying is duly authorized to act on their behalf
- /6/ Feasibility Study Report (FSR) conducted by North China Power Engineering Co., LTD and finalized in May 2011
- /7/ The FSR approval issued by Qinghai Province Development and Reform Commission on 28/06/2011
- /8/ PP's Board Meeting Minutes of the investment decision made on 26/05/2011
- /9/ Emission Reductions Purchasing Agreements (ERPA) signed between the PP and Carbon Resource Management S.A. on 01/07/2011
- /10/ Inverter purchasing contract signed on 05/07/2011
- /11/ Solar cell module purchasing contract was signed on 05/07/2011
- /12/ Mounting brackets contract was signed on 17/07/2011
- /13/ Construction contract for the project was signed on 21/07/2011
- /14/ Notification on the start of construction on 22/07/2011
- /15/ The notification for the prior consideration of the CDM sent to UNFCCC secretariat on 23/11/2011
- /16/ The notification for the prior consideration of the CDM sent to the China DNA on 27/12/2011
- /17/ Loan commitment letter signed between the PP and the Bank of China
- /18/ IRR calculation sheet and ER&EF calculation sheet
- /19/ Environmental Impact Assessment carried out by Qinghai Academy of Environmental Science on 05/2011
- /20/ Environmental Impact Assessment carried out by Qinghai Academy of Environmental Science approved by the Qinghai Province Environmental Protection Bureau on 06/2011
- /21/ 50 pieces of stakeholder survey questionnaires

### Category 2 Documents:

Background documents related to the design and/or methodologies employed in the design or other reference documents used for cross-check.



- /22/ 2011 Baseline Emission Factor for Regional Power Grids in China dated 20/10/2011.  
<http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File2720.pdf>
- /23/ "Interim Rules on Economic Assessment of Electric Engineering Retrofit Projects" issued by the State Power Cooperation in 2002
- /24/ Enterprise Income Tax Law Implementation Regulations of People's Republic of China issued by The People's Republic of China State Council, document code: Order No. 512
- /25/ Fa Gai Jia Ge [2011] No. 1594 issued by NDRC on 24/07/2011  
[http://www.sdpc.gov.cn/zcfb/zcfbtz/2011tz/t20110801\\_426501.htm](http://www.sdpc.gov.cn/zcfb/zcfbtz/2011tz/t20110801_426501.htm)
- /26/ Fa Gai Jia Ge [2010] No. 653 issued by NDRC on 02/04/2010  
[http://www.gov.cn/zwgk/2010-04/09/content\\_1577214.htm](http://www.gov.cn/zwgk/2010-04/09/content_1577214.htm)
- /27/ 'Solar Energy Technology Multi Year Program Plan' 2007-2011 issued by the U.S. Department of Energy
- /28/ "Economic Evaluation Method and Parameters for Project Construction" (version 3)
- /29/ [http://www.boc.cn/finadata/lilv/fd32/201104/t20110405\\_1347156.html](http://www.boc.cn/finadata/lilv/fd32/201104/t20110405_1347156.html)
- /30/ [http://www.boc.cn/finadata/lilv/fd32/201207/t20120705\\_1887041.html](http://www.boc.cn/finadata/lilv/fd32/201207/t20120705_1887041.html)
- /31/ Enterprise Income Tax Law of P.R. China
- /32/ Notice of Value added Tax Policy Regarding Products Using Certain Synthesized Resources ([2008]156) released by State Administration of Taxation on Dec 9th, 2008
- /33/ Issues regarding National Value-added Tax Reform and Transition ([2008]170) released by State Administration of Taxation in Dec. 2008  
<http://www.chinatax.gov.cn/n8136506/n8136593/n8137537/n8138502/874503.html>
- /34/ State Council Decision of Modifying the Interim Regulation of the People's Republic of China on surtax for education expenses, brought into effect from 1 October 2005, published on 20 August 2005
- /35/ <http://www.qh.gov.cn/system/2011/08/02/010427694.shtml>
- /36/ <http://www.qhfgw.gov.cn/>
- /37/ <http://cdm.ccchina.gov.cn/web/index.asp>
- /38/ "Code on compiling feasibility study report of wind power projects" published by NDRC
- /39/ Version 02.0 of the Clean Development Mechanism Validation and Verification Standard, issued by CDM Executive Board at its 65<sup>th</sup> meeting on 25/11/2011
- /40/ ACM0002 version 12.3.0 "Consolidated Baseline Methodology for Grid-Connected Electricity Generation from Renewable Sources" valid from 02/03/2012
- /41/ Tool to calculate the emission factor for an electricity system version 02.2.1 dated 29/09/2011
- /42/ Tool for demonstration and assessment of additionality version 06.0.0 dated 25/11/2011
- /43/ Guidelines on the demonstration and assessment of prior consideration of the CDM version 04 (EB62, Annex 13)
- /44/ Glossary of CDM terms version 06
- /45/ Guidelines for the Reporting and Validation of Plant Load Factors version 01 (EB48, Annex11)
- /46/ Guidelines on the Assessment of Investment Analysis version 05 (EB62, Annex5)
- /47/ "Technology data for Energy plants" published in June 2010 by the Danish Energy Agency available at <http://www.ens.dk/Documents/Netboghandel%20->



%20publikationer/2010/Technology\_data\_for\_energy\_plants.pdf

**Persons interviewed:**

Persons interviewed during the validation or persons that contributed with other information that are not included in the documents listed above.

Delingha Xiehe Solar PV Power Generation Co., Ltd

- |     |                                 |                                 |
|-----|---------------------------------|---------------------------------|
| /1/ | Mr. Zhang Hui                   | Vice President                  |
| /2/ | Ms. Guo Ting                    | Development Department Director |
| /3/ | Mr. Du Shu Yao                  | Assistant of General Manager    |
| /4/ | Mr. Zhou Manman                 | Assistant                       |
|     | Carbon Resource Management S.A. |                                 |
| /5/ | Ms. Li Ying                     | Project Manager                 |
|     | Local Stakeholder               |                                 |
| /6/ | Mr. Zhouma Cuo                  | Resident of Delingha City       |
| /7/ | Mr. Li Lie Ren                  | Resident of Delingha City       |



## 7. CURRICULA VITAE OF THE DOE'S VALIDATION TEAM MEMBERS

|                      |  |   |
|----------------------|--|---|
| Mr. Gabriele Limonta | Bureau Veritas<br>Certification, China | Team Leader, Climate Change Lead Verifier,<br>He holds a Master Degree in International Business and Management from Manchester Business School where He graduated with a thesis on the effects of carbon prices on technology transfer through CDM projects in China and India. Before joining BV in January 2010, He gained working experience in the financial industry. He has obtained the certificates of CDM Verifier and ISO 14064:2006 Lead Auditor. |
| Mr. Peter Huang Qin  | Bureau Veritas<br>Certification, China | Technical Reviewer, Climate Change Lead Verifier.<br>He holds a Master Degree in Industrial Ecology. Before joining BV in Jan 2010, he gained almost two years of CDM audit experience and two years of technical experience in power industry. He obtained the certificate of GHG Auditor, Lead Auditor for EMS ISO 14001 and has successfully completed the course assessment for ISO 14064:2006.   |



## Appendix A: LARGE SCALE PROJECT ACTIVITIES VALIDATION PROTOCOL

**Table 1** Validation requirements based on VVS version 02.0 (EB 65 Annex 4), PS version 01.0 (EB 65 Annex 5), PCP version 02.0 (EB 66 Annex 64), and Guidelines for completing the PDD form version 01.0 (EB 66 Annex 8)

| CHECKLIST QUESTION   | Ref. | § | COMMENTS  | Draft<br>Concl | Final<br>Concl |
|--|------|---|---|----------------|----------------|
| <b>Part I Cover Page</b>   |      |   |   |                |                |
| (a) Is the title of the project activity provided?                               | PDD  | - | Yes.<br>Qinghai Delingha Xiehe Solar PV Power Generation Project                              | OK             | OK             |
| (b) Is the version number of the PDD indicated?                                  | PDD  | - | Yes.<br>Version 1.1   | OK             | OK             |
| (c) Is the completion date of the PDD provided in DD/MM/YYYY format?             | PDD  | - | Yes.<br>15/09/2012  | OK             | OK             |
| (d) Are project participants indicated?  | PDD  | - | Yes.<br>Delingha Xiehe Solar PV Power Generation Co., Ltd;<br>Carbon Resource Management S.A. | OK             | OK             |
| (e) Is the host party(ies) indicated?  | PDD  | - | Yes.<br>People's Republic of China  | OK             | OK             |
| (f) Is the sectoral scope and selected methodology(ies) indicated?               | PDD  | - | Sectoral Scope 01 Energy Industry<br>Methodology ACM0002                                      | OK             | OK             |
| (g) Is the estimated amount of annual average GHG emission reductions indicated? | PDD  | - | Yes.<br>46,530tCO <sub>2</sub> e  | OK             | OK             |
| <b>Part II PDD</b>   |      |   |   |                |                |
| <b>A. Description of project activity</b>  |      |   |   |                |                |
| <b>A.1 Purpose and general description of project</b>                            |      |   |   |                |                |

## VALIDATION REPORT

| CHECKLIST QUESTION  | Ref.      | §          | COMMENTS  | Draft<br>Concl | Final<br>Concl |
|---|-----------|------------|---|----------------|----------------|
| <b>activity</b>   |           |            |   |                |                |
| A.1.1 Is a brief description of the project activity provided, including a summary of the scope of activities/ measures that are to be implemented within the project activity? | PDD<br>PS | -<br>31(b) | <p><del>CAR 1</del><br/> <del>In the PDD section A.1 the reported installed capacity and electricity generation of the Project are not correctly specified. As a matter of facts, as per verified FSR and onsite installation, the precise total installed capacity of the Project is 30.174MWp while the 25 years average electricity generation is 48,084.39 MWh. Relative information needs to be revised appropriately.</del></p> <p>The correct installed capacity and electricity generation of the Project, consistent with the values of the approved FSR, have been verified to be properly reported in version 1.1 of the PDD. Information contained in the PDD is correct.</p> <p>CAR 1 closed</p> <p>The Proposed Project Activity will install and operate 128,400 solar cell modules with a capacity of 235 Wp each. Therefore, the project scenario is the installation of 30.174 MWp of renewable energy power generation capacity, and the supply to the Grid of</p> | CAR-1          | OK             |





| CHECKLIST QUESTION  | Ref. | §     | COMMENTS  | Draft<br>Concl | Final<br>Concl |
|---|------|-------|---|----------------|----------------|
|   |      |       | 48,084.39 MWh (average value for the 25 operational years) of electricity generated from renewable energy   |                |                |
| A.1.2 Is the scenario existing prior to the start of project and baseline scenario indicated?   | PDD  | -     | Yes.<br>The baseline scenario, which is the same of the scenario existing prior to the start of project, is 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" | OK             | OK             |
| A.1.3 Does it explain how the project activity will reduce GHG emissions or increase GHG removals?  | PS   | 31(c) | Yes.  | OK             | OK             |
| A.1.4 Is the estimated of annual average and total GHG emission reductions for the chosen crediting period provided?  | PDD  | -     | Yes.<br>46,530tCO <sub>2</sub> e per year   | OK             | OK             |
| A.1.5 Is a brief description of how the project activity contributes to sustainable development provided?   | PDD  | -     | Yes.<br>The description provided in section A.1 has been verified by checking the FSR, EIA and project approval.  | OK             | OK             |
| A.1.6 In order to determine whether the description of the proposed project activity in the PDD is accurate, complete, and provides an understanding of the proposed CDM project activity, does the DOE | VVS  | 65    | Yes.<br>On 30/05/2012 Gabriele Limonta, Climate Change Lead Verifier of Bureau Veritas Certification conducted a physical onsite visit  | OK             | OK             |

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| CHECKLIST QUESTION   | Ref. | §  | COMMENTS   | Draft<br>Concl | Final<br>Concl |  |
|--|------|----|--|----------------|----------------|--|
| conducted a physical site visit to assess the Project? If not, please justify.   |      |    | of the project activity and interview with the below listed personnel: |                |                |  |
|  |      |    | Mr. Zhang Hui  |                |                | Vice President of the PP                           |
|  |      |    | Ms. Guo Ting   |                |                | Development Department Director of the PP          |
|  |      |    | Mr. Du Shu Yao   |                |                | Assistant of General Manager of the PP             |
|  |      |    | Mr. Zhou Manman  |                |                | Assistant of the PP                                |
|  |      |    | Mr. Zhouma Cuo   |                |                | Local Stakeholder                                  |
|  |      |    | Mr. Li Lie Ren   |                |                | Local Stakeholder                                  |
|  |      |    | Ms. Li Ying  |                |                | Project Manager of Carbon Resource Management S.A. |
| A.1.7 For all other proposed CDM project activities not referred to in VVS paragraphs 65-66, does the DOE undertaken the validation of project description by reviewing available designs and feasibility studies and should conduct comparison analysis with equivalent projects, as appropriate. | VVS  | 67 | N.A.   | OK             | OK             |  |
| A.1.8 If the proposed CDM project activity involves the  | VVS  | 68 | N.A.   | OK             | OK             |  |



| CHECKLIST QUESTION   | Ref. | § | COMMENTS   | Draft<br>Concl | Final<br>Concl |
|--|------|---|--|----------------|----------------|
| alteration of an existing installation or process, does the project description state the differences resulting from the project activity compared to the pre-project situation? |      |   |  |                |                |
| <b>A.2 Location of project activity</b>  |      |   |  |                |                |
| A.2.1 Is the host party(ies) indicated?  | PDD  | - | Yes.<br>The Host Party is the People's Republic of China   | OK             | OK             |
| A.2.2 Is region/state/province etc. indicated?   | PDD  | - | Yes.<br>Qinghai province   | OK             | OK             |
| A.2.3 Is City/Town/Community etc. indicated?   | PDD  | - | Yes.<br>Delingha City  | OK             | OK             |
| A.2.4 Are the details of physical location of the project activity provided?   | PDD  | - | Yes.<br>The project activity has central point coordinates of longitude 97°10'23.7" E (97.17325°) and latitude 37°21'10.29"N (37.35286°). These have been verified onsite with the aid of a GPS.   | OK             | OK             |
| <b>A.3 Technologies and measures</b>   |      |   |  |                |                |
| A.3.1 Are there a list and the arrangement of the main manufacturing/ production technologies, systems and equipment involved?   | PDD  | - | GL 4<br><del>The model of both the solar cell modules and inverters specified in the PDD section A.3 is not correct and is not consistent with the onsite verified equipment. Information needs to be properly revised</del><br><br>The equipment specifications used in the | GL 4           | OK             |

## VALIDATION REPORT

| CHECKLIST QUESTION   | Ref. | § | COMMENTS   | Draft<br>Concl | Final<br>Concl |
|--|------|---|--|----------------|----------------|
|  |      |   | Project and described in the revised version of the PDD (version 1.1) have been verified and found consistent with the Solar cell modules and inverters nameplates and purchasing contracts<br><br>CL 1 is closed.   |                |                |
| A.3.1.1 Is the information about the age and average lifetime of the equipment based on manufacturer's specifications and industry standards, and existing and forecast installed capacities, load factors and efficiencies included in the description? | PDD  | - | <del>Pending on CL 1</del><br><br>Yes.   | Pending        | OK             |
| A.3.1.2 Are the monitoring equipments and their location in the systems included in the description?   | PDD  | - | CL-2<br><del>The implemented monitoring system of the Project needs to be better specified in sections A.3 of the PDD. Numbers of meters employed for the measurement of EG facility, meters accuracy, and calibration frequency. Sections B.3 and B.7.1 of the PDD needs to be also updated accordingly</del><br><br>Information has been added correctly. The monitoring plan specified in the updated PDD has been verified and is deemed correct reflecting good practice and ensuring | CL-2           | OK             |

## VALIDATION REPORT

| CHECKLIST QUESTION   | Ref. | § | COMMENTS  | Draft<br>Concl | Final<br>Concl |
|--|------|---|---|----------------|----------------|
|  |      |   | consistent and reliable measurement of the net electricity supplied by the project activity.<br>CL 2 is closed  |                |                |
| A.3.2 Are energy and mass flows and balances of the systems and equipment included in the project activity provided?   | PDD  | - | N.A.  | OK             | OK             |
| A.3.3 Are the types and levels of services provided by the systems and equipment that are being modified and/or installed under the project activity and their relation, if any, to other manufacturing/ production equipment and systems outside the project boundary provided? | PDD  | - | N.A.  | OK             | OK             |
| A.3.4 Does the description clearly explain how the same types and levels of services provided by the project activity would have been provided in the baseline scenario?   | PDD  | - | Yes.<br>The baseline scenario, which is the same of the scenario existing prior to the start of project, is electricity delivered to the grid by the project activity would have otherwise been generated by the operation of power plants and by the addition of new generation sources physically connected to the electricity system to which the proposed project activity is connected to. | OK             | OK             |
| A.3.5 Is a list of facilities, systems and equipment in operation under the existing scenario prior to the implementation of the project activity provided?  | PDD  | - | N.A.  | OK             | OK             |
| A.3.6 Is a list of facilities, systems and equipment in the  | PDD  | - | N.A.  | OK             | OK             |

| CHECKLIST QUESTION   | Ref. | §  | COMMENTS   | Draft<br>Concl | Final<br>Concl |
|--|------|----|--|----------------|----------------|
| baseline scenario provided?  |      |    |  |                |                |
| A.3.7 Is a description of how technologies and measures and know-how to be used are transferred to the Host Party(ies) included? | PDD  | -  | Yes.<br>The project activity employs domestic technology and does not involve international technology transfer  | OK             | OK             |
| <b>A.4 Party(ies) and project participant(s)</b>   |      |    |  |                |                |
| A.4.1 Are following information provided in a tabular format?  |      |    |  |                |                |
| A.4.1.1 List of project participants and parties   | PDD  | -  | Yes.<br>For People's Republic of China: Delingha Xiehe Solar PV Power generation Co., Ltd<br>For the United Kingdom of Great Britain and Northern Ireland: Carbon Resource Management S.A. | OK             | OK             |
| A.4.1.2 Identification of Host Party   | PDD  | -  | Yes.<br>People's Republic of China is the Host Party   | OK             | OK             |
| A.4.1.3 Indication whether the Party wishes to be considered as project participant  | PDD  | -  | Yes.<br>Both Parties does not wish to be considered as project participant   | OK             | OK             |
| <b>A.5 Public funding of project activity</b>  |      |    |  |                |                |
| A.5.1 Is it indicated whether the project activity receives public funding from Annex I Parties?                                 | PDD  | -  | Yes.<br>The proposed project activity does not involve public funding from Annex I Parties. This has been confirmed by verifying the FSR and the project approval.                         | OK             | OK             |
| A.5.2 In case where public funding from Annex I Parties  | PS   | 34 | N.A.   | OK             | OK             |



| CHECKLIST QUESTION  | Ref. | §  | COMMENTS  | Draft<br>Concl | Final<br>Concl |
|---|------|----|---|----------------|----------------|
| is involved, are followings provided?<br>(a) Information on Parties providing public funding<br>(b) Attached in Appendix 2: the affirmation obtained from such Parties that such funding does not result in a diversion of official development assistance, is separate from, and is not counted towards the financial obligations of those Parties |      |    |   |                |                |
| <b>B. Application of selected approved baseline and monitoring methodology</b>  |      |    |   |                |                |
| <b>B.1 Reference of methodology</b>   |      |    |   |                |                |
| B.1.1 Is the selected methodology (ies) indicated with exact reference (number, title and version)?   | PDD  | -  | Yes.<br>ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (version 12.3.0)   | OK             | OK             |
| B.1.2 Are the baseline and monitoring methodologies selected by the project participants the valid versions of those approved by the Board?   | VVS  | 70 | Yes.  | OK             | OK             |
| B.1.3 Are there any tools and other methodologies to which the selected methodology indicated?  | PDD  | -  | Yes.<br>- AM Tool 01 "Tool for the demonstration and assessment of additionality" (version 6.0.0)<br>- AM Tool 07 "Tool to calculate the emission factor for an electricity system" | OK             | OK             |

## VALIDATION REPORT



| CHECKLIST QUESTION  | Ref.       | §     | COMMENTS   | Draft<br>Concl | Final<br>Concl |
|---|------------|-------|--|----------------|----------------|
|   |            |       | (Version 02.2.1)<br>- AM Tool 02 “Combined tool to identify the baseline scenario and demonstrate additionality” (version 4.0.0) – not applicable to the project activity<br>- AM Tool 03 “Tool to calculate project or leakage CO2 emissions from fossil fuel combustion” (version 02) – not applicable to the project activity |                |                |
| B.1.4 Has specific guidance and/or clarifications provided by the Board with respect to the approved methodology and any applicable tools been applied?   | VVS        | 71    | N.A.   | OK             | OK             |
| B.1.5 Is there any deviation or clarification requested for the approved methodology?   | VVS        | 78-81 | N.A.   | OK             | OK             |
| <b>B.2 Applicability of methodology</b>   |            |       |  |                |                |
| B.2.1 Is the selected baseline and monitoring methodology applicable to the project activity and that the selected version valid at the time of submission of the proposed project activity for registration? | VVS        | 73-75 | Yes.   | OK             | OK             |
| B.2.2 Does the project activity meet each of the applicability conditions of the approved methodology or other methodology component referred to therein?   | PDD<br>VVS | 76    | Refer to Table 2 below.  | -              | -              |



| CHECKLIST QUESTION  | Ref.       | §  | COMMENTS   | Draft<br>Concl                    | Final<br>Concl |
|---|------------|----|--|-----------------------------------|----------------|
| <b>B.3 Project boundary</b>   |            |    |  |                                   |                |
| B.3.1 Are the emission sources and GHGs included in the project boundary for the purpose of calculating project emissions and baseline emissions described using the table provided?  | PDD        | -  | Yes.<br>As per applied methodology only baseline emissions are included.   | OK                                | OK             |
| B.3.2 Is a flow diagram of the project boundary presented, physically delineating the project activity?   | PDD        | -  | <del>CL 3</del><br><del>In section B.3, the grid to which the Project is connected to and emission sources needs to be clarified in the flow diagram.</del><br><br>The diagram in section B.3 of the PDD has been updated correctly. The grid to which Project is connected to and the emission sources have been properly showed.<br><br>CL 3 is closed | <del>CL 3</del><br><br>OK         | OK             |
| B.3.3 Does the flow diagram include the equipment, systems and flows of mass and energy described? In particular, is the emission sources and GHGs included in the project boundary and the data parameters to be monitored indicated in the diagram? | PDD<br>VVS | 82 | <del>Pending on CL 3</del><br><br>Yes.   | <del>Pending</del><br><br>Pending | OK             |
| <b>B.4 Establishment and description of baseline scenario</b>   |            |    |  |                                   |                |

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| CHECKLIST QUESTION   | Ref.       | §           | COMMENTS   | Draft<br>Concl | Final<br>Concl |
|--|------------|-------------|--|----------------|----------------|
| B.4.1 Is an explanation how the baseline scenario is established in accordance with the selected baseline methodology provided?  | PDD<br>VVS | 89          | Yes.<br>The selected methodology prescribes the baseline scenario as the:<br>“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”” | OK             | OK             |
| B.4.2 When establishing the baseline scenario, and where “future anthropogenic emissions by sources are projected to rise above current levels due to the specific circumstances of the host Party”, do the project participants follow the “Guidelines on the consideration of suppressed demand in CDM methodologies”? | PS         | 42          | N.A.   | OK             | OK             |
| B.4.3 Does the approved methodology that is selected by the proposed CDM project activity prescribe the baseline scenario and hence no further analysis is required?   | VVS        | 113,<br>115 | Yes.   | OK             | OK             |
| B.4.4 If no, does the PDD identify credible alternatives to the project activity in order to determine the most realistic baseline scenario?   | VVS        | 114         | N.A.   | OK             | OK             |
| B.4.5 Does the list of alternatives given in the PDD ensure that:  | VVS        | 114         | N.A. since the applied methodology prescribes the baselines scenario   | OK             | OK             |

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| CHECKLIST QUESTION  | Ref.       | §  | COMMENTS   | Draft<br>Concl | Final<br>Concl |
|---|------------|----|--|----------------|----------------|
| (a) One of the options that the project activity is undertaken without being registered as a proposed CDM project activity<br>(b) The list contains all plausible alternatives<br>(c) The alternatives comply with all applicable and enforced legislation      |            |    |  |                |                |
| B.4.6 Has any procedure contained in the methodology to identify the most reasonable baseline scenario, been correctly applied?   | PDD<br>VVS | 89 | Refer to Table 2 below   | -              | OK             |
| B.4.7 Is the baseline identified for the proposed project activity the scenario that reasonably represents the anthropogenic emissions by sources of GHGs that would occur in the absence of the proposed project activity?                                     | VVS        | 88 | Yes.   | OK             | OK             |
| B.4.8 Does the selected methodology require 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? | VVS        | 89 | No.  | OK             | OK             |
| B.4.9 Does the methodology require several alternative scenarios to be considered in the identification of the most reasonable baseline scenario?   | VVS        | 90 | N.A. since the applied methodology prescribes the baselines scenario | OK             | OK             |
| B.4.10 Are the documents and sources referred to in the PDD correctly quoted and interpreted and are they crosschecked with other verifiable and credible   | PDD<br>VVS | 91 | N.A.   | OK             | OK             |

| CHECKLIST QUESTION   | Ref. | §  | COMMENTS  | Draft<br>Concl | Final<br>Concl |
|--|------|----|---|----------------|----------------|
| sources, such as local expert opinion, if available?   |      |    |   |                |                |
| B.4.11 Does the PDD provide a 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 project activity?                   | VVS  | 92 | Yes.<br>The baseline scenario is indicated as "electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the Tool to calculate the emission factor for an electricity system." which is in consistence with that prescribed in ACM0002. | OK             | OK             |
| B.4.12 Have all applicable CDM requirements been taken into account in the identification of the baseline scenario for the proposed project activity?  | VVS  | 93 | Yes.  | OK             | OK             |
| B.4.13 Has relevant national and/or sectoral policies and circumstances (type E+ or E-), such as sectoral reform initiatives, local fuel availability, power sector expansion plans, and the economic situation in the project sector been taken into account? | VVS  | 93 | N.A.<br>The baseline scenario is prescribed by ACM0002.   | OK             | OK             |
| B.4.14 Is a transparent description of the baseline scenario provided?   | PDD  | -  | Yes.  | OK             | OK             |
| <b>B.5 Demonstration of additionality</b>  |      |    |   |                |                |
| B.5.1 Is the project activity demonstrated additional in accordance with the selected methodology (ies)?   | PDD  | -  | <del>Pending on the closure of all findings</del><br>Yes.   | Pending        | OK             |



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| B.5.2 Where the procedure in the selected methodology(ies) and/or tool involves several steps, is it described how each step is applied and is the outcome of each step transparently documented? | PDD  | - | Yes.<br>In accordance with "Tool-Additionality" (version 06.0.0)<br>Step 1. Identification of alternatives to the project activity consistent with current laws and regulations<br>Step 2. Investment Analysis<br>Step 4 Common practice analysis<br>have been applied and described in the PDD.<br>The outcome of each step has been transparently documented.                    | OK             | OK             |
| B.5.3 Is the method selected to demonstrate additionality clearly indicated?  | PDD  | - | Yes.<br>Investment analysis has been chosen.   | OK             | OK             |
| B.5.4 If investment analysis is used:   |      |   |  |                |                |
| B.5.4.1 Are all relevant assumptions and parameters used in the analysis listed?  | PDD  | - | CL-4<br><del>Please specify all relevant assumptions and parameters used in the analysis as per Guidelines for Project Design Document (CDM-PDD) and the Proposed new baseline and monitoring methodologies (CDM-NM)* (EB66 annex 08)</del><br><br>All relevant assumptions and parameters used in the analysis have been specified in the PDD section B.5.<br><br>CL 4 is closed. | CL-4           | OK             |

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| B.5.4.2 Is the latest version of the “Guidelines on the assessment of investment analysis” applied?  | VVS  | 118    | Yes,<br>“Guidelines on the assessment of investment analysis” (version 05), EB 62 Annex 5, is used.  | OK             | OK             |
| B.5.4.3 Is project activity one of the following cases in regards to investment analysis:  | VVS  | 119    |  |                |                |
| B.5.4.3.1 The proposed project activity would produce no financial or economic benefits other than CDM-related income;   | VVS  | 119(a) | N.A.   | OK             | OK             |
| B.5.4.3.2 The proposed project activity is less economically or financially attractive than at least one other credible and realistic alternative;   | VVS  | 119(b) | N.A.   | OK             | OK             |
| B.5.4.3.3 The financial returns of the proposed project activity would be insufficient to justify the required investment.   | VVS  | 119(c) | Yes.   | OK             | OK             |
| B.5.4.4 Has the accuracy of financial calculations carried out for investment analysis been verified as follows:   | VVS  | 120    |  |                |                |
| B.5.4.4.1 Determine the suitability of the financial indicator selected by the project participants and conduct a thorough assessment of all parameters and assumptions used in calculating such financial indicators, and determine the accuracy and suitability of these parameters using available evidence | VVS  | 120(a) | Yes.<br>During onsite visit, BVC checked the documented evidences including the FSR, investment decision, the contracts and other available information, and therefore can confirm that: |                | OK             |

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| and applying its expertise in relevant accounting practices |      |   | <p>1. The FSR has been the basis of the decision to proceed with the investment in the project.<br/>The FSR was finished in May 2011, and the investment decision was made on 26/05/2011. The period of time between the finalization of the FSR and the investment decision is sufficiently short and it is unlikely in the context of the underlying project activity that the input values would have materially changed;</p> <p>2. Selected benchmark:<br/>Bureau Veritas Certification verified the Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects Electrical Engineering Retrofit Projects issued by former State Power Corporation of China in 2002. According to it the financial benchmark of Chinese electric power industry is 8% on project IRR (post tax). This has been used widely in feasibility studies of new power plants, including solar power projects in China.</p> <p>3. Total investment:</p> |                |                |





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|                    |      |   | <p>Bureau Veritas Certification verified the main signed contracts for the project and verified that these equal to circa 478,612,000RMB which represents circa 87.04% of the total static investment determined in the approved FSR.</p> <p>In addition Bureau Veritas Certification compared the project with similar PV solar project located in Qinghai Province. As per findings the per unit total static investment for PV projects in Qinghai Province spans from 22,180RMB/kW (CDM project ref. No. 5952) to 16,621 RMB/kW (CDM project ref. No. 6414). The unit total static investment of the Project is circa 18,223RMB/kW and falls in this range.</p> <p>Hence the total static investment of the project is deemed appropriate.</p> <p>4. Tariff:</p> <p>The tariff of 1.15 RMB/kWh (incl. VAT) of the Project used in the project activity IRR was directly taken from the approved FSR completed in May 2011. The value was sourced from the only public available tariff approval Fa Gai</p> |                |                |



| CHECKLIST QUESTION | Ref. | § | COMMENTS   | Draft<br>Concl | Final<br>Concl |
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|                    |      |   | <p>Jia Ge [2010] No. 653 issued by NDRC on 02/04/2010 where the tariff of four solar projects (namely CECIC Taiyangshan Grid-connected Solar PV Power Generation Phase I project, CECIC Shizuishan Grid-connected Solar PV Power Generation Phase I project, Ningxia Taiyangshan Phase I 10MWp Solar Photovoltaic Power Project and Huadian Ningxia Ningdong 10MWp Solar PV Power Station Project, all applying CDM) developed in Ningxia Hui Autonomous Region, nearby the project location, was approved at 1.15 RMB/kWh (incl. VAT).</p> <p>After it, on 24/07/2011 the tariff of the PV solar projects in China was unified and officially determined by NDRC throughout document Fa Gai Jia Ge [2011] No. 1594. As per document the tariff of 1.15 RMB/kWh (incl. VAT) will be assigned to projects approved before 01/07/2011 and which have started commissioning before 31/12/2011. All other solar projects, excluding those in Tibet, will receive a feed-in tariff of 1.00 RMB/kWh (incl. VAT).</p> |                |                |

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|                    |      |   | <p>Hence, in accordance with the tariff notification Fa Gai Jia Ge [2011] No. 1594, the highest tariff obtainable by the project is 1.15 RMB/kWh (incl. VAT). This is in line with the tariff used in the approved FSR and IRR calculations. Hence the tariff used for the Project is correct and considered appropriate.</p> <p>5. O&amp;M cost is the staff cost, material and maintenance costs, insurance fee and miscellaneous costs. Bureau Veritas Certification has checked that each individual item of O&amp;M cost is computed using input values from the approved FSR. Bureau Veritas Certification has checked the calculations and found them correct and in line with Chinese national regulations.</p> <p>In addition, according to "Technology data for Energy plants" published in June 2010 by the Danish Energy Agency /47/, the O&amp;M costs of solar PV projects are circa 32€/MWh. The O&amp;M costs of the project are 157.29RMB/MWh, circa 20€/MWh, lower than 32€/MWh and hence conservative. As a matter of facts lower O&amp;M costs infers lower costs, and</p> | GL-5           |                |



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|                    |      |   | <p>thus in turn higher profits and a higher IRR.</p> <p><del>CL-5</del><br/> <del>The rationale for two different maintenance rates for the first 10 years of operation and from year 11 to year 25 should be justified.</del></p> <p>Bureau Veritas Certification verified that it has been demonstrated that the application of two different maintenance rates for the first ten years of operation and from year 11 to year 25 of operation, is consistent with the approved FSR of the project and in accordance with section 4, page 96 of Construction project economic evaluation method and parameters (version III) in China<br/> CL 5 is closed.</p> <p>6. BVC has also verified values of various taxes including VAT, VAT offset, income tax, city build tax and education tax by cross checking with the taxation rules conducted by government and found to be fully consistent.</p> <p>7. The depreciation has been deducted in</p> |                |                |



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|                    |      |   | <p>estimating gross profits on which tax is calculated, and be added back to net profits for the purpose of calculating the financial indicator.</p> <p>8. The fair value rate of 5% is compliance with current policy;</p> <p>9. Annual electricity supplied:<br/>The PLF of the Project was determined by a qualified third party contracted with the PP based on the latest 31 years historical local solar radiation data (from 1978 to 2008) using professional software; therefore, the value in the FSR, IRR and the PDD is reasonable.</p> <p>10. Loan:</p> <p><del>CL-6</del><br/>The loan contract needs to be provided to ascertain the validity of the 80%-20% equity-debt ratio and loan interest rate assumed in the FSR.</p> <p>At the moment the loan contract has not been finalized yet. However, a loan commitment letter has been signed between the PP and Bank of China. The</p> | CL-6           |                |



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|                    |      |   | <p>commitment letter confirms the loan amount determined in the approved FSR. In addition, as per latest (issued in July 2012) publicly available information the long and short interest loan rate issued by Bank of China are 6.55% and 6% respectively lower than those assumed in the FSR - 6.80% and 6.31% (the values determined in the FSR were in line with the long and short interest loan rate issued by Bank of China at the time of the FSR finalization; i.e. May 2011).</p> <p>In addition, Bureau Veritas Certification crosschecked the interest rates used in the IRR calculations with those currently available in China and verified that the interest rate for long-term loans is 6.55% while for short-term loans is 6.00% as per latest interest rates issued by Bank of China in July 2012. By applying these long and short loan interest rates the IRR results lower, and thus less conservative, than the one using the data from the approved FSR available at the time of the investment decision. Hence the values used in the IRR calculations sourced from the FSR are considered correct and appropriate.</p> |                |                |



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|   |      |        | CL 6 is closed.<br><br>11. Assessment period<br>The assessment period is in line with national regulation.   |                  |                |
| B.5.4.4.2 Cross-check the parameters against third-party or publicly available sources, such as invoices or price indices   | VVS  | 120(b) | Yes.<br>The parameters have been checked against the FSR compiled by a third party, the approval issued by the government, the applicable regulations in China and actual implementation situation of the Project.   | OK               | OK             |
| B.5.4.4.3 Review, as appropriate, feasibility reports, public announcements and annual financial reports related to the proposed project activity and the project participants                            | VVS  | 120(c) | Yes.<br>The FSR of the Project has been reviewed.  | OK               | OK             |
| B.5.4.4.4 Assess the correctness of computations carried out and documented by the project participants; and  | VVS  | 120(d) | Yes.<br>The computations in the investment analysis are correct.   | OK               | OK             |
| B.5.4.4.5 Assess, where applicable, the sensitivity analysis by the project participants to determine under what conditions variations in the result would occur, and the likelihood of these conditions. | VVS  | 120(e) | <del>GAR-2</del><br><del>The sensitivity analysis for the total static investment is not calculated appropriately. Revision is required. In addition, further information regarding tariff and generation/PLF is needed to ensure their reliability.</del><br><br>The revised sensitivity analysis for the total | <del>GAR-2</del> | OK             |





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|   |      |   | <p>static investment has been verified and it can be confirmed that it is correct. In addition the values of tariff and generation/plant load factor of the project determined in the FSR and used in the IRR calculations has been found appropriate and correct.</p> <p>CAR 2 is closed.</p> <p>The sensitivity analysis has been assessed and it has been verified that the selected variables and the <math>\pm 10\%</math> variations performed for sensitivity analysis is deemed to be appropriate for the Project. The IRR of the Project does not reach the benchmark under these <math>\pm 10\%</math> variations. In addition variations of the selected variables, which would make the IRR cross the benchmark, have been verified to not be likely to occur.</p> |                |                |
| B.5.4.5 If benchmark analysis is used:        |      |   |  |                |                |
| B.5.4.5.1 Is the benchmark clearly indicated? | PDD  | - | <p>Yes.<br/>8% post-tax project IRR<br/>Bureau Veritas Certification verified the Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects issued by former State Power Corporation of China in 2002. According to it the financial</p>  | OK             | OK             |

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|   |      |        | benchmark of Chinese electric power industry is 8% on project IRR (post tax). This has been used widely in feasibility studies of new power plants, including solar power projects in China.   |                |                |
| B.5.4.5.2 Is the type of benchmark applied suitable for the type of financial indicator presented?                                    | VVS  | 121(a) | Yes.   | OK             | OK             |
| B.5.4.5.3 Does the risk premiums applied in determining the benchmark reflect the risks associated with the project type or activity? | VVS  | 121(b) | N/A  | OK             | OK             |
| B.5.4.5.4 Is it reasonable to assume that no investment would be made at a rate of return lower than the benchmark?                   | VVS  | 121(c) | Yes.   | OK             | OK             |
| B.5.4.6 If cost comparison is used:   |      |        |  |                |                |
| B.5.4.6.1 Are the scenarios compared described?   | PDD  | -      | N.A.   | OK             | OK             |
| B.5.4.7 If PPs rely on values from FSR:   | VVS  | 122    |  |                |                |
| B.5.4.7.1 Has the FSR been the basis of the decision to proceed with the investment in the project?                                   | VVS  | 122(a) | Yes.<br><br>The FSR has been the basis of the decision to proceed with the investment in the project. The FSR was finished in May 2011, and the investment decision was made on 26/05/2011. The period of time between the finalization of the FSR and the investment decision is sufficiently short and it is unlikely in the context of the underlying project | OK             | OK             |

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|   |      |        | activity that the input values would have materially changed  |                |                |
| B.5.4.7.2 Are the values used in the PDD and associated annexes fully consistent with the FSR? If inconsistencies occur, was the appropriateness of the values validated?   | VVS  | 122(b) | Yes.  | OK             | OK             |
| B.5.4.7.3 On the basis of its specific local and sectoral expertise, is confirmation provided, by cross-checking or other appropriate manner, that the input values from the FSR are valid and applicable at the time of the investment decision? | VVS  | 122(c) | Yes.<br>The period of time between the FSR finalization (May 2011) and the investment decision (26/05/2011) is sufficiently short and no regulatory or investment climate change happened during this period. Bureau Veritas Certification was therefore confident that it is unlikely in the context of the underlying project activity that the input values would have materially changed. | OK             | OK             |
| B.5.5 If barriers analysis is used:   |      |        |   |                |                |
| B.5.5.1 Is the "Guidelines for objective demonstration and assessment of barriers" followed?  | PS   | 48     | N.A.<br>Barrier analysis is not performed.  | OK             | OK             |
| B.5.5.2 Is it ensured that only the most relevant barriers selected?  | PDD  | -      | N.A.<br>Barrier analysis is not performed.  | OK             | OK             |
| B.5.5.3 Is the credibility of the barriers justified with key facts and/or assumptions and the rationale?   | PDD  | -      | N.A.<br>Barrier analysis is not performed.  | OK             | OK             |
| B.5.5.4 Is it ensured that issues that have a direct impact on the financial returns of the project activity are not considered as barriers but   | VVS  | 125    | N.A.<br>Barrier analysis is not performed.  | OK             | OK             |

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| assessed by investment analysis? This does not refer to either:<br>(a) Risk related barriers<br>(b) Barriers related to the unavailability of sources of finance for the project activity |           |              |   |                |                |
| B.5.5.5 Were the barriers determined as real?   | VVS       | 126(a)       | N.A.<br>Barrier analysis is not performed.  | OK             | OK             |
| B.5.5.6 Were the barriers determined as preventing the implementation of the project activity but not the implementation of at least one of the possible alternatives?                    | VVS       | 126(b)       | N.A.<br>Barrier analysis is not performed.  | OK             | OK             |
| <b>B.5.6 Common Practice Analysis</b>   |           |              |   |                |                |
| B.5.6.1 If the project type is first-of-its kind, do the project participants consider "Guidelines on additionality of first-of-its-kind project activities"?                             | VVS<br>PS | 128<br>49(a) | N.A.<br>The project is not first-of-its kind  | OK             | OK             |
| B.5.6.2 If the project type is not first-of-its kind, has common practice analysis been conducted considering "Guidelines on common practice"?  | VVS<br>PS | 128<br>49(b) | Yes.  | OK             | OK             |
| B.5.6.3 Was it assessed whether the geographical scope of the common practice analysis is appropriate for the assessment related to the project activity's technology or industry type?   | VVS       | 129(a)       | Yes.<br>The geographical region for the common practice analysis of solar power projects is Qinghai Province. In China, the regulatory framework and investment climate for solar projects is only similar and comparable for projects located in the same province. As a | OK             | OK             |

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|  |      |        | consequence the choice of Qinghai Province for common practice is considered appropriate  |                |                |
| B.5.6.4 Was it determined to what extent similar and operational projects, other than CDM project activities, and have been undertaken in the defined region?  | VVS  | 129(b) | <p><del>CL 7</del><br/> <del>The common practice analysis is not complete. Improvement is required.</del></p> <p>The revised common practice analysis carried out in the PDD version 1.1 on the basis of the clarification on application of common practice analysis with tool for the demonstration of additionality (v.06.0.0) (<a href="http://cdm.unfccc.int/methodologies/PAmethodologies/tools-clarifications/30494">http://cdm.unfccc.int/methodologies/PAmethodologies/tools-clarifications/30494</a>) Bureau Veritas Certification confirm that the Project has been demonstrated not to be common practice in the selected geographical region.</p> <p>CL 7 is closed.</p> | CL 7           | OK             |
| B.5.6.5 Are similar and operational projects, other than CDM project activities, already “widely observed and commonly carried out” in the defined region? Is it assessed whether there are essential distinctions between the proposed CDM project activity and the other similar activities? | VVS  | 129(c) | <p><del>Pending on CL 7</del></p> <p>No.<br/>         The Project has been demonstrated not to be common practice in the selected geographical region.</p>  | Pending        | OK             |
| B.5.7 Prior consideration of the clean development   |      |        |   |                |                |



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| mechanism  |            |     |  |                               |             |
| B.5.7.1 If the project activity start date prior to the date of publication of the PDD for stakeholder comments, were the CDM benefits considered necessary in the decision to undertake the project as a proposed CDM project activity? | PDD<br>VVS | 105 | Yes.<br>The project starting date has been verified to be the 05/07/2011 when the inverter purchasing contract was signed while the PP was published for global stakeholder comments on 19/04/2012   | OK                            | OK          |
| B.5.7.2 Is the start date of the project activity, reported in the PDD, the earliest date at which either the implementation or construction or real action of a project activity begins?  | VVS        | 106 | <p>Yes.<br/>The starting date of the Project is, as per evidence verified on site, on 05/07/2011, when the inverter purchasing contract was singed.</p> <p><del>GL-8<br/>In section B.5 of the PDD, Table 3, it should be added the date of FSR finalization, Board Decision Meeting, signature of solar panel purchasing contract, signature of construction contract, mounting brackets contract start of construction and, if available, start of commissioning.</del></p> <p>Information added in Table 3 of section B.5 of the PDD have been verified against the FSR, Board Decision Meeting minutes, solar panel purchasing contract, construction contract, mounting brackets contract, starting construction permit and found</p> | <div>CL-8</div> <div>OK</div> | OK          |

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|   |      |     | consistent.<br><br>CL 8 is closed.   |                |                |
| B.5.7.3 If the project activity requires construction, retrofit or other modifications, is it ensured that the date of commissioning not considered as the project activity start date?   | VVS  | 106 | Yes.<br>The starting date of the Project is, as per evidence verified on site, on 05/07/2011, when the inverter purchasing contract was signed.                                  | OK             | OK             |
| B.5.7.4 Is it a project activity with a start date on or after 02 August 2008, or before 02 August 2008?  | VVS  | 106 | After 02 August 2008   | OK             | OK             |
| B.5.7.5 For a project activity with a start date on or after 02 August 2008, are the following provisions to be satisfied:  |      |     | for which PDD has not been published for GSC or a new methodology proposed to the EB before the project activity start date  |                |                |
| B.5.7.5.1 Has the PP 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 within 180days of the project activity start date?   | VVS  | 107 | Yes.<br>The notifications were sent to CDM EB and China DNA respectively on 23/11/2011 and 27/12/2011, within 180 days from the project starting date verified to be 05/07/2011. | OK             | OK             |
| B.5.7.5.2 Do the project participants inform the secretariat of the progress of the project activity every subsequent two years after the initial notification, until the PDD regarding the project activity has been published for global stakeholder consultation or, a new baseline and monitoring methodology is proposed or a revision of an approved baseline and | PCP  | 9   | N.A.   | OK             | OK             |



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| monitoring methodology is requested for the project activity before the start date?   |            |         |   |                |                |
| B.5.7.6 For a project activity with a start date before 02 August 2008, are the following elements to be satisfied:   | VVS        | 108     | for which the start date is prior to the date of publication of the PDD for global stakeholder consultation |                |                |
| B.5.7.6.1 Are evidence of their awareness of the CDM prior to the project activity start date, and that the benefits of the CDM were a decisive factor in the decision to proceed with the project provided?    | VVS        | 108     | N.A.  | OK             | OK             |
| B.5.7.6.2 Are evidence that continuing and real actions were taken to secure CDM status for the project in parallel with its implementation provided?   | VVS        | 108-110 | N.A.  | OK             | OK             |
| B.5.7.6.3 Is an implementation timeline of the proposed CDM project activity provided?  | PS         | 28(c)   | N.A.  | OK             | OK             |
| <b>B.6 Emission reductions</b>  |            |         |   |                |                |
| B.6.1 Explanation of methodological choices   |            |         |   |                |                |
| B.6.1.1 Does the PDD explain how the methods or methodological steps in the selected methodology, for calculating project emissions, baseline emissions, leakage emissions and emission reductions are applied? | PDD<br>VVS | 96      | Yes.  | OK             | OK             |
| B.6.1.2 In case the methodology(ies) include different scenarios or cases, does the PDD indicate and  | PDD        | -       | Refer to Table 2 below  | -              | OK             |

| CHECKLIST QUESTION  | Ref.       | §  | COMMENTS  | Draft<br>Concl | Final<br>Concl |
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| justify which scenario or cases applies to the project activity?  |            |    |   |                |                |
| B.6.1.3 In case the methodology(ies) provide different options to choose from, does the PDD indicate and justify which option is chosen for the project activity?   | PDD<br>VVS | 97 | Refer to Table 2 below  | -              | OK             |
| B.6.1.4 In case the methodology (ies) allow different default values, does the PDD indicate and justify which of the default values have been chosen for the project activity?  | PDD        | -  | Refer to Table 2 below  | -              | OK             |
| <b>B.6.2 Data and parameters fixed ex ante</b>  |            |    |   |                |                |
| B.6.2.1 If data and parameters will not be monitored throughout the crediting period of the proposed project activity but have already been determined and will remain fixed throughout the crediting period, are all data sources and assumptions:<br>(a) Appropriate and correct?<br>(b) Applicable to the proposed CDM project activity?<br>(c) Resulting in a conservative estimate of the emission reductions? | PDD<br>VVS | 98 | The emission factor (EF) is determined ex ante for the Project and will not be monitored throughout the first crediting period of the Project.<br>The data sources and assumptions to determine the EF are appropriate and correct and are consistent with official publication in China (2011 Baseline Emission Factor for Regional Power Grids in China dated 20/10/2011)<br>The EF is applicable to the identified project electricity system.<br>By applying the appropriate EF, a conservative estimate of the emission reductions will be achieved. | OK             | OK             |

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|  |      |   | $EF_{grid,CM,y} = 0.8963 tCO_2/MWh$   |                |                |
| B.6.2.2 For each piece of data or parameter, are tables provided in accordance with the instructions?  | PDD  | - | Yes.  | OK             | OK             |
| B.6.3 Ex ante calculations of emission reductions  |      |   |   |                |                |
| B.6.3.1 Is a transparent ex ante calculation of project emissions, baseline emissions (or, where applicable, direct calculation of emission reductions) and leakage emissions expected during the crediting period, applying all relevant equations provided in the approved methodology provided? | PDD  | - | <p><del>CAR 3</del><br/> <del>The average electricity generated by the project in the first crediting period indicated in section B.6.3 and used to calculate BE<sub>y</sub> is not correctly reported. As per FSR the value is 51,914.12MWh instead of 51,914MWh. Information needs to be modified appropriately. In addition, in section B.6.3, please also clearly indicate the value of project and leakage emissions.</del></p> <p>The correct average electricity generated by the project in the first crediting period, consistent with the value of the approved FSR, has been verified to be properly reported in version 1.1 of the PDD. Information contained in the PDD is correct.</p> <p>CAR 3 closed</p> <p><math>BE_y = EG_{facility,y} \times EF_{grid,CM,y} = 51,914.12 \text{ MWh} \times 0.8963 \text{ tCO}_2/\text{MWh} = 46,530 \text{ tCO}_2</math></p> | CAR-3          | OK             |

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| CHECKLIST QUESTION  | Ref. | § | COMMENTS   | Draft<br>Concl | Final<br>Concl |
|---|------|---|--|----------------|----------------|
|   |      |   | $PE_y = 0 \text{ tCO}_2$<br>$ER_y = BE_y - PE_y = 46,530 - 0 \text{ tCO}_2 = 46,530 \text{ tCO}_2$   |                |                |
| B.6.3.2 Is the information how each equation is applied, in a manner that enables the reader to reproduce the calculation, provided?            | PDD  | - | <del>Pending on CAR 3</del><br>Yes.  | Pending        | OK             |
| B.6.3.3 Is the information of additional background information and/or data provided in Appendix 4, including relevant electronic spreadsheets? | PDD  | - | <del>CAR 4</del><br><del>The additional background information on emission reduction calculations should be provided also in Appendix 4 of the PDD.</del><br>Information on emission reduction calculations added in Appendix 4 of the last PDD version has been verified to be correct.<br>CAR 4 is closed. | CAR 4          | OK             |
| B.6.3.4 Is a sample calculation for each equation used provided, substituting the values used in the equations?                                 | PDD  | - | <del>Pending on CAR 3</del><br>Yes.  | Pending        | OK             |
| B.6.4 Summary of the ex ante estimates of emission reductions   |      |   |  |                |                |
| B.6.4.1 Are the results of the ex ante estimation of emission reductions for all years of the crediting period, provided in a tabular format?   | PDD  | - | Yes.   | OK             | OK             |
| <b>B.7 Monitoring Plan</b>  |      |   |  |                |                |

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| CHECKLIST QUESTION  | Ref. | § | COMMENTS  | Draft<br>Concl     | Final<br>Concl |
|---|------|---|---|--------------------|----------------|
| B.7.1 Data and parameters to be monitored   |      |   |   |                    |                |
| B.7.1.1 Is specific information on how the data and parameters that need to be monitored would actually be collected during monitoring included?  | PDD  | - | <del>Pending on CL 2</del><br>Yes.  | <del>Pending</del> | OK             |
| B.7.1.2 For each data or parameter, is the information completed, in a tabular format:  |      |   |   |                    |                |
| B.7.1.2.1 The source(s) of data that will be actually used for the proposed project activity (e.g. which exact national statistics). Where several sources may be used, explain and justify which data sources should be preferred. | PDD  | - | <del>Pending on CL 2</del><br>Yes.  | <del>Pending</del> | OK             |
| B.7.1.2.2 Is an estimate of the data/ parameter that will be monitored during the crediting period provided?  | PDD  | - | <del>CAR 5</del><br><del>The values reported for <math>EG_{facility,y}</math> are not consistent with those of the approved FSR used in the IRR and ER spreadsheet calculations</del><br><br>The correct values for $EG_{facility,y}$ for each year of the first crediting period has been properly updated in version 1.1 of the PDD in lines with those used in the IRR sheet and determined in the approved FSR.<br>CAR 5 closed | <del>CAR 5</del>   | OK             |



| CHECKLIST QUESTION  | Ref. | §      | COMMENTS  | Draft<br>Concl     | Final<br>Concl |
|---|------|--------|---|--------------------|----------------|
| B.7.1.2.3 Where data or parameters are to be measured, does it specify the measurement methods and procedures, standards to be applied, accuracy of the measurements, person/entity responsible for the measurements, and, in case of periodic measurements, the measurement intervals? | PDD  | -      | <del>Pending on CL 2</del><br>Yes.<br>The generation and consumption of the Proposed Project Activity is monitored continuously through two meters installed in the onsite substation, one is main meter, and the other is back up meter. The accuracy of the metering equipment is at least 0.5s. The metering equipment is calibrated annually and checked for accuracy by a qualified third party in accordance with industry standards. | <del>Pending</del> | OK             |
| B.7.1.2.4 Is a description of the QA/QC procedures including the calibration procedures, where applicable, provided?  | PDD  | -      | <del>Pending on CL 2</del><br>Yes.  | <del>Pending</del> | OK             |
| B.7.1.2.5 Is the purpose of data indicated?   | PDD  | -      | Yes<br>Calculation of baseline emissions  | OK                 | OK             |
| B.7.1.3 Is this monitoring plan based on the approved monitoring methodology applied to the proposed CDM project activity?  | VVS  | 131    | Yes.  | OK                 | OK             |
| B.7.1.4 Does the monitoring plan contain all necessary parameters?  | VVS  | 132(a) | Refer to table 2 below  | -                  | OK             |
| B.7.1.5 Do the means of monitoring described in the plan comply with the requirements of the methodology including applicable tool(s)?  | VVS  | 132(a) | <del>Pending on CL 2</del><br>Yes.  | <del>Pending</del> | OK             |
| B.7.1.6 Are the monitoring arrangements described in  | VVS  | 132(b) | <del>Pending on CL 2</del>  | <del>Pending</del> | OK             |

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| CHECKLIST QUESTION   | Ref.      | §      | COMMENTS   | Draft<br>Concl | Final<br>Concl |
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| the monitoring plan feasible within the project design?  |           |        | Yes.   |                |                |
| B.7.1.7 Are the means of implementation of the monitoring plan sufficient to ensure that the emission reductions achieved by/resulting from the proposed CDM project activity can be reported ex post and verified?      | VVS       | 132(b) | <del>Pending on CL-2</del><br>Yes.   | Pending        | OK             |
| <b>B.7.2 Sampling plan</b>   |           |        |  |                |                |
| B.7.2.1 Are there any data and parameters monitored in section B.7.1 above to be determined by a sampling approach?  | PDD       | -      | N.A.   | OK             | OK             |
| B.7.2.2 Is a description of the sampling plan provided in accordance with the recommended outline for a sampling plan in the "Standard for sampling and surveys for CDM project activities and programme of activities"? | PDD       | -      | N.A.   | OK             | OK             |
| <b>B.7.3 Other elements of monitoring plan</b>   |           |        |  |                |                |
| B.7.3.1 Is the operational and management structure, that the project operator will implement in order to monitor emission reductions and any leakage generated by the project activity, described in the PDD?           | PDD<br>PS | 56(a)  | Yes.<br>The responsibility for monitoring lies with the developer who operates the proposed project. The developer will establish a CDM project management office and assign personnel to the monitoring and reporting tasks | OK             | OK             |
| B.7.3.2 Are the responsibilities for and institutional arrangements for data collection and archiving  | PDD<br>PS | 56(c)  | Yes.   | OK             | OK             |



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| clearly indicated?   |      |       |   |                    |                |
| B.7.3.3 Does the monitoring plan include provisions to ensure that data monitored and required for verification and issuance be kept and archived electronically for two years after the end of the crediting period or the last issuance of CERs, whichever occurs later? | PS   | 56(b) | Yes.  | OK                 | OK             |
| B.7.3.4 Does the monitoring plan include uncertainty levels, methods and the associated accuracy level of measuring instruments to be used for various parameters and variables?   | PS   | 56(e) | <del>Pending on CL 2</del><br>Yes.  | <del>Pending</del> | OK             |
| B.7.3.5 Does the monitoring plan include specifications of the calibration frequency for the measuring equipments?   | PS   | 56(f) | <del>Pending on CL 2</del><br>Yes.  | <del>Pending</del> | OK             |
| <b>C. Duration and crediting period</b>  |      |       |   |                    |                |
| <b>C.1 Duration of project activity</b>  |      |       |   |                    |                |
| <b>C.1.1 Start date of project activity</b>  |      |       |   |                    |                |
| C.1.1.1 Is the start date of the project activity stated, in the format of DD/MM/YYYY?   | PDD  | -     | <del>CAR 6</del><br><del>The starting date of the Project reported in section C.1.1 of the PDD is not correct. As per evidence verified on site, the project starting date is 05/07/2011 and not 05/07/2012.</del><br><br>By reviewing the implementation timeline of | <del>CAR 6</del>   | OK             |

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| CHECKLIST QUESTION   | Ref. | § | COMMENTS  | Draft<br>Concl | Final<br>Concl |
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|  |      |   | the project specified in section 3.9.1 of this report, Bureau Veritas Certification could verify that the project starting date is 05/07/2011 when the inverter contract for the project was signed. This was the earliest of the date(s) on which the implementation or construction or real action of a project activity begins/has begun. Information revised in the PDD has been found correct.<br><br>CAR 6 is closed. |                |                |
| C.1.1.2 Does it describe how the start date has been determined and provide evidence to support this date? | PDD  | - | <del>Pending on CAR 6</del><br><br>Yes.<br>The project starting date is 05/07/2011 when the inverter contract for the project was signed. This was the earliest of the date(s) on which the implementation or construction or real action of a project activity begins/has begun.   | Pending        | OK             |
| C.1.2 Expected operational lifetime of project activity  |      |   |   |                |                |
| C.1.2.1 Is the expected operational lifetime of the project activity stated in years and months?           | PDD  | - | Yes.<br>25 years and 0 months   | OK             | OK             |
| C.2 Crediting period of project activity   |      |   |   |                |                |
| C.2.1 Type of crediting period   |      |   |   |                |                |
| C.2.1.1 Is the type of crediting period chosen for the   | PDD  | - | Yes.<br>Renewable crediting period.   | OK             | OK             |

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| CHECKLIST QUESTION   | Ref. | §   | COMMENTS   | Draft<br>Concl | Final<br>Concl |
|--|------|-----|--|----------------|----------------|
| project activity stated?   |      |     |  |                |                |
| C.2.1.2 In case a renewable crediting period was chosen, does it indicate whether it is the first, second or third?  | PDD  | -   | Yes.<br>First  | OK             | OK             |
| C.2.2 Start date of crediting period   |      |     |  |                |                |
| C.2.2.1 Is the start date of crediting period stated in the format of DD/MM/YYYY?  | PDD  | -   | Yes.<br>01/11/2012   | OK             | OK             |
| C.2.3 Length of crediting period   |      |     |  |                |                |
| C.2.3.1 Is the length of crediting period stated in years and months?  | PDD  | -   | Yes.<br>7 years and 0 months   | OK             | OK             |
| <b>D. Environmental impacts</b>  |      |     |  |                |                |
| <b>D.1 Analysis of the environmental impacts</b>   |      |     |  |                |                |
| D.1.1 Is a summary of the analysis of the environmental impacts of the project activity and references to all related documentation provided?  | PDD  | -   | Yes.<br>The environmental impacts of the project have been verified and found consistent with the EIA and EIA approval.                                  | OK             | OK             |
| <b>D.2 Environmental impact assessment</b>   |      |     |  |                |                |
| D.2.1 If an environmental impact assessment is required, are conclusions and references to all related documentation provided?   | PDD  | -   | Yes.   | OK             | OK             |
| D.2.2 Have the project participants undertaken an analysis of environmental impacts activity, including transboundary impacts, and whether those impacts are considered significant by the | VVS  | 134 | Both EIA and its approval confirm that the Project environmental impacts are not significant and can be avoided with the implementation of environmental | OK             | OK             |

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| CHECKLIST QUESTION  | Ref. | §   | COMMENTS   | Draft<br>Concl | Final<br>Concl |
|---|------|-----|--|----------------|----------------|
| project participants or the host Party?   |      |     | management procedures.   |                |                |
| D.2.3 If the host Party requires an environmental impact assessment, have the environmental impact assessment approved by local government?   | VVS  | 135 | Yes.<br>Approved in June 2011 by the Qinghai Environmental Protection Bureau   | OK             | OK             |
| <b>E. Local stakeholder consultation</b>  |      |     |  |                |                |
| <b>E.1 Solicitation of comments from local stakeholders</b>   |      |     |  |                |                |
| E.1.1 Did the project participants complete a local stakeholder consultation process and that due steps were taken to engage stakeholders and solicit comments for the proposed project activity? | VVS  | 138 | Yes.<br>In May 2011 the project participant carried out a survey of the local villagers and residents living nearby the project site.  | OK             | OK             |
| E.1.2 Is the process by which comments from local stakeholders have been invited provided?  | PDD  | -   | Yes.<br>A survey was conducted.<br><br>50 questionnaire were distributed and, after completion, were all returned to the project participant. The questionnaire included a short summary of the project purpose, technology involved, a number of specific questions for the local stakeholders and a space for adding the stakeholders own comments.<br><br>All questionnaire have been verified onsite | OK             | OK             |
| <b>E.2 Summary of comments received</b>   |      |     |  |                |                |
| E.2.1 Are stakeholders that have made comments  | PDD  | -   | Yes.   | OK             | OK             |



| CHECKLIST QUESTION   | Ref.       | §            | COMMENTS  | Draft<br>Concl                                       | Final<br>Concl |
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| identified?  |            |              | Local villagers and residents living nearby the project site  |  |                |
| E.2.2 Have comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity been invited?   | VVS        | 139 (a)      | Yes.  | OK   | OK             |
| E.2.3 Is the summary of comments provided complete?  | PDD<br>VVS | -<br>139 (b) | Yes.<br><br>This has been found consistent with the questionnaire verified onsite   | OK   | OK             |
| <b>E.3 Report on consideration of comments received</b>  |            |              |   |  |                |
| E.3.1 Is information provided to demonstrate that all comments received have been considered?  | PDD<br>VVS | 139 (c)      | Yes.<br><br>The stakeholders are supportive of the projects and there have not been comments which would require modifying the project design and implementation. | OK   | OK             |
| <b>F. Approval and authorization</b>   |            |              |   |  |                |
| <b>F.1 General</b>   |            |              |   |  |                |
| F.1.1 Is it indicated whether the letter(s) of approval from Party(ies) available at the time of submitting the PDD to the validating DOE? | PDD        | -            | Yes.<br><br>The letters of approval from Parties were not available at the time of submitting the PDD to the validating DOE                                       | OK   | OK             |
| <b>F.2 Approval</b>  |            |              | People's Republic of China  | United Kingdom of Great Britain and Northern Ireland |                |
| F.2.1 Has the DNA of each Party indicated as being   | VVS        | 38           | Yes.  | CAR-7  | OK             |

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| CHECKLIST QUESTION   | Ref. | §  | COMMENTS   |   | Draft<br>Concl | Final<br>Concl |
|--|------|----|--|---|----------------|----------------|
| involved in the proposed CDM project activity in section A.3 of the PDD provided a written letter of approval?   |      |    | The Letter of Approval No.3951 date April.2012 from China's DNA has been provided.   | <del>The Letter of Approval from United Kingdom of Great Britain and Northern Ireland has to be provided.</del><br><br>Yes.<br>The provided letter of approval from United Kingdom of Great Britain and Northern Ireland DNA (EA/CRMSA/32/2012), the Environment Agency, has been provided. |                |                |
| F.2.2 Does the letter of approval from DNA of each Party confirm that :<br>(a) The Party is a Party of the Kyoto Protocol<br>(b) The participation is voluntary<br>(c) In the case of the host Party, the proposed CDM project activity contributes to the sustainable development of the country<br>(d) Refers to the precise proposed CDM project activity title in the PDD being submitted for registration | VVS  | 39 | The verified letter of Approval No.3951 date April 2012 issued by China's DNA confirms that:<br>- China ratified the Kyoto protocol on 30/08/2002 and the Party is a Party of the Kyoto Protocol,<br>-Participation is | <del>Pending on CAP 7</del><br><br>The Letter of Approval dated 27/06/2012 from United Kingdom of Great Britain and Northern Ireland DNA (EA/CRMSA/32/201   | Pending        | OK             |

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| CHECKLIST QUESTION  | Ref. | §     | COMMENTS  |   | Draft<br>Concl | Final<br>Concl |
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|   |      |       | voluntary<br>-The proposed CDM project activity contributes to the sustainable development of China;<br>-It refers to the precise proposed CDM project activity title in the PDD being submitted for registration | 2) confirms that:<br>- United Kingdom ratified the Kyoto protocol on 31/05/2002 and the Party is a Party of the Kyoto Protocol,<br>-Participation is voluntary<br>-It refers to the precise proposed CDM project activity title in the PDD being submitted for registration |                |                |
| F.2.3 Is(are) the letter(s) of approval unconditional with respect to (F.2.2) above?  | VVS  | 40    | The LoA is unconditional with respect to (F.2.3) above  | <del>Pending on CAR 7</del><br>Yes-   | Pending        | OK             |
| F.2.4 Has(ve) the letter(s) of approval been issued by the respective Party's DNA? If there is doubt with respect to (F.2.2) above, was it verified with the DNA that the letter of approval is valid for the proposed CDM project activity under validation? | VVS  | 41,42 | Yes. Issued by China DNA, NDRC  | <del>Pending on CAR 7</del><br>Yes. Issued by the United Kingdom of Great Britain and Northern Ireland  | Pending        | OK             |



| CHECKLIST QUESTION   | Ref. | §  | COMMENTS  | Draft<br>Concl     | Final<br>Concl |
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|  |      |    | DNA<br>(EA/CRMSA/32/201<br>2), the Environment<br>Agency.                                 |                    |                |
| F.2.5 Does the letter of approval by the DNA of the host Party confirm the contribution of the proposed CDM project activity to the sustainable development of the host Party?                             | VVS  | 51 | Yes.  | OK                 | OK             |
| <b>F.3 Authorization</b>   |      |    |   |                    |                |
| F.3.1 Has each project participant been authorized by at least one Party involved in a letter of approval?   | VVS  | 45 | <del>Pending on CAR 7</del><br>Yes.   | <del>Pending</del> | OK             |
| F.3.2 Is the information in tabular form in the PDD consistent with the contact information for project participants provided?   | VVS  | 46 | <del>Pending on CAR 7</del><br>Yes.   | <del>Pending</del> | OK             |
| F.3.3 Are any entities other than those approved as project participants included in the PDD?  | VVS  | 47 | <del>Pending on CAR 7</del><br>Yes.   | <del>Pending</del> | OK             |
| F.3.4 Has the approval of participation issued from the relevant DNA? And if in doubt, was it verified with the DNA that the approval of participation is valid for the proposed CDM project participants? | VVS  | 48 | <del>Pending on CAR 7</del><br>Yes and there is no doubt about the approval authenticity. | <del>Pending</del> | OK             |
| <b>Part III Others</b>   |      |    |   |                    |                |
| <b>A. Appendixes of PDD</b>  |      |    |   |                    |                |
| <b>A.1 Appendix 1: Contact information of project</b>  |      |    |   |                    |                |



| CHECKLIST QUESTION   | Ref. | § | COMMENTS  | Draft<br>Concl     | Final<br>Concl |
|--|------|---|---|--------------------|----------------|
| <b>participants</b>  |      |   |   |                    |                |
| A.1.1 For each organization listed in section A.4 of PDD, is the table in PDD completed, with the following mandatory fields: Organization, City, postcode, Country, Telephone and Fax, e-mail and Name of contact person? | PDD  | - | Yes.  | OK                 | OK             |
| <b>A.2 Appendix 2: Affirmation regarding public funding</b>  |      |   |   |                    |                |
| A.2.1 If applicable, is the affirmation obtained from Parties providing public funding to the project Activity attached?   | PDD  | - | N.A.<br>No public funding involved in the project | OK                 | OK             |
| <b>A.3 Appendix 3: Applicability of the selected methodology(ies)</b>  |      |   |   |                    |                |
| A.3.1 Is the background information on the applicability of the selected methodology provided?   | PDD  | - | N.A.<br>Provided in section B.2 of the PDD        | OK                 | OK             |
| <b>A.4 Appendix 4: Further background information on ex ante calculation of emission reductions</b>  |      |   |   |                    |                |
| A.4.1 Is the background information on the ex ante calculation of emission reductions provided?  | PDD  | - | <del>Pending on CAR 4</del><br>Yes.               | <del>Pending</del> | OK             |
| <b>A.5 Appendix 5: Further background information on monitoring plan</b>   |      |   |   |                    |                |
| A.5.1 Is the background information used in the development of the monitoring plan provided?   | PDD  | - | N.A.  | OK                 | OK             |

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| <b>A.6 Appendix 6: Summary of post registration changes</b>  |      |    |   |                |                |
| A.6.1 Is a summary of the post registration changes provided?  | PDD  | -  | N.A.  | OK             | OK             |
| <b>B. Global Stakeholder Consultation</b>  |      |    |   |                |                |
| B.1.1 Is there any comment on the PDD of the proposed project activity received during Global Stakeholder Consultation process?  | VVS  | 34 | No  | OK             | OK             |
| B.1.2 If yes, have all comments been taken into account during the validation of the proposed project activity?  | VVS  | 35 | N.A.  | OK             | OK             |
| B.1.3 If comments indicate that the proposed project activity does not comply with the CDM requirements and are not substantiated, is there any further clarification from the entity providing the comment? | VVS  | 36 | N.A.  | OK             | OK             |
| B.1.4 If yes, how comments received have been taken due account?   | VVS  | 36 | N.A.  | OK             | OK             |
| B.1.5 If no, are the comments as originally provided proceeded to assess?  | VVS  | 36 | N.A.  | OK             | OK             |
| <b>C. Modalities of Communications (MoC)</b>   |      |    |   |                |                |
| C.1.1 Has the corporate identity of all project participants and focal points included in MoC statement, as well as the personal identities, including specimen  | VVS  | 53 | <del>CAR-8</del><br>The MoC of the project has to be provided | CAR-8          | OK             |

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| signatures and employment status, of their authorized signatories been validated by:  |      |       | Modalities of Communication Form dated 28/08/2012 signed by Delingha Xiehe Solar PV Power Generation Co., Ltd and Carbon Resource Management S.A. has been provided,<br><br>CAR 8 is closed.  |                |                |
| C.1.1.1 Directly checking evidence for corporate, personal identity and other relevant documentation; or  | VVS  | 54(a) | <del>Pending on CAR 8</del><br>N.A.   | Pending        | OK             |
| C.1.1.2 Notarized documentation; or   | VVS  | 54(b) | <del>Pending on CAR 8</del><br>N.A.   | Pending        | OK             |
| C.1.1.3 Written confirmation from the project participant or the coordinating/managing entity that all corporate and personal details, including specimen signatures, are valid and accurate. | VVS  | 54(c) | <del>Pending on CAR 8</del><br><br>Yes.<br>Written confirmation from the project participant or the coordinating/managing entity that all corporate and personal details, including specimen signatures, are valid and accurate has been provided and verified. | Pending        | OK             |
| C.1.2 If (C.1.1.3) above was chosen, is it ensured that the MoC statement is received from a project participant with whom the DOE has a contractual relationship?                            | VVS  | 55    | <del>Pending on CAR 8</del><br><br>Yes.<br>The MoC statement is received from a project participant with whom the DOE has a contractual relationship  | Pending        | OK             |
| C.1.3 If (C.1.1.3) above was chosen, is it ensured that the official who submits the MoC statement to the   | VVS  | 56    | <del>Pending on CAR 8</del>   | Pending        | OK             |



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| DOE and the official who signed the written confirmation (if a different person) is/are duly authorized to do so on behalf of the respective project participant?              |      |       | The official that submitted the MoC to Bureau Veritas Certification and who signed the written confirmation is the same person. Bureau Veritas Certification could confirm that the official is duly authorized to do so on behalf of the respective project participant by verifying the authorization letter provided by the project participants |                    |                |
| C.1.4 If it is unable to validate the requirements by applying C.1.1.1 to C.1.1.3 above, are any further validation activities performed?                                      | VVS  | 57    | <del>Pending on CAP 8</del><br>N.A.   | <del>Pending</del> | OK             |
| C.1.5 Has the latest version of the form "Modalities of Communication statement" (F-CDM-MOC) been used?  | VVS  | 60(a) | <del>Pending on CAP 8</del><br>Yes.   | <del>Pending</del> | OK             |
| C.1.6 Is the information required as per F-CDM-MOC, including its annex 1, correctly completed?  | VVS  | 60(b) | <del>Pending on CAP 8</del><br>Yes.   | <del>Pending</del> | OK             |
| C.1.7 Do the project participant's authorized signatories signing the F-CDM-MOC correspond to the project participant's authorized signatories included in F-CDM-MOC, annex 1? | VVS  | 60(c) | <del>Pending on CAP 8</del><br>Yes.   | <del>Pending</del> | OK             |

**Table 2 Validation requirements based on ACM0002 version 12.3.0 (EB 66 Annex 35)**

| CHECKLIST QUESTION   | Ref.  | §          | COMMENTS  | Draft<br>Concl | Final<br>Concl |
|--|-------|------------|---|----------------|----------------|
| <b>I. SOURCE, DEFINITIONS AND APPLICABILITY</b>  |       |            |   |                |                |
| <b>B. Applicability</b>  |       |            |   |                |                |
| <b>B.1 Applicable types</b>  |       |            |   |                |                |
| B.1.1 Is the project activity a grid-connected renewable power generation project activity that:<br>(a) install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield plant);<br>(b) involve a capacity addition;<br>(c) involve a retrofit of (an) existing plant(s)<br>(d) involve a replacement of (an) existing plant(s) | ACM02 | Ver 12.3.0 | Yes.<br>The Project is to install a new PV power plant at a site where no renewable power plant was operated prior to the implementation of the Project (greenfield plant). | OK             | OK             |
| <b>B.2 Applicable conditions</b>   |       |            |   |                |                |
| B.2.1 Is project activity the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types:<br>(a) hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir),<br>(b) wind power plant/unit,<br>(c) geothermal power plant/unit,<br>(d) solar power plant/unit,  | ACM02 | Ver 12.3.0 | Yes.<br>The Project is the installation of a PV power plant.  | OK             | OK             |

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|--|-------|------------|--|----------------|----------------|
| (e) wave power plant/unit or<br>(f) tidal power plant/unit?  |       |            |  |                |                |
| B.2.2 In the case of capacity additions, retrofits or replacements:  |       |            |  |                |                |
| B.2.2.1 Did the existing plant start commercial operation prior to the start of a minimum historical reference period of five years?   | ACM02 | Ver 12.3.0 | N.A.<br>The Project is a Greenfield plant.                   | OK             | OK             |
| B.2.2.2 No capacity expansion or retrofit of the plant has been undertaken between the start of this minimum historical reference period and the implementation of the project activity?   | ACM02 | Ver 12.3.0 | N.A.   | OK             | OK             |
| B.2.3 In case of hydro power plants, does one of the following conditions apply?   |       |            |  |                |                |
| B.2.3.1 The project activity is implemented in an existing single or multiple reservoirs, with no change in the volume of reservoir; or  | ACM02 | Ver 12.3.0 | N.A.<br>The Project is the installation of a PV power plant. | OK             | OK             |
| B.2.3.2 The project activity is implemented in an existing single or multiple reservoirs, where the volume of any of reservoirs is increased and the power density of the each reservoir, as per definitions given in the Project Emissions section, is greater than 4 W/m <sup>2</sup> ; or | ACM02 | Ver 12.3.0 | N.A.   | OK             | OK             |
| B.2.3.3 The project activity results in new single or multiple reservoirs and the power density of each reservoir, as per definitions given in the   | ACM02 | Ver 12.3.0 | N.A.   | OK             | OK             |

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| Project Emissions section, is greater than 4 W/m <sup>2</sup>   |       |            |  |                |                |
| B.2.4 In case of hydro power plants using multiple reservoirs where the power density of any of the reservoirs is lower than 4 W/m <sup>2</sup> , are all the following conditions satisfied?                                       |       |            |  |                |                |
| B.2.4.1 The power density calculated for the entire project activity using equation 5 is greater than 4W/m <sup>2</sup> ;   | ACM02 | Ver 12.3.0 | N.A.<br>The Project is the installation of a PV power plant. | OK             | OK             |
| B.2.4.2 Multiple reservoirs and hydro power plants located at the same river and where are designed together to function as an integrated project that collectively constitute the generation capacity of the combined power plant; | ACM02 | Ver 12.3.0 | N.A.   | OK             | OK             |
| B.2.4.3 Water flow between multiple reservoirs is not used by any other hydropower unit which is not a part of the project activity;  | ACM02 | Ver 12.3.0 | N.A.   | OK             | OK             |
| B.2.4.4 Total installed capacity of the power units, which are driven using water from the reservoirs with power density lower than 4 W/m <sup>2</sup> , is lower than 15MW;  | ACM02 | Ver 12.3.0 | N.A.   | OK             | OK             |
| B.2.4.5 Total installed capacity of the power units, which are driven using water from reservoirs with power density lower than 4 W/m <sup>2</sup> , is less than 10% of the total installed capacity of the                        | ACM02 | Ver 12.3.0 | N.A.   | OK             | OK             |

| CHECKLIST QUESTION  | Ref.  | §          | COMMENTS   | Draft<br>Concl | Final<br>Concl |
|---|-------|------------|--|----------------|----------------|
| project activity from multiple reservoirs.  |       |            |  |                |                |
| B.2.5 Is it confirmed by the design document that the methodology is not applicable to the following conditions? <ul style="list-style-type: none"> <li>- Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity</li> <li>- Biomass fired power plants;</li> <li>- A hydro power plant that result in new single reservoirs or in the increase in existing single reservoir where the power density of the power plant is less than 4 W/m<sup>2</sup></li> </ul> | ACM02 | Ver 12.3.0 | Yes.<br>The Project does not involve switching from fossil fuels to renewable energy source at the site of the project activities and it is neither a biomass fired power plant nor a hydro power plant. | OK             | OK             |
| B.2.6 In the case of retrofits, replacements, or capacity additions, is the continuation of the current situation identified as the most plausible baseline scenario?   | ACM02 | Ver 12.3.0 | N.A.<br>The Project is a Greenfield plant.   | OK             | OK             |
| <b>II. BASELINE METHODOLOGY</b>   |       |            |  |                |                |
| <b>C. Baseline scenario</b>   |       |            |  |                |                |
| <b>C.1 Greenfield</b>   |       |            |  |                |                |
| C.1.1 Is the baseline scenario identified as: Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in   | ACM02 | Ver 12.3.0 | Yes.   | OK             | OK             |



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| the "Tool to calculate the emission factor for an electricity system"?  |       |            |  |                |                |
| <b>C.2 Capacity addition</b>  |       |            |  |                |                |
| C.2.1 Is the baseline scenario identified as: In the absence of the CDM project activity, the existing facility would continue to supply electricity to the grid at historical levels, until the time at which the generation facility would likely be replaced or retrofitted (DATE <sub>BaselineRetrofit</sub> ). From that point of time onwards, the baseline scenario is assumed to correspond to the project activity, and no emission reductions are assumed to occur? | ACM02 | Ver 12.3.0 | N.A.<br>The Project is a Greenfield plant. | OK             | OK             |
| <b>C.3 Retrofit or replacement</b>  |       |            |  |                |                |
| C.3.1 Are following steps applied to identify the baseline scenario?  |       |            |  |                |                |
| C.3.1.1 Step 1: Identify realistic and credible alternative baseline scenarios for power generation   | ACM02 | Ver 12.3.0 | N.A.<br>The Project is a Greenfield plant. | OK             | OK             |
| C.3.1.2 Step 2: Barrier analysis  | ACM02 | Ver 12.3.0 | N.A.                                       | OK             | OK             |
| C.3.1.3 Step 3: Investment analysis   | ACM02 | Ver 12.3.0 | N.A.                                       | OK             | OK             |
| <b>D. Additionality</b>   |       |            |  |                |                |
| D.1.1 Is the additionality of the project activity demonstrated and assessed using the latest   | ACM02 | Ver 12.3.0 | Yes.                                       | OK             | OK             |

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| version of the “Tool for the demonstration and assessment of additionality”?  |       |            |  |                |                |
| <b>E. Project boundary</b>  |       |            |  |                |                |
| <b>E.1 Spatial extent</b>   |       |            |  |                |                |
| E.1.1 Is the spatial extent of the project boundary defined as the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to?  | ACM02 | Ver 12.3.0 | Yes.                                       | OK             | OK             |
| <b>E.2 Emission sources</b>   |       |            |  |                |                |
| E.2.1 Are the greenhouse gases and emission sources included in or excluded from the project boundary justified appropriately as shown in the methodology?  | ACM02 | Ver 12.3.0 | Yes.                                       | OK             | OK             |
| <b>F. Emission reductions</b>   |       |            |  |                |                |
| <b>F.1 Project emissions</b>  |       |            |  |                |                |
| F.1.1 For geothermal and solar thermal projects, which also use fossil fuels for electricity generation, are CO2 emissions from the combustion of fossil fuels ( $PE_{FF,y}$ ) accounted for as project emissions and calculated as per latest version of the “Tool to calculate project or leakage CO2 emissions from fossil fuel combustion”? | ACM02 | Ver 12.3.0 | N.A.<br>The Project is a PV power project. | OK             | OK             |
| F.1.2 For geothermal project activities, are fugitive emissions of carbon dioxide and methane due to  | ACM02 | Ver 12.3.0 | N.A.<br>The Project is a PV power project. | OK             | OK             |

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|--|-------|---------------|--|----------------|----------------|
| release of non-condensable gases from produced steam calculated as follows?<br>$PE_{GP,y} = (W_{steam,CO2,y} + W_{steam,CH4,y} * GWP_{CH4}) * M_{steam,y}$   |       |               |  |                |                |
| F.1.3 For hydro power project activities that result in new single or multiple reservoirs and hydro power project activities that result in the increase of single or multiple existing reservoirs, are the project emissions calculated as follows?<br>$PD = (Cap_{PJ} - Cap_{BL}) / (A_{PJ} - A_{BL})$<br>If $10 \text{ W/m}^2 > PD > 4 \text{ W/m}^2$<br>$PE_{HP,y} = (EF_{Res} * TEG_y) / 1000$<br>If $PD > 10 \text{ W/m}^2$<br>$PE_{HP,y} = 0$ | ACM02 | Ver<br>12.3.0 | N.A.<br>The Project is a PV power project. | OK             | OK             |
| F.1.4 For project activities that may involve significant project emissions, are these emissions accounted for by using the following equation?<br>$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}$  | ACM02 | Ver<br>12.3.0 | N.A.<br>The Project is a PV power project. | OK             | OK             |
| F.1.5 For other renewable power generation project activities, are the project emissions considered as follows?<br>$PE_y = 0$  | ACM02 | Ver<br>12.3.0 | Yes.                                       | OK             | OK             |
| <b>F.2 Baseline emissions</b>  |       |               |  |                |                |
| F.2.1 Are the baseline emissions calculated as:<br>$BE_y = EG_{PJ,y} * EF_{Grid,CM,y}$ ?   | ACM02 | Ver<br>12.3.0 | Yes.                                       | OK             | OK             |

| CHECKLIST QUESTION  | Ref.  | §          | COMMENTS                                   | Draft<br>Concl | Final<br>Concl |
|---|-------|------------|--|----------------|----------------|
| <b>F.2.2 Greenfield renewable energy power plants</b>   |       |            |  |                |                |
| F.2.2.1 If the project activity is the installation of a new grid-connected renewable power plant/unit at a site where no renewable power plant was operated prior to the implementation of the project activity, is $EG_{PJ,y}$ calculated as follows?<br>$EG_{PJ,y} = EG_{facility,y}$  | ACM02 | Ver 12.3.0 | Yes.                                       | OK             | OK             |
| <b>F.2.3 Retrofit or replacement of an existing renewable energy power plant</b>  |       |            |  |                |                |
| F.2.3.1 If the project activity is the retrofit or replacement of an existing grid-connected renewable power plant, the baseline scenario is the continuation of the operation of the existing plant, is $EG_{PJ,y}$ calculated as follows?<br>$EG_{PJ,y} = EG_{facility,y} - (EG_{historical} + \sigma_{historical})$ ; until $DATE_{BaselineRetrofit}$<br>and<br>$EG_{PJ,y} = 0$ ; on/after $DATE_{BaselineRetrofit}$ | ACM02 | Ver 12.3.0 | N.A.<br>The Project is a Greenfield plant. | OK             | OK             |
| <b>F.2.3.2 To determine <math>EG_{historical}</math>, have project participants chosen among the following two time spans of historical data?</b>   |       |            |  |                |                |
| (a) The five last calendar years prior to the implementation of the project activity; or  | ACM02 | Ver 12.3.0 | N.A.                                       | OK             | OK             |
| (b) The time period from the calendar year following $DATE_{hist}$ , up to the last calendar year prior to the  | ACM02 | Ver 12.3.0 | N.A.                                       | OK             | OK             |

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|---|-------|------------|----------|----------------|----------------|
| implementation of the project, as long as this time span includes at least five calendar years, where DATE <sub>hist</sub> is latest point in time between:<br>(i) The commercial commissioning of the plant/unit;<br>(ii) If applicable: the last capacity addition to the plant/unit; or<br>(iii) If applicable: the last retrofit of the plant/unit. |       |            |          |                |                |
| F.2.3.3 To determine <i>DATE<sub>BaselineRetrofit</sub></i> , have project participants taken the following approaches into account?  |       |            |          |                |                |
| (a) The typical average technical lifetime of the type equipment may be determined and documented, taking into account common practices in the sector and country   | ACM02 | Ver 12.3.0 | N.A.     | OK             | OK             |
| (b) The common practices of the responsible company regarding replacement/retrofitting schedules may be evaluated and documented  | ACM02 | Ver 12.3.0 | N.A.     | OK             | OK             |
| (c) Is it confirmed that the point in time when the existing equipment would need to be replaced/retrofitted in the absence of the project activity has been chosen in a conservative manner?   | ACM02 | Ver 12.3.0 | N.A.     | OK             | OK             |
| F.2.4 For capacity addition project activity, have project participants used one of the following two options   |       |            |          |                |                |

| CHECKLIST QUESTION   | Ref.  | §             | COMMENTS                                   | Draft<br>Concl | Final<br>Concl |
|--|-------|---------------|--|----------------|----------------|
| to determine $EG_{PJ,y}$ ?   |       |               |  |                |                |
| F.2.4.1 Option 1: Use the approach applied to retrofits and replacements above. $EG_{facility,y}$ corresponds to the total electricity generation of the existing plant(s) or unit(s) and the added plant(s) or unit(s). A separate metering of electricity fed into the grid by the added plant(s) or unit(s) is not necessary under this option. This option may be applied to all renewable power projects. | ACM02 | Ver<br>12.3.0 | N.A.<br>The Project is a Greenfield plant. | OK             | OK             |
| F.2.4.2 Option 2: For wind, solar, wave or tidal power plant(s) or unit(s), the following approach can be used provided that the electricity fed into the grid by the added power plant(s) or unit(s) addition is separately metered:<br>$EG_{PJ,y} = EG_{PJ\_Add,y}$  | ACM02 | Ver<br>12.3.0 | N.A.                                       | OK             | OK             |
| <b>F.3 Leakage</b>   |       |               |  |                |                |
| F.3.1 Is it confirmed that no leakage emissions are needed to be considered?   | ACM02 | Ver<br>12.3.0 | Yes.                                       | OK             | OK             |
| <b>F.4 Emission reductions</b>   |       |               |  |                |                |
| F.4.1 Are emission reductions calculated as follows?<br>$ER_y = BE_y - PE_y$   | ACM02 | Ver<br>12.3.0 | Yes.                                       | OK             | OK             |
| <b>G. Data and parameter not monitored</b>   |       |               |  |                |                |



| CHECKLIST QUESTION                                   |   | Ref.       | §             | COMMENTS   | Draft<br>Concl     | Final<br>Concl |
|--|---|------------|---------------|--|--------------------|----------------|
| G.1  | Parameters listed in the methodology  | ACM02      | Ver<br>12.3.0 | N.A.   | OK                 | OK             |
| G.2  | Data and parameters in the tools referred to in the methodology   | Tool<br>EF | Ver<br>02.2.1 | All the data and parameters used to determine the EF have been correctly listed in consistence with "Tool to calculate the emission factor for an electricity system" (version 02.2.1) and official publication in China.                          | OK                 | OK             |
| <b>III. MONITORING METHODOLOGY</b>                   |   |            |               |  |                    |                |
| <b>H. General requirement of monitoring activity</b> |   |            |               |  |                    |                |
| <b>H.1 Archive and measurement equipment</b>         |   |            |               |  |                    |                |
| H.1.1  | Is it indicated in the monitoring plan that all data collected as part of monitoring should be archived electronically and be kept at least for two years after the end of the last crediting period? | ACM02      | Ver<br>12.3.0 | Yes.   | OK                 | OK             |
| H.1.2  | Is it ensured that all measurements should be conducted with calibrated measurement equipment according to relevant industry standards?   | ACM02      | Ver<br>12.3.0 | <del>Pending on CL 2</del><br>Yes.   | <del>Pending</del> | OK             |
| <b>I. Data and parameters monitored</b>              |   |            |               |  |                    |                |
| I.1  | Parameters listed in the methodology  | ACM02      | Ver<br>12.3.0 | EG <sub>facility,y</sub> , quantity of net electricity generation supplied by the project plant/unit to the grid in year y, is required by ACM0002 version 12.3.0 for Greenfield wind power projects.<br><br>It has been correctly included in the | OK                 | OK             |

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|---|------------|---------------|--|----------------|----------------|
|   |            |               | <p>monitoring plan of the Project.</p> <p>To achieve <math>EG_{\text{facility},y}</math>, the following parameters will be measured:</p> <p>(i) The quantity of electricity supplied by the project plant/unit to the grid; and</p> <p>(ii) The quantity of electricity delivered to the project plant/unit from the grid</p> <p>They will be continuously measured by two electricity meters (one main and one backup) and at least monthly recorded.</p> |                |                |
| I.2 Data and parameters in the tools referred to in the methodology | Tool<br>EF | Ver<br>02.2.1 | N.A.   | OK             | OK             |



**Table 2-1 Validation requirements based on Methodological Tool "Demonstration and Assessment of Additionality" Ver 06.0.0 (EB 65 Annex 21)**

| CHECKLIST QUESTION   | Ref.            | §      | COMMENTS  | Draft<br>Concl | Final<br>Concl |
|--|-----------------|--------|---|----------------|----------------|
| <b>1. Step 1: Identification of alternatives</b>   |                 |        |   |                |                |
| <b>1.1 Sub-step 1a: Define alternatives to the project activity</b>  |                 |        |   |                |                |
| 1.1.1 Are realistic and credible alternative(s) identified, include following:   | EB 65<br>Ann 21 | 16     |   |                |                |
| 1.1.1.1 (a) The proposed project activity undertaken without being registered as a CDM project activity?   | EB 65<br>Ann 21 | 16 (a) | Yes   | OK             | OK             |
| 1.1.1.2 (b) Other realistic and credible alternative scenario(s) to the proposed CDM project activity scenario that deliver outputs services or services with comparable quality, properties and application areas, taking into account, where relevant, examples of scenarios identified in the underlying methodology? | EB 65<br>Ann 21 | 16 (b) | N/A as the ACM0002 Version 12.3.0 prescribed the baseline scenario.   | OK             | OK             |
| 1.1.1.3 (c) If applicable, continuation of the current situation (no project activity or other alternatives undertaken)?   | EB 65<br>Ann 21 | 16 (c) | The ACM0002 Version 12.3.0 prescribed the baseline scenario.<br>Alternative 2 was identified as: Continuation of the current situation, i.e. electricity delivered to the grid will continue to be generated by operation of grid-connected power plants and by the addition of new generation sources. | OK             | OK             |

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| CHECKLIST QUESTION   | Ref.            | §  | COMMENTS   | Draft Concl | Final Concl |
|--|-----------------|----|--|-------------|-------------|
| 1.1.2 If the proposed CDM project activity includes several different facilities, technologies, outputs or services, are alternative scenarios for each of them identified separately? Are realistic combinations of these considered as possible alternative scenarios to the proposed project activity?            | EB 65<br>Ann 21 | 17 | N/A as the Project only provides electricity by solar panels.  | OK          | OK          |
| 1.1.3 Does the project participant include the technologies or practices that provide outputs or services with comparable quality, properties and application areas as the proposed CDM project activity and that have been implemented previously or are currently being introduced in the relevant country/region? | EB 65<br>Ann 21 | 18 | No.  | OK          | OK          |
| 1.1.4 Outcome of Step 1a: Is realistic and credible alternative scenario(s) to the project activity identified appropriately?  | EB 65<br>Ann 21 | -  | Yes.   | OK          | OK          |
| <b>1.2 Sub-step 1b: Consistency with mandatory laws and regulations</b>  |                 |    |  |             |             |
| 1.2.1 Is the alternative(s) in compliance with all mandatory applicable legal and regulatory requirements, even if these laws and regulations have objectives other than GHG reductions, e.g. to mitigate local air pollution?   | EB 65<br>Ann 21 | 19 | Yes.<br>The identified two alternatives are in compliance with all mandatory applicable legal and regulatory requirements. | OK          | OK          |
| 1.2.2 If an alternative does not comply with all mandatory applicable legislation and regulations, is it shown that, based on an examination of current practice in  | EB 65<br>Ann 21 | 20 | N/A.   | OK          | OK          |

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| CHECKLIST QUESTION   | Ref.            | §  | COMMENTS  | Draft<br>Concl | Final<br>Concl |
|--|-----------------|----|---|----------------|----------------|
| the country or region in which the law or regulation applies, those applicable legal or regulatory requirements are systematically not enforced and that noncompliance with those requirements is widespread in the country?   |                 |    |   |                |                |
| 1.2.3 Outcome of Step 1b: Is realistic and credible alternative scenario(s) to the project activity that are in compliance with mandatory legislation and regulations taking into account the enforcement in the region or country and EB decisions on national and/or sectoral policies and regulations identified appropriately? | EB 65<br>Ann 21 | -  | Yes.  | OK             | OK             |
| <b>2. Step 2: Investment analysis</b>  |                 |    |   |                |                |
| <b>2.1 Sub-step 2a: Determine appropriate analysis method</b>  |                 |    |   |                |                |
| 2.1.1 Is the simple cost analysis applied, if the CDM project activity and the alternatives identified in Step 1 generate no financial or economic benefits other than CDM related income (Option I)?  | EB 65<br>Ann 21 | 25 | No.<br>Option I is not applicable for the proposed project because the project activity will generate economic benefits from electricity sale other than CERs income. | OK             | OK             |
| 2.1.2 Is the investment comparison analysis (Option II) or the benchmark analysis (Option III) used?   | EB 65<br>Ann 21 | 25 | Benchmark analysis (Option III) is used.  | OK             | OK             |
| <b>2.2 Sub-step 2b: Apply investment analysis</b>  |                 |    |   |                |                |
| 2.2.1 Option I - simple cost analysis:<br>Are the costs associated with the CDM project  | EB 65<br>Ann 21 | 26 | N/A.  | OK             | OK             |

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| activity and the alternatives identified in Step 1 correctly documented and is it demonstrated that there is at least one alternative which is less costly than the project activity?  |                 |        |   |                |                |
| 2.2.2 Option II - investment comparison analysis:<br>Is the financial indicator, such as IRR, NPV, cost benefit ratio, or unit cost of service most suitable for the project type and decision-making context correctly identified?  | EB 65<br>Ann 21 | 27     | N/A.  | OK             | OK             |
| 2.2.3 Option III - benchmark analysis:<br>Is the financial/economic indicator, such as IRR, most suitable for the project type and decision context correctly identified?  | EB 65<br>Ann 21 | 28     | Yes.<br>The Project IRR after tax is correctly applied.   | OK             | OK             |
| 2.2.4 When applying Option II or Option III, is financial/economic analysis based on parameters that are standard in the market, considering the specific characteristics of the project type, but not linked to the subjective profitability expectation or risk profile of a particular project developer? | EB 65<br>Ann 21 | 29     | Yes.<br>Project IRR of 8% (post tax) is widely used in the Chinese power sector. The financial analysis is based on parameters that are standard in the market, considering the specific characteristics of the project type, but not linked to the subjective profitability expectation or risk profile of the PP. | OK             | OK             |
| 2.2.5 Is the discount rate and benchmark derived from the following options:   | EB 65<br>Ann 21 | 30     |   |                |                |
| 2.2.5.1 (a) Government bond rates, increased by a suitable risk premium to reflect private investment and/or the project type, as  | EB 65<br>Ann 21 | 30 (a) | No.   | OK             | OK             |

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| substantiated by an independent (financial) expert or documented by official publicly available financial data?   |                 |        |  |                |                |
| 2.2.5.2 (b) Estimates of the cost of financing and required return on capital (e.g. commercial lending rates and guarantees required for the country and the type of project activity concerned), based on bankers views and private equity investors/funds' required return on comparable projects?        | EB 65<br>Ann 21 | 30 (b) | No.  | OK             | OK             |
| 2.2.5.3 (c) A company internal benchmark (weighted average capital cost of the company)? (The project developers shall demonstrate that this benchmark has been consistently used in the past, i.e. that project activities under similar conditions developed by the same company used the same benchmark) | EB 65<br>Ann 21 | 30 (c) | No.  | OK             | OK             |
| 2.2.5.4 (d) Government/official approved benchmark where such benchmarks are used for investment decisions?   | EB 65<br>Ann 21 | 30 (d) | Yes.<br>Derived from (d) Government/official approved benchmark where such benchmarks are used for investment decisions;<br>With reference to Interim Measures on Economic Assessment of Electric Engineering Retrofit Projects issued by former State Power Corporation of China in 2002 stated the financial benchmark of total investment Internal rate of return (IRR) (post | OK             | OK             |

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|  |                 |        | tax) in China's power industry is 8%.  |             |             |
| 2.2.5.5 (e) Any other indicators, if the project participants can demonstrate that the above Options are not applicable and their indicator is appropriately justified?  | EB 65<br>Ann 21 | 30 (e) | No.  | OK          | OK          |
| <b>2.3 Sub-step 2c: Calculation and comparison of financial indicators (only applicable to Options II and III)</b>   |                 |        |  |             |             |
| 2.3.1 Is the suitable financial indicator for the proposed CDM project activity and, in the case of Option II, for the other alternatives calculated?  | EB 65<br>Ann 21 | 31     | Yes.<br>The Project IRR after tax has been calculated so as to be compared with the available benchmark. | OK          | OK          |
| 2.3.2 Are all relevant costs (including, for example, the investment cost, the operations and maintenance costs), and revenues (excluding CER revenues, but possibly including inter alia subsidies/fiscal incentives, ODA, etc, where applicable), and, as appropriate, non-market cost and benefits in the case of public investors if this is standard practice for the selection of public investments in the host country included? | EB 65<br>Ann 21 | 31     | Yes.   | OK          | OK          |
| 2.3.3 Is the investment analysis presented in a transparent manner and are all the relevant assumptions provided, preferably in the PDD, or in separate annexes to the PDD, so that a reader can reproduce the analysis and obtain the same results?   | EB 65<br>Ann 21 | 32     | Yes.<br>Calculation processes have been presented in an excel sheet separate to the PDD.                 | OK          | OK          |

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| CHECKLIST QUESTION  | Ref.            | §  | COMMENTS   | Draft<br>Concl | Final<br>Concl |
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| 2.3.4 Are all critical techno-economic parameters and assumptions referred to? (such as capital costs, fuel prices, lifetimes, and discount rate or cost of capital)                          | EB 65<br>Ann 21 | 32 | Yes.   | OK             | OK             |
| 2.3.5 Are assumptions justified and/or cited in a manner that can be validated by the DOE?  | EB 65<br>Ann 21 | 32 | Yes.   | OK             | OK             |
| 2.3.6 In calculating the financial/economic indicator, are the project's risks included through the cash flow pattern, subject to project-specific expectations and assumptions?              | EB 65<br>Ann 21 | 32 | Yes, the relevant costs are included.  | OK             | OK             |
| 2.3.7 Is it ensured that assumptions and input data for the investment analysis do not differ across the project activity and its alternatives, unless differences can be well substantiated? | EB 65<br>Ann 21 | 33 | N/A as Option III is used.   | OK             | OK             |
| 2.3.8 Is a clear comparison of the financial indicator for the proposed CDM activity presented in the PDD?  | EB 65<br>Ann 21 | 34 | Yes.<br>The Project IRR after tax has been calculated so as to be compared with the available benchmark. | OK             | OK             |
| <b>2.4 Sub-step 2d: Sensitivity analysis (only applicable to Options II and III)</b>  |                 |    |  |                |                |
| 2.4.1 Is a sensitivity analysis that shows whether the conclusion regarding the financial/economic attractiveness is robust to reasonable variations in the critical assumptions included?    | EB 65<br>Ann 21 | 35 | Yes.   | OK             | OK             |
| 2.5 Is the latest approved version of the "Guidelines on  | EB 65           | 23 | Yes, please refer to table 2-2.  | -              | OK             |



| CHECKLIST QUESTION  | Ref.            | §    | COMMENTS  | Draft<br>Concl | Final<br>Concl |
|---|-----------------|------|---|----------------|----------------|
| the assessment of investment analysis" taken into account when applying Step 2?   | Ann 21          |      |   |                |                |
| 2.6 Outcome of Step 2: Is it concluded that: the proposed CDM project activity is more costly than at least one alternative (Option I), or the proposed CDM project activity is unlikely to be the most financially/economically attractive (Option II), or is unlikely to be financially/economically attractive (Option III)?               | EB 65<br>Ann 21 |      | Yes.<br>The Project is unlikely to be financially attractive without CDM revenue. | OK             | OK             |
| <b>3. Step 3: Barrier analysis</b>  |                 |      |   |                |                |
| <b>3.1 Sub-step 3a: Identify barriers that would prevent the implementation of the proposed CDM project activity</b>  |                 |      |   |                |                |
| 3.1.1 Are investment barriers identified, include following:  |                 |      |   |                |                |
| 3.1.1.1 (a) For alternatives undertaken and operated by private entities: Similar activities have only been implemented with grants or other non-commercial finance terms?  | EB 65<br>Ann 21 | 40.1 | N/A.  | OK             | OK             |
| 3.1.1.2 (b) No private capital is available from domestic or international capital markets due to real or perceived risks associated with investment in the country where the proposed CDM project activity is to be implemented, as demonstrated by the credit rating of the country or other country investments reports of reputed origin? | EB 65<br>Ann 21 | 40.1 | N/A.  | OK             | OK             |



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| CHECKLIST QUESTION  | Ref.            | §    | COMMENTS | Draft<br>Concl | Final<br>Concl |
|---|-----------------|------|----------|----------------|----------------|
| 3.1.2 Are technological barriers identified, include following:   |                 |      |          |                |                |
| 3.1.2.1 (a) Skilled and/or properly trained labour to operate and maintain the technology is not available in the relevant country/region, which leads to an unacceptably high risk of equipment disrepair and malfunctioning or other underperformance?  | EB 65<br>Ann 21 | 40.2 | N/A.     | OK             | OK             |
| 3.1.2.2 (b) Lack of infrastructure for implementation and logistics for maintenance of the technology (e.g. natural gas cannot be used because of the lack of a gas transmission and distribution network)?   | EB 65<br>Ann 21 | 40.2 | N/A.     | OK             | OK             |
| 3.1.2.3 (c) Risk of technological failure: the process/technology failure risk in the local circumstances is significantly greater than for other technologies that provide services or outputs comparable to those of the proposed CDM project activity, as demonstrated by relevant scientific literature or technology manufacturer information? | EB 65<br>Ann 21 | 40.2 | N/A.     | OK             | OK             |
| 3.1.2.4 (d) The particular technology used in the proposed project activity is not available in the relevant region?  | EB 65<br>Ann 21 | 40.2 | N/A.     | OK             | OK             |
| 3.1.3 Barriers due to prevailing practice (FoIK)  |                 |      |          |                |                |
| 3.1.3.1 For measures listed in paragraph 6 of the   |                 |      |          |                |                |

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| CHECKLIST QUESTION   | Ref.            | §    | COMMENTS  | Draft<br>Concl | Final<br>Concl |
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| additionality tool:  |                 |      |   |                |                |
| 3.1.3.1.1 (i) Is it ensured that the project is the first in the applicable geographical area that applies a technology that is different from any other technologies able to deliver the same output and that have started commercial operation in the applicable geographical area before the start date of the project? | EB 65<br>Ann 21 | 40.3 | N/A as the project activity is not the “first of its kind”. | OK             | OK             |
| 3.1.3.1.2 (ii) Is it ensured that project participants selected a crediting period for the project activity that is “a maximum of 10 years with no option of renewal”?   | EB 65<br>Ann 21 | 40.3 | N/A.  | OK             | OK             |
| 3.1.3.1.3 Is it concluded that the proposed project activity that was identified as the First-of-its-kind project activity is additional and Sub-step 3b does not apply?   | EB 65<br>Ann 21 | 40.3 | N/A.  | OK             | OK             |
| 3.1.3.2 For measures different from those listed in paragraph 6 of the additionality tool:   |                 |      |   |                |                |
| 3.1.3.2.1 Is it ensured that the project proponents propose approach for demonstrating that a project is a “first-of-its-kind” and Sub-step 3b applies?  | EB 65<br>Ann 21 | 40.3 | N/A as the project activity is not the “first of its kind”. | OK             | OK             |
| 3.1.4 Other barriers   |                 |      |   |                |                |
| 3.1.4.1 Are other barriers identified, preferably specified in the underlying methodology as   | EB 65<br>Ann 21 | 40.4 | N/A.  | OK             | OK             |

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| CHECKLIST QUESTION  | Ref.            | §  | COMMENTS | Draft<br>Concl | Final<br>Concl |
|---|-----------------|----|----------|----------------|----------------|
| examples?   |                 |    |          |                |                |
| 3.1.5 Outcome of Step 3a: Are barriers that may prevent one or more alternative scenarios to occur identified or is it concluded that the project is additional (FolK)?       | EB 65<br>Ann 21 |    | N/A.     | OK             | OK             |
| <b>3.2 Sub-step 3b: Show that the identified barriers would not prevent the implementation of at least one of the alternatives (except the proposed project activity)</b>     |                 |    |          |                |                |
| 3.2.1 If the identified barriers also affect other alternatives, is it explained how they are affected less strongly than they affect the proposed CDM project activity?      | EB 65<br>Ann 21 | 41 | N/A.     | OK             | OK             |
| 3.2.2 Is it ensured that any alternative that would be prevented by the barriers identified in Sub-step 3a is not a viable alternative, and is eliminated from consideration? | EB 65<br>Ann 21 | 41 | N/A.     | OK             | OK             |
| <b>3.3 General requirements for applying Steps 3</b>  |                 |    |          |                |                |
| 3.3.1 Is the latest approved version of the “Guidelines for objective demonstration and assessment of barriers” taken into account when applying this step?                   | EB 65<br>Ann 21 | 36 | N/A.     | OK             | OK             |
| 3.3.2 For barriers other than FolK, is it ensured that the identified barriers would prevent potential project proponents from carrying out the proposed project              | EB 65<br>Ann 21 | 38 | N/A.     | OK             | OK             |

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| CHECKLIST QUESTION   | Ref.            | §  | COMMENTS | Draft<br>Concl | Final<br>Concl |
|--|-----------------|----|----------|----------------|----------------|
| activity undertaken without being registered as a CDM project activity?  |                 |    |          |                |                |
| 3.3.3 For barriers other than Folk, is it ensured that the CDM alleviates the identified barriers that prevent the proposed project activity from occurring?   | EB 65<br>Ann 21 | 39 | N/A.     | OK             | OK             |
| 3.3.4 Is transparent and documented evidence provided?   | EB 65<br>Ann 21 | 42 | N/A.     | OK             | OK             |
| 3.3.5 Are conservative interpretations of the documented evidence, as to how it demonstrates the existence and significance of the identified barriers and whether alternatives are prevented by these barriers offered?         | EB 65<br>Ann 21 | 42 | N/A.     | OK             | OK             |
| 3.3.6 In case of anecdotal evidence, is it ensured that it is not used alone as proof of barriers?   | EB 65<br>Ann 21 | 42 | N/A.     | OK             | OK             |
| 3.3.7 Is it ensured that the type of evidence includes at least one of the following:  | EB 65<br>Ann 21 | 42 |          |                |                |
| 3.3.7.1 (a) Relevant legislation, regulatory information or industry norms;  | EB 65<br>Ann 21 | 42 | N/A.     | OK             | OK             |
| 3.3.7.2 (b) Relevant (sectoral) studies or surveys (e.g. market surveys, technology studies, etc) undertaken by universities, research institutions, industry associations, companies, bilateral/multilateral institutions, etc; | EB 65<br>Ann 21 | 42 | N/A.     | OK             | OK             |
| 3.3.7.3 (c) Relevant statistical data from national or international statistics;   | EB 65<br>Ann 21 | 42 | N/A.     | OK             | OK             |

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| CHECKLIST QUESTION   | Ref.            | §  | COMMENTS                   | Draft<br>Concl | Final<br>Concl |
|--|-----------------|----|----------------------------|----------------|----------------|
| 3.3.7.4 (d) Documentation of relevant market data (e.g. market prices, tariffs, rules);  | EB 65<br>Ann 21 | 42 | N/A.                       | OK             | OK             |
| 3.3.7.5 (e) Written documentation of independent expert judgments from industry, educational institutions (e.g. universities, technical schools, training centres), industry associations and others.              | EB 65<br>Ann 21 | 42 | N/A.                       | OK             | OK             |
| <b>4. Step 4: Common practice analysis</b>   |                 |    |                            |                |                |
| <b>4.1 For measures different from those listed in paragraph 6 of the additionality tool:</b>  |                 |    |                            |                |                |
| 4.1.1 Sub-step 4a: Analyze other activities similar to the proposed project activity   |                 |    |                            |                |                |
| 4.1.1.1 Does project proponent provide an analysis of any other activities that are operational and that are similar to the proposed project activity?   | EB 65<br>Ann 21 | 44 | Refer to 4.2 of Table 2-1. | -              | OK             |
| 4.1.1.2 Does project proponent provide documented evidence and, where relevant, quantitative information and describe whether and to which extent similar activities have already diffused in the relevant region? | EB 65<br>Ann 21 | 44 | Refer to 4.2 of Table 2-1. | -              | OK             |
| 4.1.2 Sub-step 4b: Discuss any similar Options that are occurring  |                 |    |                            |                |                |
| 4.1.2.1 If similar activities are identified, is it  | EB 65<br>Ann 21 | 45 | Refer to 4.2 of Table 2-1. | -              | OK             |

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| CHECKLIST QUESTION  | Ref.            | §  | COMMENTS  | Draft<br>Concl | Final<br>Concl |
|---|-----------------|----|---|----------------|----------------|
| demonstrated why the existence of these activities does not contradict the claim that the proposed project activity is financially/economically unattractive or subject to barriers?  |                 |    |   |                |                |
| 4.1.2.2 If the demonstration is done by comparing the proposed project activity to the other similar activities, are essential distinctions between them pointed out and explained?   | EB 65<br>Ann 21 | 45 | Refer to 4.2 of Table 2-1.  | -              | OK             |
| 4.1.2.3 If the essential distinctions include a serious change in circumstances, is the change fundamental and verifiable?  | EB 65<br>Ann 21 | 46 | Refer to 4.2 of Table 2-1.  | -              | OK             |
| <b>4.2 For measures listed in paragraph 6 of the additionality tool:</b>  |                 |    |   |                |                |
| 4.2.1 Step 1: Does project proponent calculate applicable output range as +/-50% of the design output or capacity of the proposed project activity?   | EB 65<br>Ann 21 | 47 | <del>Pending on CAR 1 and CL 7</del><br>Yes.<br>The total installed capacity of the Project is 30.174 MWp; therefore the applicable output range is from 15.087MWp to 45.261 MWp.   | Pending        | OK             |
| 4.2.2 Step 2: In the applicable geographical area, does project proponent 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? And note their number $N_{all}$ ? | EB 65<br>Ann 21 | 47 | <del>Pending on CAR 1 and CL 7</del><br>Qinghai province is selected as the applicable geographical area for the common practice analysis of the project and it is considered appropriate<br>$N_{all} = N_{all\ PV} + N_{all\ other}$<br>The public available sources on PV projects approved in China, information on UNFCCC | Pending        | OK             |

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| CHECKLIST QUESTION  | Ref.            | §  | COMMENTS  | Draft Concl        | Final Concl |
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|   |                 |    | website and VCS databases and information on the NDRC website are employed as data source for the common practice; therefore, BVC confirms that the source is reasonable.<br><br>Excluding the registered CDM project activities and project undergoing validation,<br>$N_{all} = N_{all\ PV} + N_{all\ other} = 0 + N_{all\ other} = N_{all\ other}$   |                    |             |
| 4.2.3 Step 3: Within plants identified in Step 2, does project proponent identify those that apply technologies different from that applied in the proposed project activity? And note their number $N_{diff}$ ?  | EB 65<br>Ann 21 | 47 | <del>Pending on CAP 1 and CL 7</del><br>Yes.<br>As the energy source/fuel are different, according to para.9(a) and (d) of "Tool-Additionality", $N_{diff} = N_{diff\ PV} + N_{diff, other}$<br><br>As the energy source/fuel are different, according to para.9(a) of "Tool-Additionality", $N_{diff\ other} = N_{all\ other}$<br>While $N_{diff\ wind} = 0$ since $N_{all\ PV} = 0$ . Hence:<br><br>$N_{diff} = N_{diff, other} = N_{all, other}$ | <del>Pending</del> | OK          |
| 4.2.4 Step 4: Does project proponent 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? | EB 65<br>Ann 21 | 47 | <del>Pending on CAP 1 and CL 7</del><br>Yes.<br>The factor $F = 1 - N_{diff} / N_{all} = 1 - N_{all, other} / N_{all, other} = 1 - 1 = 0$ , is not greater than 0.2.  | <del>Pending</del> | OK          |
| 4.2.5 Is it concluded that the proposed project activity is a "common practice" within a sector in the applicable geographical area as both the following   | EB 65<br>Ann 21 | 47 | <del>Pending on CAP 1 and CL 7</del><br>Yes.<br>The factor $F = 1 - N_{diff} / N_{all} = 1 - N_{all, other} /$  | <del>Pending</del> | OK          |



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| CHECKLIST QUESTION   | Ref. | § | COMMENTS   | Draft<br>Concl | Final<br>Concl |
|--|------|---|--|----------------|----------------|
| conditions are fulfilled?<br>(a) the factor F is greater than 0.2, and<br>(b) $N_{all-Ndiff}$ is greater than 3. |      |   | $N_{all,other} = 1 - 1 = 0$ , is not greater than 0.2. |                |                |



**Table 2-2 Validation requirements based on Guidelines on the Assessment of Investment Analysis (version 05) EB 62 Annex 5**

| CHECKLIST QUESTION  | Ref.           | § | COMMENTS  | Draft Concl | Final Concl |
|---|----------------|---|---|-------------|-------------|
| <b>1. General issues</b>  |                |   |   |             |             |
| <b>1.1 Period of assessment</b>   |                |   |   |             |             |
| 1.1.1 Is it ensured that the period of assessment is not limited to the proposed crediting period of the CDM project activity?  | EB 62<br>Ann 5 | 3 | Yes.<br>The operation period of 25 years was selected reasonably following the requirements of "Interim Rules on Economic Assessment of Electric Power Engineering Retrofit Projects" | OK          | OK          |
| 1.1.2 Is it ensured that project IRR or equity IRR calculation as a preference reflects the period of expected operation of the underlying project activity (technical lifetime), or - if a shorter period is chosen - include the fair value of the project activity assets at the end of the assessment period? | EB 62<br>Ann 5 | 3 | Yes.<br>The operation period of 25 years was selected reasonably following the requirements of "Interim Rules on Economic Assessment of Electric Power Engineering Retrofit Projects" | OK          | OK          |
| <b>1.2 Fair value</b>   |                |   |   |             |             |
| 1.2.1 If applicable, is the fair value of any project activity assets at the end of the assessment period included as a cash inflow in the final year?  | EB 62<br>Ann 5 | 4 | Yes, the residual value of the project activity assets has been recovered in the final year in calculation.   | OK          | OK          |
| 1.2.2 Is the fair value calculated in accordance with local accounting regulations where available, or international best practice?   | EB 62<br>Ann 5 | 4 | Yes. It was selected reasonably following relevant regulation in China, i.e. Enterprise Income Tax Law of China.  | OK          | OK          |

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| CHECKLIST QUESTION   | Ref.           | § | COMMENTS   | Draft<br>Concl | Final<br>Concl |
|--|----------------|---|--|----------------|----------------|
| 1.2.3 Do such fair value calculations include both the book value of the asset and the reasonable expectation of the potential profit or loss on the realization of the assets?  | EB 62<br>Ann 5 | 4 | Yes.   | OK             | OK             |
| <b>1.3 Non-cash items</b>  |                |   |  |                |                |
| 1.3.1 Are depreciation, and other non-cash items related to the project activity, which have been deducted in estimating gross profits on which tax is calculated, added back to net profits for the purpose of calculating the financial indicator (e.g. IRR, NPV)? | EB 62<br>Ann 5 | 5 | The depreciation year is 19 years, which is in compliance with the national regulation of Enterprise Income Tax Law Implementation Regulations of People's Republic of China issued by The People's Republic of China State Council, document code: Order No. 512, which stipulated the depreciation period for the equipment should be no less than 10 years. | OK             | OK             |
| 1.3.2 Is it ensured that taxation will be included as an expense in the IRR/NPV calculation, only in cases where the benchmark or other financial indicator is intended for post-tax comparisons?  | EB 62<br>Ann 5 | 5 | Yes.   | OK             | OK             |
| <b>1.4 Input values validity</b>   |                |   |  |                |                |
| 1.4.1 Are input values used in the investment analysis valid and applicable at the time of the investment decision taken by the project participant?   | EB 62<br>Ann 5 | 6 | Yes.<br>The FSR was finished in 05/2011 and investment decision to proceed with the Project as CDM was made by the PP on 26/05/2011. The input values from the FSR are valid and applicable at the time of the investment decision taken by the project  | OK             | OK             |

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| CHECKLIST QUESTION   | Ref.           | § | COMMENTS   | Draft<br>Concl | Final<br>Concl |
|--|----------------|---|--|----------------|----------------|
|  |                |   | participant.   |                |                |
| 1.4.2 Have the timing of the investment decision and the consistency and appropriateness of the input values with this timing been validated?  | EB 62<br>Ann 5 | 6 | Yes.<br>Given the short period of time between the FSR and the decision to proceed with the Project, Bureau Veritas Certification was therefore confident that it is unlikely in the context of the underlying Project that the input values would have materially changed, which is in line with the report <b>Para. (a) 122/VVS.</b> | OK             | OK             |
| 1.4.3 Have the listed input values been consistently applied in all calculations?  | EB 62<br>Ann 5 | 6 | Yes.   | OK             | OK             |
| <b>1.5 Cease after commencement</b>  |                |   |  |                |                |
| 1.5.1 In the case of project activities for which implementation ceases after the commencement and where implementation is recommenced due to consideration of the CDM, does the investment analysis reflect the economic decision-making context at point of the decision to recommence the project? i.e. capital costs incurred prior to the revised project activity start date are reflected as the recoverable value of the assets, which are limited to the potential reuse/resale of tangible assets. | EB 62<br>Ann 5 | 7 | N/A.   | OK             | OK             |
| <b>1.6 Transparency</b>  |                |   |  |                |                |
| 1.6.1 Have project participants supplied spreadsheet   | EB 62<br>Ann 5 | 8 | Yes.   | OK             | OK             |



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| CHECKLIST QUESTION  | Ref.           | §  | COMMENTS | Draft Concl | Final Concl |
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| versions of all investment analysis?  |                |    |          |             |             |
| 1.6.2 Are all formulas used in this analysis readable and are all relevant cells viewable and unprotected?  | EB 62<br>Ann 5 | 8  | Yes.     | OK          | OK          |
| 1.6.3 In cases where the project participant does not wish to make such a spreadsheet available to the public, is an exact read-only or PDF copy provided for general publication?  | EB 62<br>Ann 5 | 8  | N/A.     | OK          | OK          |
| 1.6.4 In case the PP wishes to black-out certain elements of the publicly available version, is a clear justification for this provided to the UNFCCC secretariat by the DOE when requesting registration?  | EB 62<br>Ann 5 | 8  | N/A.     | OK          | OK          |
| <b>2. Project IRR and Equity IRR</b>  |                |    |          |             |             |
| <b>2.1 Project IRR</b>  |                |    |          |             |             |
| 2.1.1 Is it ensured that the cost of financing expenditures (i.e. loan repayments and interest) is not included in the calculation of project IRR?  | EB 62<br>Ann 5 | 9  | Yes.     | OK          | OK          |
| <b>2.2 Equity IRR</b>   |                |    |          |             |             |
| 2.2.1 Is it ensured that in the calculation of equity IRR only the portion of investment costs which is financed by equity is considered as the net cash outflow, the portion of the investment costs which is financed by debt is not considered a cash outflow? | EB 62<br>Ann 5 | 10 | N/A.     | OK          | OK          |



| CHECKLIST QUESTION   | Ref.           | §  | COMMENTS   | Draft Concl | Final Concl |
|--|----------------|----|--|-------------|-------------|
| <b>2.3 Actual interest payable</b>   |                |    |  |             |             |
| 2.3.1 In cases where a post-tax benchmark is applied, is it ensured that actual interest payable is taken into account in the calculation of income tax? | EB 62<br>Ann 5 | 11 | <p><del>Pending on CL 6</del></p> <p>The interest rates (long and short term) of 6.80% and 6.31% applied in the investment analysis sourced from the FSR are the same of those valid and applicable in China at the time of FSR finalization and investment decision.</p> <p>Bureau Veritas Certification also crosschecked the interest rates used in the IRR calculations with those currently available in China and verified that the interest rate for long-term loans is 6.55% while for short-term loans is 6.00% as per latest interest rates issued by Bank of China in July 2012. By applying these long and short loan interest rates the IRR results lower, and thus less conservative, than the one using the data from the approved FSR available at the time of the investment decision. Hence the values used in the IRR calculations sourced from the FSR are considered correct and appropriate.</p> | Pending     | OK          |
| <b>3. Benchmarks</b>   |                |    |  |             |             |
| <b>3.1 Type of IRR</b>   |                |    |  |             |             |
| 3.1.1 In cases where a benchmark approach is used, is the applied benchmark appropriate to the type of   | EB 62<br>Ann 5 | 12 | Yes.   | OK          | OK          |



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| CHECKLIST QUESTION   | Ref.           | §  | COMMENTS  | Draft<br>Concl | Final<br>Concl |
|--|----------------|----|---|----------------|----------------|
| IRR calculated?  |                |    |   |                |                |
| 3.1.2 In cases where benchmarks are supplied by relevant national authorities, if the DOE validates that they are applicable to the project activity and the type of IRR calculation presented?  | EB 62<br>Ann 5 | 12 | Yes.<br><br>Project-IRR of 8% (post-tax) was employed by the Project as a benchmark, according to the “Interim Rules on Economic Assessment of Electric Power Engineering Retrofit Projects” issued by State Power Corporation of China in 2002. Bureau Veritas Certification has assessed the suitability of the benchmark and found that it is widely applied in China’s power generation industries; therefore, Bureau Veritas Certification concludes that the benchmark is suitable for the Project. | OK             | OK             |
| <b>3.2 Standard in the market or Company-specific</b>  |                |    |   |                |                |
| 3.2.1 If the DOE’s validation of the benchmark also includes its opinion on whether a company-specific benchmark or a benchmark based on parameters that are standard in the market is suitable in the context of the underlying project activity? | EB 62<br>Ann 5 | 13 | N/A.  | OK             | OK             |
| 3.2.2 In the cases of projects which could be developed by an entity other than the project participant, is it ensured that the benchmark is based on  | EB 62<br>Ann 5 | 13 | N/A.  | OK             | OK             |

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| CHECKLIST QUESTION   | Ref.           | §  | COMMENTS | Draft<br>Concl | Final<br>Concl |
|--|----------------|----|----------|----------------|----------------|
| parameters that are standard in the market?  |                |    |          |                |                |
| 3.2.3 In cases where internal company benchmarks/expected returns (including those used as the expected return on equity in the calculation of a weighted average cost of capital - WACC) are applied:   | EB 62<br>Ann 5 | 14 |          |                |                |
| 3.2.3.1 Is it ensured that there is only one possible project developer?   | EB 62<br>Ann 5 | 14 | N/A.     | OK             | OK             |
| 3.2.3.2 Is it demonstrated to have been used for similar projects with similar risks, developed by the same company?   | EB 62<br>Ann 5 | 14 | N/A.     | OK             | OK             |
| 3.2.3.3 Or, if the company is brand new, would have been used for similar projects in the same sector in the country/region?   | EB 62<br>Ann 5 | 14 | N/A.     | OK             | OK             |
| <b>3.3 Cost of equity</b>  |                |    |          |                |                |
| 3.3.1 If the benchmark is based on parameters that are standard in the market, is it ensured that the cost of equity is determined either by:<br>(a) selecting the values provided in Appendix A; or by<br>(b) calculating the cost of equity using best financial practices, based on data sources which can be clearly validated by the DOE, while properly justifying all underlying factors? | EB 62<br>Ann 5 | 15 | N/A.     | OK             | OK             |
| 3.3.2 If a company internal benchmark is used, the   | EB 62          | 15 | N/A.     | OK             | OK             |



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| CHECKLIST QUESTION  | Ref.           | §  | COMMENTS | Draft<br>Concl | Final<br>Concl |
|---|----------------|----|----------|----------------|----------------|
| values in the table in Appendix A may also be used, as a simple default option. Does the proposed benchmark adopt this option?  | Ann 5          |    |          |                |                |
| <b>3.4 Cost of debt</b>   |                |    |          |                |                |
| 3.4.1 If a company's internal benchmark is used for the expected return on equity, is it ensured that the cost of debt is based on the weighted average cost of debt financing of the legal entity owning the CDM project activity?   | EB 62<br>Ann 5 | 16 |          |                |                |
| 3.4.1.1 For loans, is the weighted average cost of outstanding long-term debt used?   | EB 62<br>Ann 5 | 16 | N/A.     | OK             | OK             |
| 3.4.1.2 For bonds, is the weighted average yield of the bonds during the last three months prior to the submission of the CDM-PDD for validation or prior to the investment decision, whichever is earlier used?  | EB 62<br>Ann 5 | 16 | N/A.     | OK             | OK             |
| 3.4.1.3 In cases where the debt finance structure of the project is not yet available (e.g. a letter of intent for debt funding is not available), is the cost of debt assumed as the commercial lending rate in the country or the yield of a 10 year bond issued by the government of the host country or, if this is not available, the bond with the maturity which is closest to 10 years? | EB 62<br>Ann 5 | 16 | N/A.     | OK             | OK             |
| 3.4.1.4 Are the followings documented in the CDM-PDD?   |                |    |          |                |                |





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| CHECKLIST QUESTION   | Ref.           | §  | COMMENTS | Draft<br>Concl | Final<br>Concl |
|--|----------------|----|----------|----------------|----------------|
| 3.4.1.4.1 (a) for bonds: the key parameters of the bond including the time of maturity, yield, registration issuance in the financial system and set-up in the market;   | EB 62<br>Ann 5 | 16 | N/A.     | OK             | OK             |
| 3.4.1.4.2 (b) for loans from a financial institution: the contract of lending between the financial institution and the legal entity owning the assets of the project activity, or, in absence of the contract, a letter from the bank stating its intention to award the loan and the key terms for the loan;   | EB 62<br>Ann 5 | 16 | N/A.     | OK             | OK             |
| 3.4.1.4.3 (c) for debt financing from a parent company: the transfer of capital to the legal entity, documented with the contract of lending between the parent company and the legal entity owning the assets of the project activity and/or the parameters of the corporate bonds as mentioned above. This latter option is only valid for corporate bonds issued in the host country of the CDM project activity. | EB 62<br>Ann 5 | 16 | N/A.     | OK             | OK             |
| 3.4.2 If the benchmark is based on parameters that are standard in the market, is it ensured that the cost of debt is calculated as the cost of financing in the capital markets (e.g. commercial lending rates and guarantees required for the country and the type of project activity concerned), based on documented evidence from financial institutions with regard to   | EB 62<br>Ann 5 | 16 | N/A.     | OK             | OK             |

## VALIDATION REPORT



| CHECKLIST QUESTION   | Ref.           | §  | COMMENTS | Draft<br>Concl | Final<br>Concl |
|--|----------------|----|----------|----------------|----------------|
| the cost of debt financing of comparable projects?<br>In cases where this data is not available, is the commercial lending rate in the host country used to calculate the cost of debt?  |                |    |          |                |                |
| <b>3.5 Finance structure</b>   |                |    |          |                |                |
| 3.5.1 If a company's internal benchmark is used for the expected return on equity, is it ensured that the percentage of debt financing and equity financing reflects the long-term debt/equity finance structure of the legal entity owning the assets of the project activity?  | EB 62<br>Ann 5 | 17 |          |                |                |
| 3.5.1.1 Is it ensured that the percentage is determined based on the latest balance sheet provided under local fiscal/accounting standards and rules if:<br><br>(a) the legal entity owning the assets of the project activity has balance sheets audited by a third party within two years prior to the submission of the CDM-PDD for validation; and<br><br>(b) the accounting books of the legal entity reflect at least the total value of all the assets needed for the project activity. | EB 62<br>Ann 5 | 17 | N/A.     | OK             | OK             |
| 3.5.1.2 If the debt/equity finance structure is not yet available, is 50% debt and 50% equity financing assumed as a default?  | EB 62<br>Ann 5 | 17 | N/A.     | OK             | OK             |

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| CHECKLIST QUESTION  | Ref.           | §  | COMMENTS   | Draft<br>Concl | Final<br>Concl |
|---|----------------|----|--|----------------|----------------|
| 3.5.2 If the benchmark is based on parameters that are standard in the market, is it ensured that the typical debt/equity finance structure observed in the sector of the country is used? If such information is not readily available, is 50% debt and 50% equity financing assumed as a default?           | EB 62<br>Ann 5 | 18 | N/A.   | OK             | OK             |
| <b>4. Investment comparison analysis and benchmark analysis</b>   |                |    |  |                |                |
| 4.1.1 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, is it ensured that an investment comparison analysis is used?  | EB 62<br>Ann 5 | 19 | N/A.   | OK             | OK             |
| 4.1.2 If the alternative to the project activity is the supply of electricity from a grid, is it ensured that a benchmark approach is used?   | EB 62<br>Ann 5 | 19 | Yes.   | OK             | OK             |
| <b>5. Sensitivity analysis</b>  |                |    |  |                |                |
| <b>5.1 Variables</b>  |                |    |  |                |                |
| 5.1.1 Are variables, including the initial investment cost, that constitute more than 20% of either total project costs or total project revenues subjected to reasonable variation (all parameters varied need not necessarily be subjected to both negative and positive variations of the same magnitude)? | EB 62<br>Ann 5 | 20 | Yes.<br>- Total Static Investment<br>- Tariff (incl. VAT)<br>- Generation/Plant Load Factor<br>- O&M costs | OK             | OK             |



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| CHECKLIST QUESTION   | Ref.           | §  | COMMENTS                            | Draft<br>Concl | Final<br>Concl |
|--|----------------|----|-------------------------------------|----------------|----------------|
| 5.1.2 Are the results of this variation presented in the PDD and reproducible in the associated spreadsheets?  | EB 62<br>Ann 5 | 20 | Yes.                                | OK             | OK             |
| 5.1.3 Where a DOE considers that a variable which constitute less than 20% has a material impact on the analysis, if a corrective action request to include this variable in the sensitivity analysis has been raised?                       | EB 62<br>Ann 5 | 20 | N/A.                                | OK             | OK             |
| <b>5.2 Variation range</b>   |                |    |                                     |                |                |
| 5.2.1 Has the DOE assessed in detail whether the range of variations is reasonable in the project context?   | EB 62<br>Ann 5 | 21 | <del>Pending on CAR-2</del><br>Yes. | Pending        | OK             |
| 5.2.2 In cases where a scenario will result in the project activity passing the benchmark or becoming the most financially attractive alternative, has the DOE provided an assessment of the probability of the occurrence of this scenario? | EB 62<br>Ann 5 | 21 | N/A.                                | OK             | OK             |

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

| Draft report clarifications and corrective action requests by validation team   | Ref. to Checklist               | Summary of project owner response  | Validation team conclusion   |
|---|---------------------------------|--|--|
| <b>CAR 1</b><br>In the PDD section A.1 the reported installed capacity and electricity generation of the Project are not correctly specified. As a matter of facts, as per verified FSR and onsite installation, the precise total installed capacity of the Project is 30.174MWp while the 25 years average electricity generation is 48,084.39 MWh. Relative information needs to be revised appropriately. | Table 1<br>Part II<br>A.1.1     | <p>The values of total installed capacity &amp; the 25 years average electricity generation in the GSC-PDD section A.1 were all rounded down numbers. In the updated version of the PDD (version 1.1) the non-rounded values of total installed capacity &amp; the 25 years average electricity generation, consistent with those of the approved FSR, have been properly specified.</p> <p>The Proposed Project Activity will install and operate 128,400 solar cell modules with a capacity of 235 Wp each. Therefore, the project scenario is the installation of 30.174 MWp of renewable energy power generation capacity, and the supply to the Grid of 48,084.39 MWh (average value for the 25 operational years) of electricity generated from renewable energy</p> | <p>The correct installed capacity and electricity generation of the Project, consistent with the values of the approved FSR, have been verified to be properly reported in version 1.1 of the PDD. Information contained in the PDD is correct.</p> <p>CAR 1 closed</p>      |
| <b>CAR 2</b><br>The sensitivity analysis for the total static investment is not calculated appropriately. Revision is required. In addition, additional information regarding tariff and generation/plant load factor is needed to ensure their   | Table 1<br>Part II<br>B.5.4.4.5 | <p>The sensitivity analysis for the total static investment has been properly revised. The updated IRR spreadsheet has been provided to the DOE for validation activities.</p> <p>With regards to the tariff applied to the project, the expected on-grid tariff used for the</p>  | <p>The sensitivity analysis for the total static investment has been verified and it can be confirmed that it is correct.</p> <p>In addition, concerning the reliability of the tariff of the project and the annual electricity supplied by the project, the additional</p> |



## VALIDATION REPORT

| Draft report clarifications and corrective action requests by validation team | Ref. to Checklist | Summary of project owner response  | Validation team conclusion   |
|---|-------------------|--|--|
| reliability.  |                   | <p>financial analysis in the FSR refers to the most recent tariff for solar PV power projects, as available at the time of writing the FSR<sup>†</sup>. On 24/07/2011, the tariff of the PV solar projects in China was unified and officially determined by NDRC throughout document Fa Gai Jia Ge [2011] No. 1594. As per document the tariff of 1.15 RMB/kWh (incl. VAT) will be assigned to projects approved before 01/07/2011 and which have started commissioning before 31/12/2011. All other solar projects, excluding those in Tibet, will receive a feed-in tariff of 1.00 RMB/kWh (incl. VAT). In accordance with the NDRC tariff notification (Fa Gai Jia Ge [2011] No. 1594), the tariff for solar power projects will be fixed, and not exceed 1.15 RMB/kWh. Therefore the tariff used in the FSR and IRR calculations (1.15 RMB/kWh) is the highest tariff obtainable by the project. Hence it is correct and appropriate and it is not realistic to assume that the tariff could be 17.6% higher than estimated in the FSR in order to reach the benchmark.</p> | <p>information has been verified and is considered satisfactory ensuring the appropriateness of the values. Bureau Veritas Certification verified the tariff notification Fa Gai Jia Ge [2011] No. 1594 issued by NDRC on 24/07/2011 and could verify that the highest tariff obtainable by the project is 1.15 RMB/kWh (incl. VAT), like the determined in the approved FSR and used in the IRR calculations.</p> <p>Lastly it was verified that the generation/plant load factor of the Project was determined by a qualified third party contracted with the PP based on the latest 31 years historical local solar radiation data (from 1978 to 2008) using professional software. In addition, concerning the project 20% energy degeneration over 25years period, Bureau Veritas Certification verified the 'Solar Energy Technology Multi Year Program Plan' 2007-2011 issued by the U.S. Department of Energy and could confirm that the data is reasonable and appropriate.</p> |

<sup>†</sup> [http://www.sdpc.gov.cn/zcfb/zcfbtz/2010tz/t20100409\\_339707.htm](http://www.sdpc.gov.cn/zcfb/zcfbtz/2010tz/t20100409_339707.htm)



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| Draft report clarifications and corrective action requests by validation team | Ref. to Checklist | Summary of project owner response   | Validation team conclusion   |
|---|-------------------|---|--|
|   |                   | <p>Lastly, concerning the generation/plant load factor of the project, it was determined in the FSR is based on onsite solar radiation measurements, the solar radiation assessment records for 1978 to 2008 and the output characteristics of the solar cell modules, using a scientific approach applied internationally, so there is an annual decrease in electricity generation which equals to circa 20% degeneration during the 25years of operations. This is compliance with what reported in the 'Solar Energy Technology Multi Year Program Plan' 2007-2011 issued by the U.S. Department of Energy, "most crystalline-silicon manufacturers offer warranties of 25 years, typically guaranteeing that the power output of the module will not decrease by more than 20% over this period"<sup>‡</sup>.</p> <p>Therefore, it is not credible to assume that generation from the proposed project would increase by more than 17.6% each year on average over the lifetime of the project in order the reach the benchmark 8%</p> | <p>To conclude the values of tariff and generation/plant load factor of the project determined in the FSR and used in the IRR calculations has been found appropriate and correct.</p> <p>CAR 2 is closed.</p> |

<sup>‡</sup> 'Solar Energy Technology Multi Year Program Plan' 2007-2011 p.37, issued by the U.S. Department of Energy

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| Draft report clarifications and corrective action requests by validation team   | Ref. to Checklist               | Summary of project owner response  | Validation team conclusion   |
|---|---------------------------------|--|--|
| <b>CAR 3</b><br>The average electricity generated by the project in the first crediting period indicated in section B.6.3 and used to calculate BEy is not correctly reported. As per FSR the value is 51,914.12MWh instead of 51,914MWh. Information needs to be modified appropriately. | Table 1<br>Part II<br>B.6.3.1   | The GSC-PDD quoted rounded numbers to increase readability of the document. All calculations were carried out with non-rounded numbers. In the revised PDD (version 1.1) numbers in section B.6.3 have been revised to non-rounded. The average electricity generated by the project in the first crediting period is, as per approved FSR, 51,914.12MWh | The correct average electricity generated by the project in the first crediting period, consistent with the value of the approved FSR, has been verified to be properly reported in version 1.1 of the PDD. Information contained in the PDD is correct.<br><br>CAR 3 closed |
| <b>CAR 4</b><br>The additional background information on emission reduction calculations should be provided also in Appendix 4 of the PDD.  | Table 1<br>Part II<br>B.6.3.3   | The additional background information on emission reduction calculations has been provided in Appendix 4 of the updated PDD.   | Information on emission reduction calculations added in Appendix 4 of the last PDD version has been verified to be correct.<br><br>CAR 4 is closed.  |
| <b>CAR 5</b><br>The values reported for $EG_{facility,y}$ are not consistent with those of the approved FSR used in the IRR and ER spreadsheet calculations   | Table 1<br>Part II<br>B.7.1.2.2 | The GSC-PDD quoted rounded numbers to increase readability of the document. All calculations were carried out with non-rounded numbers.<br><br>The numbers have been revised to non-rounded in the updated PDD.  | The correct values for $EG_{facility,y}$ for each year of the first crediting period has been properly updated in version 1.1 of the PDD in lines with those used in the IRR sheet and determined in the approved FSR.<br><br>CAR 5 closed                                   |
| <b>CAR 6</b>  | Table 1<br>Part II              | It was typo mistake.   | By reviewing the implementation timeline of the project specified in section 3.9.1 of this   |





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| Draft report clarifications and corrective action requests by validation team   | Ref. to Checklist                | Summary of project owner response   | Validation team conclusion   |
|---|----------------------------------|---|--|
| The starting date of the Project reported in section C.1.1 of the PDD is not correct. As per evidence verified on site, the project starting date is 05/07/2011 and not 05/07/2012. | C.1.1.1                          | The project starting date is 05/07/2011 when the inverter contract for the project was signed. Information has been revised in section C.1.1 of the updated PDD.  | report, Bureau Veritas Certification could verify that the project starting date is 05/07/2011 when the inverter contract for the project was signed. This was the earliest of the date(s) on which the implementation or construction or real action of a project activity begins/has begun. Information revised in the PDD has been found correct.<br><br>CAR 6 is closed. |
| <b>CAR 7</b><br>The Letter of Approval from United Kingdom of Great Britain and Northern Ireland has to be provided.  | Table 1<br>Part II<br><br>F.2.1  | The LoA (EA/CRMSA/32/2012) issued on 27/06/2012 has been provided to the DOE.   | The provided letter of approval from United Kingdom of Great Britain and Northern Ireland DNA (EA/CRMSA/32/2012), the Environment Agency, has been verified and it can be confirmed that it is valid and refers to the project under validation; i.e. Qinghai Delingha Xiehe Solar PV Power Generation Project<br><br>CAR 7 is closed  |
| <b>CAR 8</b><br>The MoC of the project has to be provided   | Table 1<br>Part III<br><br>C.1.1 | Below documents have been provided to the DOE for verification:<br><br>- Modalities of Communication Form dated 28/08/2012 signed by Delingha Xiehe Solar PV Power Generation Co., Ltd and Carbon Resource Management S.A. has been provided. | Bureau Veritas verified the provided documents and does not doubt of their authenticity. The validation team could validated the corporate identity of all project participants and focal points included in the Modalities of Communication (MoC) statement, as well as the personal identities,  |

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| Draft report clarifications and corrective action requests by validation team   | Ref. to Checklist                                 | Summary of project owner response  | Validation team conclusion  |       |                           |  |              |   |       |             |               |       |           |          |                  |  |  |
|---|---|--|---|-------|---------------------------|--|--------------|---|-------|-------------|---------------|-------|-----------|----------|------------------|--|--|
|   |   | <p>- Written confirmation signed by Ms. Li Ying, project Manager of Carbon Resource Management S.A., to confirm that all corporate and personal details, including specimen signatures, are valid and accurate</p> <p>- Letter from the project participants confirming that Ms. Li Ying is duly authorized to act on behalf of the project participants</p>   | <p>including specimen signatures and employment status, of their authorized signatories.</p> <p>Bureau Veritas Certification confirms that the MoC statement complies with all relevant forms and requirements.</p> <p>CAR 8 is closed.</p> |       |                           |  |              |   |       |             |               |       |           |          |                  |  |  |
| <p><b>CL 1</b></p> <p>The model of both the solar cell modules and inverters specified in the PDD section A.3 is not correct and is not consistent with the onsite verified equipment. Information needs to be properly revised</p> | <p>Table 1<br/>Part II<br/>A.3.1</p>              | <p>The models of both the solar cell modules and inverters specified in the GSC-PDD section A.3 were sourced from the FSR, and have been revised in the updated PDD (version 1.1) according to the onsite verified equipments.</p> <table><tr><th>Parameter</th><th>Value</th></tr><tr><td colspan="2"><b>Solar cell modules</b></td></tr><tr><td>Manufacturer</td><td>Jiangxi Saiwei LDK Solar High-technology Co., Ltd</td></tr><tr><td>Model</td><td>LDK-235P-20</td></tr><tr><td>Maximum Power</td><td>235Wp</td></tr><tr><td>Life time</td><td>25 years</td></tr><tr><td colspan="2"><b>Inverters</b></td></tr></table> | Parameter   | Value | <b>Solar cell modules</b> |  | Manufacturer | Jiangxi Saiwei LDK Solar High-technology Co., Ltd | Model | LDK-235P-20 | Maximum Power | 235Wp | Life time | 25 years | <b>Inverters</b> |  | <p>The equipment specifications used in the Project and described in the revised version of the PDD (version 1.1) have been verified and found consistent with the Solar cell modules and inverters nameplates and purchasing contracts</p> <p>CL 1 is closed.</p> |
| Parameter   | Value   |  |   |       |                           |  |              |   |       |             |               |       |           |          |                  |  |  |
| <b>Solar cell modules</b>   |   |  |   |       |                           |  |              |   |       |             |               |       |           |          |                  |  |  |
| Manufacturer  | Jiangxi Saiwei LDK Solar High-technology Co., Ltd |  |   |       |                           |  |              |   |       |             |               |       |           |          |                  |  |  |
| Model   | LDK-235P-20                                       |  |   |       |                           |  |              |   |       |             |               |       |           |          |                  |  |  |
| Maximum Power   | 235Wp   |  |   |       |                           |  |              |   |       |             |               |       |           |          |                  |  |  |
| Life time   | 25 years  |  |   |       |                           |  |              |   |       |             |               |       |           |          |                  |  |  |
| <b>Inverters</b>  |   |  |   |       |                           |  |              |   |       |             |               |       |           |          |                  |  |  |

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| Draft report clarifications and corrective action requests by validation team   | Ref. to Checklist             | Summary of project owner response   |   | Validation team conclusion  |
|---|-------------------------------|---|---|---|
|   |                               | Manufacturer  | Guodian Nanrui Jidian New Energy (Nanjing) Co., Ltd |   |
|   |                               | Model   | EHE-N500KTL   |   |
|   |                               | Rated Power   | 500kW   |   |
| <b>CL 2</b><br>The implemented monitoring system of the Project needs to be better specified in sections A.3 of the PDD. Numbers of meters employed for the measurement of $EG_{facility,y}$ , meters accuracy, and calibration frequency. Sections B.3 and B.7.1 of the PDD needs to be also updated accordingly | Table 1<br>Part II<br>A.3.1.2 | The generation and consumption of the Proposed Project Activity is monitored continuously through two meters installed in the onsite substation, one is main meter, and the other is back up meter. The accuracy of the metering equipment is at least 0.5s. The metering equipment is calibrated annually and checked for accuracy by a qualified third party in accordance with industry standards.<br><br>All the information has been revised in section A.3, B.3 and B.7.1 of the updated PDD. |   | Information has been added correctly. The monitoring plan specified in the updated PDD has been verified and is deemed correct reflecting good practice and ensuring consistent and reliable measurement of the net electricity supplied by the project activity.<br><br>CL 2 is closed |
| <b>CL 3</b><br>In section B.3 of the PDD, the grid to which the Project is connected to and emission sources needs to be clarified in the flow diagram.   | Table 1<br>Part II<br>B.3.2   | The flow diagram in section B.3 has been revised in the updated PDD. The grid to which Project is connected to and the emission sources have all been showed.   |   | The diagram in section B.3 of the PDD has been updated correctly. The grid to which Project is connected to and the emission sources have been properly showed.<br><br>CL 3 is closed   |
| <b>CL 4</b><br>Please specify all relevant assumptions and parameters used in   | Table 1<br>Part II<br>B.5.4.1 | All relevant assumptions and parameters used in the analysis have been specified in the PDD   |   | The revised PDD has been verified and Bureau Veritas Certification can confirm that the assumptions and parameters used in the  |

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| Draft report clarifications and corrective action requests by validation team   | Ref. to Checklist               | Summary of project owner response  | Validation team conclusion   |
|---|---------------------------------|--|--|
| the analysis as per Guidelines for Project Design Document (CDM-PDD) and the Proposed new baseline and monitoring methodologies (CDM-NM)* (EB66 annex 08)   |                                 | section B.5.   | investment analysis reported in section B.5 are consistent with those used in the IRR calculations and approved FSR used as a basis for the investment decision.<br><br>CL 4 is closed.  |
| <b>CL 5</b><br>The rationale for two different maintenance rates for the first 10 years of operation and from year 11 to year 25 should be justified.       | Table 1<br>Part II<br>B.5.4.4.1 | The maintenance rate for the first ten years of operation is 0.5% of dynamic investment excluding equipment VAT and from year 11 to year 25 is 1% of dynamic investment excluding equipment VAT. This is in accordance with section 4, page 96 of Construction project economic evaluation method and parameters (version III ), which states that the maintenance rates can be adjusted discontinuously from lower value to higher value for the impairment of the equipment. | Bureau Veritas Certification verified that it has been demonstrated that the application of two different maintenance rates for the first ten years of operation and from year 11 to year 25 of operation, is consistent with the approved FSR of the project and in accordance with section 4, page 96 of Construction project economic evaluation method and parameters (version III ) in China<br><br>CL 5 is closed. |
| <b>CL 6</b><br>The loan contract needs to be provided to ascertain the validity of the 80%-20% equity-debt ratio and loan interest rate assumed in the FSR. | Table 1<br>Part II<br>B.5.4.4.1 | At the moment the loan contract has not been finalized yet. However, a loan commitment letter has been signed between the PP and Bank of China. The commitment letter confirms the loan amount determined in the approved FSR. With regards to the loan interest rates, it is 6.80% for long-term loan interest rate and 6.31% for short-term loan interest rate in the approved FSR, in line with   | The loan commitment letter signed between the PP and the Bank of China has been checked and Bureau Veritas Certification verified that the letter confirms the loan amount determined in the approved FSR. Furthermore, as per publicly available information on the Bank of China website, the long and short interest loan rates issued  |



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| Draft report clarifications and corrective action requests by validation team                | Ref. to Checklist                      | Summary of project owner response  | Validation team conclusion  |
|--|--|--|---|
|  |  | <p>national short and long term loan interest valid at the time of FSR finalization and investment decision. Lastly, the interest rates used in the IRR calculations have been compared with the ones currently available in China. As per public available information, the interest rate for long-term loans is 6.55% while for short-term loans is 6.00% as per latest interest rates issued by Bank of China, the bank with which the PP signed the loan commitment letter, in July 2012. By using these long and short loan interest rates the IRR results lower, and thus less conservative, than the one using the data from the approved FSR valid and available at the time of the investment decision. Hence the values used in the IRR calculations sourced from the FSR are considered correct and appropriate</p> <p>Supporting evidence(i.e. loan commitment letter) has been provided to the DOE for validation activities.</p> | <p>by Bank of China are 6.55% and 6% lower than those assumed in the FSR - 6.80% and 6.31%. The values assumed in the approved FSR have also been found consistent with the long and short interest loan rate issued by Bank of China at the time of the FSR finalization; i.e. May 2011.</p> <p>In addition, Bureau Veritas Certification crosschecked the interest rates used in the IRR calculations with those currently available in China and verified that the interest rate for long-term loans is 6.55% while for short-term loans is 6.00% as per latest interest rates issued by Bank of China in July 2012. By applying these long and short loan interest rates the IRR results lower, and thus less conservative, than the one using the data from the approved FSR available at the time of the investment decision. Hence the values used in the IRR calculations sourced from the FSR are considered correct and appropriate.</p> <p>CL 6 is closed.</p> |
| <p><b>CL 7</b><br/>The common practice analysis is not complete. Improvement is required</p> | <p>Table 1<br/>Part II<br/>B.5.6.4</p> | <p>The common practice analysis has been properly updated in the PDD following the clarification on application of common practice analysis with tool for the demonstration of</p>   | <p>The revised common practice analysis carried out in the PDD version 1.1 on the basis of the clarification on application of</p>  |



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| Draft report clarifications and corrective action requests by validation team  | Ref. to Checklist                      | Summary of project owner response   | Validation team conclusion  |
|--|--|---|---|
|  |  | <p>additionality (v.06.0.0) (<a href="http://cdm.unfccc.int/methodologies/PAmethodologies/tools-clarifications/30494">http://cdm.unfccc.int/methodologies/PAmethodologies/tools-clarifications/30494</a>). For further details refer to the PDD section B.5 step 4.</p> | <p>common practice analysis with tool for the demonstration of additionality (v.06.0.0) (<a href="http://cdm.unfccc.int/methodologies/PAmethodologies/tools-clarifications/30494">http://cdm.unfccc.int/methodologies/PAmethodologies/tools-clarifications/30494</a>) Bureau Veritas Certification confirm that the Project has been demonstrated to not be common practice in the selected geographical region.</p> <p>CL 7 is closed.</p> |
| <p><b>CL 8</b><br/>In section B.5 of the PDD, Table 3, it should be added the date of FSR finalization, Board Decision Meeting, signature of solar panel purchasing contract, signature of construction contract, and start of construction.</p> | <p>Table 1<br/>Part II<br/>B.5.7.2</p> | <p>The dates have been added in Table 3 of the updated PDD. Please refer to the PDD for detailed information.</p>   | <p>Information added in Table 3 of section B.5 of the PDD have been verified against the FSR, Board Decision Meeting minutes, solar panel purchasing contract, construction contract, starting construction permit and found consistent.</p> <p>CL 8 is closed.</p>   |