



VALIDATION REPORT  
for the CDM Project Activity

Heqing Solar Cooker  
Project II

in  
P.R. China

Report No. 01 997 9105061237

Version No. 01.6, 2011-08-04

TÜV Rheinland Japan Ltd.

**I. Project description:**

**Project title:** Heqing Solar Cooker Project II  
**Host Country:** P. R. China  
**Methodology:** AMS-I.C. version 18 ☐ Large Scale ☒ Small Scale  
**Annual average emission reductions (estimate):** 143,762 tCO<sub>2</sub>e/yr  
**GHG reducing measure/technology:**

Party	Project Participants	Party considered a project participant
People's Republic of China (Host)	Beijing Harmonious Energy Development Co., Ltd.	No
Netherlands	Clean Air Capital Ltd	No

**II. Validation:**

**Contract party:** Beijing Harmonious Energy Development Co., Ltd.

**Validation Team:**

Role	Full name	Appointed for Sectoral Scopes	Affiliation
<b>Team Leader</b>	Harold Hai	1, 13	TÜV Rheinland Hong Kong Ltd.
<b>Team Member</b>	Minglong Huang	1, 5, 11, 12	
	Tommy Lo	1, 13	
	Wilfred Chan*	1, 6, 13	
<b>Trainee</b>	Feng Hu	N/A	TÜV Rheinland China Ltd.
<b>Technical Reviewer</b>	Cuiping Deng	1, 5, 11, 12	

\*Wilfred Chan participated in the captioned project till October 30 2010.

**Validation Phases:**

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

**Validation Status:**

- ☐ Corrective Actions / Clarifications Requested  
☒ Full Approval and Submission for Registration  
☐ Rejected

**III. Validation Report:**

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Final approval:  <input checked="" type="checkbox"/>	Released on:  <b>2011-08-08</b> <b>By: Dr. Manfred Brinkmann</b>	Designated Operational Entity (DOE): <b>TÜV Rheinland Japan Ltd.</b> Shin Yokohama Daini Center Bldg., 3-19-5, Shin Yokohama Kohoku-ku, Yokohama, JAPAN 222-0033 Tel.: +81 45 470 1850, Fax: +81 45 470-2361 E-mail: cdm@tuv.com
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## Executive Summary – Validation Opinion

The validation team assigned by the DOE (TÜV Rheinland Japan Ltd.) concludes that the CDM Project Activity “Heqing Solar Cooker Project II” in P.R. China, as described in the PDD (version 9 dated 03<sup>rd</sup> August 2011), meets all relevant requirements of the UNFCCC for CDM project activities including article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakesh Accords) and the subsequent decisions by the COP/MOP and CDM Executive Board. The selected baseline/monitoring methodology is applicable to the project and correctly applied. The DOE therefore request the registration of the project as a CDM project activity.

The validation was executed in the following steps so far:

- Desk review of preliminary PDD (GSP version 1, 8<sup>th</sup> August 2010)
- Public stakeholder comment process (19<sup>th</sup> August to 17<sup>th</sup> September 2010)
- On-site visit with stakeholder interviews (25<sup>th</sup> August to 26<sup>th</sup> August 2010)
- Issue of checklist with corrective action requests (CARs) and clarification requests (CLs) and the draft validation report & protocol
- Desk review of revised PDD (Version 9, 3<sup>rd</sup> August 2011)
- Review of proposed corrections and clarifications
- Issue of the final validation report & protocol

The host country is the P.R. China. The LoA from the P.R. China’s DNA – National Development & Reform Commission of the P.R. China (NDRC), was checked. The NDRC authorizes Beijing Harmonious Energy Development Co., Ltd. as a voluntary project participant and confirms that the project assists China in achieving sustainable development.

The project is a bi-lateral project, with Netherlands identified as the Annex I party. The LoA for confirming Clean Air Capital Ltd as the project participant from the DNA of Netherlands has been received.

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

The validation team has checked that the project correctly applies AMS-I.C./Version 18 – “Thermal energy for the user with or without electricity”.

The project results in reductions of CO<sub>2</sub> emissions that are real, measurable and give long-term benefits to the mitigation of climate change. Emission reductions attributable to the project are additional to any that would occur in the absence of the project activity. The total emission reductions from the project are estimated to be on the average 143,762 tCO<sub>2</sub>e per year over the selected 10-year fixed crediting period. The estimation of emission reductions has been validated.

Monitoring procedures have been designed according to the monitoring methodology AMS-I.C./Version 18. Training plan and materials are available /7/, and the training programme will be provided by the project developer to the participating villagers when the proposed project

is submitted for request for registration, this is confirmed with the representative /vi/ from BHED.

In summary, the validation team has revealed that the relevance of investment barrier is sufficiently evidenced. Thus, it is the validation team's opinion that the Heqing Solar Cooker Project II in the P.R. China, as described in the PDD of 3<sup>rd</sup> August 2011, meets all the relevant UNFCCC requirements for the CDM project and relevant host country criteria and correctly applies the baseline and monitoring methodology AMS-I.C./Version 18. The validation team of TÜV Rheinland Japan Ltd. thus recommends the proposed project activity to be registered as a CDM project activity with the UNFCCC.

**Abbreviations**

*The abbreviations that have been used in the report are listed here.*

BE <sub>y</sub>	Baseline Emissions
BHED	Beijing Harmonious Energy Development Co., Ltd.
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
CO <sub>2</sub>	Carbon Dioxide
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
EB	Executive Board
EIA	Environmental Impact Assessment
EIAR	Registration Form for Environmental Impact on Construction Projects
EPB	Environmental Protection Bureau
ER	Emission Reductions
ERPA	Emission Reduction Purchase Agreement
ES	Energy Station
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG	Greenhouse Gas
GWh	Giga Watt Hours
I	Interview
IM	Interim Measures for Operation and Management of CDM projects
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
kW	Kilo Watt
kWh	Kilo Watt Hours
LoA	Letter of Approval
LoI	Letter of Intent
LE <sub>y</sub>	Leakage Emissions
MOU	Memorandum of Understanding
MoV	Means of Validation
MW	Mega Watt
MWh	Mega Watt Hours
NDRC	National Development and Reform Commission of the People's Republic of China
NGO	Non Government Organisation
NO <sub>x</sub>	Nitrogen Oxides
NPV	Net Present Value
O&M	Operation and Maintenance
OSV	On Site Visit
PDD	Project Design Document
PE <sub>y</sub>	Project Emissions
PEHU	Physics & Electronic Department of Hexi University
SA	Sensitivity Analysis
SO <sub>2</sub>	Sulphur Dioxide
STHS	Stakeholder Survey
T	Tonne
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
VAT	Value-added Tax

VVM      Validation and Verification Manual

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## 1 INTRODUCTION

Beijing Harmonious Energy Development Co., Ltd. has commissioned the DOE TÜV Rheinland Japan Ltd. to perform a validation of the CDM Project Activity “Heqing Solar Cooker Project II” in P. R. China (hereafter called “the project”). This report summarises the findings of the validation of the project, performed on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. The term “UNFCCC criteria” refers to Article 12 of the Kyoto Protocol, the CDM modalities and procedures or the simplified modalities and procedures for small-scale CDM project activities (as applicable) and the subsequent decisions by the CDM Executive Board.

### 1.1 Objective

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

### 1.2 Scope

The validation scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against the relevant criteria (see above) and decisions by the CDM Executive Board, including the approved baseline and monitoring methodology. The validation team has, based on the recommendations in the Validation and Verification Manual employed a rules-based approach, focusing on the identification of significant risks for project implementation and the generation of CERs.

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



## 2 METHODOLOGY

The validation consists of the following four phases:

- I submit the Project Design Document (PDD) for GSP
- II desk review of the project design documents for GSP
- II on-site visit and follow-up interviews with project stakeholders
- III the resolution of outstanding issues and the issuance of the final validation report and opinion.

The following sections outline each step in more detail.

### 2.1 Desk Review of the Project Design Documentation

Table 1: It outlines the documentation reviewed during the validation:

/1/	/1.1/	Project Design Document (PDD), Version 1, 8 <sup>th</sup> August 2010 (GSP)
	/1.2/	Project Design Document (PDD), Version 9, 3 <sup>rd</sup> August 2011
/2/	CDM Validation and Verification Manual (Version 01.2) EB55 Annex 1	
/3/	/3.1/	CDM-SSC-PDD - Project Design Document form for Small-Scale project activities, Version 03 <a href="http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/index.html">http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/index.html</a>
	/3.2/	Guidelines for Completing the Project Design Document (CDM-PDD) And the Proposed New Baseline And Monitoring Methodologies (CDM-NM), Version 05 <a href="http://cdm.unfccc.int/Reference/Guidclarif/pdd/index.html">http://cdm.unfccc.int/Reference/Guidclarif/pdd/index.html</a>
	/3.3/	Glossary of CDM terms <a href="http://cdm.unfccc.int/Reference/Guidclarif/glos_CDM.pdf">http://cdm.unfccc.int/Reference/Guidclarif/glos_CDM.pdf</a>
/4/	UNFCCC Approved Baseline & Monitoring Methodology: AMS-I.C./Version 18, "Thermal energy production with or without electricity", EB56	
/5/	UNFCCC, " Non-binding best practice examples to demonstrate additionality for SSC project activities", EB35 Annex 34	
/6/	The National Development and Reform Commission of the People's Republic of China (i.e. Chinese DNA), Letter of Approval, English version: Ref no. 3006, June 2011 <a href="http://cdm.ccchina.gov.cn/website/CDM/pdf/Item_new/Item_new6425.pdf">http://cdm.ccchina.gov.cn/website/CDM/pdf/Item_new/Item_new6425.pdf</a>	
/7/	Beijing Harmonious Energy Development Co., Ltd., Project Training Plan for Solar Cooker User	
/8/	Project Geographical Location Information	
/9/	Beijing Harmonious Energy Development Co., Ltd., Project Monitoring Plan (Chinese Version)	

/10/	Zhangye Rural Energy Office, Clarification of Fuel Consumption and Usage Time for Baseline Scenario, 27 <sup>th</sup> August 2010
/11/	Beijing Harmonious Energy Development Co., Ltd., Agreement of Solar cooker with rural residents (Template) for Heqing Solar Cooker Project II
/12/	Beijing Harmonious Energy Development Co., Ltd., Solar cooker contract with product specification and inspection requirements for potential solar cooker manufacturer (Template)
/13/	The Ministry of Housing, Spatial Planning and the Environment (i.e. The Dutch DNA), Approval of Voluntary Participation in a CDM Project (Ref. no.: ANL2010-421), 14 <sup>th</sup> December 2010 <a href="http://regelingen.agentschapnl.nl/content/overview-submitted-written-approvals-carboncredits">http://regelingen.agentschapnl.nl/content/overview-submitted-written-approvals-carboncredits</a>
/14/	China National Standard, Concentration type solar cooker standard (NY/T219-2003), 2003
/15/	Lanzhou Juren Solar Cooker Limited, Solar Cooker Project Specification and Certificates
/16/	Lanzhou Juren Solar Cooker Limited, Solar Cooker Operation and Maintenance Manual
/17/	Qinghai Provincial Product Quality Inspection Institute, Testing Report for Solar Cooker from Manufacturer of Lanzhou Juren Solar Cooker Limited (Ref. no.: DZ2007-0737), 9 <sup>th</sup> November 2007
/18/	Gansu Provincial Construction Material Quality Inspection Institute, Testing Report for Solar Cooker from Manufacturer of Lanzhou Juren Solar Cooker Limited (Ref. no.: Others 10052), 6 <sup>th</sup> August 2010
/19/	China Statistics Press, China Energy Statistical Yearbook 2006-2008
/20/	Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Table 2.5, Page 2.22, Chapter 2, Volume 2
/21/	UNDP, Clean Energy for Development and Economic Growth: Biomass and Other Renewable Energy Options to Meet Energy and development Needs in Poorer Nations, 2002 ( <a href="http://www.undp.org/energy/publications/2002/2002b.htm">http://www.undp.org/energy/publications/2002/2002b.htm</a> )
/22/	Chinese National Standard, Method for testing household coal and stoves (GB6412-86)
/23/	Institute for Global Health University of California and School of Public Health University of California, Improved Household Stoves in China: An Assessment of the National Improved Stove Program (NISP), September 2004

/24/	Office of National Coordination Committee on Climate Change, NDRC, Baseline emission Factor Calculation Result of China Grids, 2 <sup>nd</sup> July 2009
/25/	TÜV Rheinland Japan Ltd and Beijing Harmonious Energy Development Co., Ltd., CDM Validation Service Contract, 13 <sup>th</sup> August 2010
/26/	UNFCCC, Project GSP Linkage: <a href="http://cdm.unfccc.int/Projects/Validation/DB/QHQSLO6Z17LR8VBZST4C7F8SGSKOTV/view.html">http://cdm.unfccc.int/Projects/Validation/DB/QHQSLO6Z17LR8VBZST4C7F8SGSKOTV/view.html</a> 19 <sup>th</sup> August 2010 to 17 <sup>th</sup> September 2010.
/27/	BHED, Latitude and Longitude of Project Location, Oct. 2010
/28/	Planet Map Press, Population and Income of Zhangye City (Gaotai County, Linze County, etc);
/29/	Gansu Culture Press, Introduction of Zhangye City in 2002;
/30/	Gansu Meteorology Information & Technical Equipment Guarantee Centre, Daily Irradiance Data in Zhangye City from 1993 to 2008.
/31/	BHED and Clean Air Capital Ltd, Term Sheet signed on CERs, 30 <sup>th</sup> April 2010.
/32/	NDRC of Zhangye City, Project Local Registration, ZhangFaGaiNengJiao(Bei) (2010)No.49, 25 <sup>th</sup> September 2010.
/33/	BHED, Returned Questionnaire of local stakeholder's comment (100 nos.) and the Summary of the Survey, April 2010
/34/	BHED, User Training Program on the Heqing solar cooker project, 2010
/35/	Rural Energy Station of Zhangye City, Project Boundary Testimonial between the "Heqing Solar Cooker Project I" and "Heqing Solar Cooker Project II". 12 <sup>th</sup> December 2010.
/36/	Rural Energy Station of Zhangye City, Baseline scenario evidence of rural area of Zhangye City. 27 <sup>th</sup> August 2010.
/37/	Physics & Electronic Department of Hexi University, The test result and explanation of household coal-fired stove heat efficiency in rural Zhangye City, WuDianXi (2010) No.32, 28 <sup>th</sup> September 2010.
/38/	Solar Cooker Maintenance & Repair Instruction Manuals from solar cooker suppliers. 2010
/39/	BHED, Project IRR sheet with CDM revenue, Oct. 2010.
/40/	Quotations from 3 suppliers for the project, Oct. 2010.

/41/	Beijing Industrial & Commercial Bureau, Business License, No. 110105013074830, 23 July 2010.
/42/	BHED, Project location coordinates, Oct. 2010.
/43/	BHED and Solar Cooker Users, Sample Agreement between pp and solar cooker users. Oct. 2010.
/44/	BHED, Monitoring Sampling Method showing by excel, Oct. 2010.
/45/	Zhangye Agricultural Bureau, No ODA Confirmation Letter, 25 <sup>th</sup> February 2011
/46/	BHED, Declaration of no ODA was involved in the project. Jan. 2011
/47/	Statistical Bureau of Zhangye City, Main Economic Indicators of Zhangye City, Jan 2009
/48/	BHED, CER Calculation Sheet, May 2011.
/49/	BHED, Project Proposal, January 2010.
/50/	BHED, "Product Quality Control, Inspection Procedures and Standards", October 2010.
/51/	BHED, Project NPV-IRR sheet, July 2010.
/52/	BHED, Questionnaires of stakeholder survey (100 nos.), April 2010
/53/	Lanzhou Huaneng Solar Cooker Limited, Solar Cooker Product Specifications and Operation Manual
/54/	PingLuoNingWei Solar Cooker Limited, Solar Cooker Product Specifications and Operation Manual
/55/	Pangyang Yongming Solar Cooker Manufacturer, Solar Cooker Product Specifications and Operation Manual
/56/	Gansu DingXi Wuming Solar Cooker Manufacturer, Solar Cooker Product Specifications and Operation Manual
/57/	Xiji Dongfenghong Solar Cooker Limited, Solar Cooker Product Specifications and Operation Manual
/58/	UNFCCC, SSC WG's Clarification on the methodology AMS.I.C. (version 18): (SSC 536)
/59/	Zhangye EPB, the opinion from EPB indicates that no waste water, waste gas and solid will produce during the implementation of the project. 9 <sup>th</sup> October 2010

/60/	Gaotai County Rural Energy Station, Solar cooker test report, 6 <sup>th</sup> June 2011.
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## 2.2 Follow-up Interviews with Project Stakeholders

Table 2: It identifies the personnel who have been interviewed and/or provided additional information to the validation team:

	Date	Name and Title	Organization
/i/	2010-08-25	Wang Tinjiang (officer)	EPB of Linze County
/ii/		Jin Guangze (Project Manager)	Beijing Harmonious Energy Development Co., Ltd.
/iii/		Li Jun (Head of Energy Station)	Energy Station, Agriculture Bureau, Linze County
/iv/		Lu Haoyu (Engineer)	Energy Station, Agriculture Bureau, Linze County
/v/		Lin Tao (Officer)	Energy Station, Agriculture Bureau, Linze County
/vi/		Jiang Wei (General Manager, Management representative)	Beijing Harmonious Energy Development Co., Ltd.
/vii/		Ma Yan (Project Specialist)	Beijing Harmonious Energy Development Co., Ltd.
/viii/		Liu Xiangxiong (Villager)	Xiaotun Village, Yanuan Township, Linze County
/ix/		Niu Xuegui (Secretary)	Xiaotun Village, Yanuan Township, Linze County
/x/		Yang Shuyu (Villager head)	Xiaotun Village, Yanuan Township, Linze County
/xi/		Meng Yuezhu (Deputy Director)	Gaotai County DRC
/xii/		Chen Shiwei (Environmental Inspector)	Gaotai County EPB
/xiii/		Wang Ming (Head of Energy Station)	Energy Station, Agriculture Bureau, Gaotai County
/xiv/		Zhang Lei (clerk)	Energy Station, Agriculture Bureau, Gaotai County
/xv/		Sun Weiqiang (Town Head)	Xuanhua Town, Gaotai County

/xvi/		Wang Shouqing (Secretary)	Xuanghai Village, Xuanghai Town, Gaotai County
/xvii/		Wang Fu (Team head)	No. 5 Team, Xuanghai Village, Xuanghai Town, Gaotai County
/xviii/		Li Airong (Team head)	No. 2 Team, Xuanghai Village, Xuanghai Town, Gaotai County
/xix/		Li Jiejian Villager	No. 2 Team, Xuanghai Village, Xuanghai Town, Gaotai County
xx	2010-08-26	Ju Youwen (Director)	Lanzhou Juren Solar Cooker Co., Ltd.

Please note that additional on-site visit or interview with the relevant stakeholders or project participants can be arranged when necessary if comments were received during the GSP. According to UNFCCC's webpage, there was no public comment received during the GSP, this is also reported in the VR Section 3.10.

Table 3: Interview topic

	Date	Organization	Topic
/a/	2010-08-25	Beijing Harmonious Energy Development Co., Ltd. (i.e. PP in host country)	<ul style="list-style-type: none"> <li>➤ Project design</li> <li>➤ Project related legal issues</li> <li>➤ Project &amp; CDM development history</li> <li>➤ Technical equipment</li> <li>➤ Sustainable development issues</li> <li>➤ Additionality</li> <li>➤ Crediting period</li> <li>➤ Monitoring plan</li> <li>➤ Training history</li> <li>➤ Management system</li> <li>➤ Environmental impacts</li> <li>➤ Stakeholder process</li> <li>➤ Approval by the host country</li> <li>➤ Baseline determination</li> </ul>
/b/	2010-08-25	Gaotai County, Linze County	<ul style="list-style-type: none"> <li>➤ Project design</li> <li>➤ Project related legal issues</li> <li>➤ Project status</li> <li>➤ Sustainable development issues</li> <li>➤ Environmental impacts</li> <li>➤ Stakeholder process</li> <li>➤ Issues affecting the local community</li> <li>➤ Project boundary</li> <li>➤ Baseline Identification</li> <li>➤ Approval by the local governments</li> </ul>

/c/	2010-08-26	Lanzhou Juren Solar Cooker Co., Ltd. (Potential solar cooker manufacturer visit)	<ul style="list-style-type: none"><li>➤ Solar cooker production process and material investigation</li><li>➤ Solar cooker specification investigation</li><li>➤ Solar cooker test methods and life-cycle maintenance investigation</li></ul>
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### 2.3 Resolution of Outstanding Issues

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

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

The validation protocol consists of two tables. The different columns in these tables are described in the figure below. The completed validation protocol for this project is enclosed in Appendix A to this report.

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

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

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

A revised PDD (Version 9, 3<sup>rd</sup> August 2011) was submitted to the validation team for final validation. The revision was based on the CARs and CLs in the draft validation report. The major amendments include: whether the project was involved with ODA issues, unclear issues on the project proposal, baseline investigation in Linze and Gaotai County, geographical coordinates of the project location, starting date & expected crediting period of the project activity, project de-bundling nature, supporting information for the estimation of the parameters applied in the investment analysis and monitoring arrangement, the monitoring on the thermal efficiency of the solar cookers during monitoring periods, the traceability of the solar cookers etc.



<b>Validation Protocol Table 1: Requirement checklist</b>				
<b>Checklist Question</b>	<b>Reference</b>	<b>Means of verification (MoV)</b>	<b>Comment</b>	<b>Draft and/or Final Conclusion</b>
<i>The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organised in different sections, following the logic of the small-scale PDD template, version 03 - in effect as of: 22 December 2006. Each section is then further sub-divided.</i>	<i>Gives reference to documents where the answer to the checklist question or item is found.</i>	<i>Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.</i>	<i>The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.</i>	<i>This is either acceptable based on evidence provided (OK), or a <b>corrective action request (CAR)</b> due to non-compliance with the checklist question (See below). A request for clarification (CL) is used when the validation team has identified a need for further clarification.</i>

<b>Validation Protocol Table 2: Resolution of Corrective Action and Clarification Requests</b>				
<b>CL/CAR No.</b>	<b>Observations</b>	<b>Reference</b>	<b>Summary of project owner response</b>	<b>Validation team conclusion</b>
<i>CL/ CAR XX</i>	<i>If the conclusions from the draft Validation are either a CAR or a CL, these should be listed in this section.</i>	<i>Reference to the checklist question number in Table 1 where the CAR or CL is explained.</i>	<i>The responses given by the project participants during the communications with the validation team should be summarised in this section.</i>	<i>This section should summarise the validation team's responses and final conclusions. The conclusions should also be included in Table 2, under "Final Conclusion".</i>

**Figure 1. Validation protocol tables**

## 2.4 Internal Quality Control

The validation report including the initial validation findings underwent a technical review before being submitted to the project participant. The technical review will be then performed by a technical reviewer qualified in accordance with TÜV Rheinland's qualification scheme for CDM validation and verification.

## 2.5 Validation Team

Role	Full Name	Appointed for Sectoral Scopes	Affiliation
Team Leader	Harold Hai	1, 13	TÜV Rheinland Hong Kong Ltd.
Team Member	Minglong Huang	1, 5, 11, 12	
	Tommy Lo	1, 13	
	Wilfred Chan*	1, 6, 13	
Trainee	Feng Hu	N/A	TÜV Rheinland China Ltd.
Technical Reviewer	Cuiping Deng	1, 5, 11, 12	

\*Wilfred Chan participated in the captioned project till October 30 2010.

## 3 VALIDATION FINDINGS

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

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

### 3.1 Approval and Participation

The project is a bilateral CDM project which involves two project participants: Beijing Harmonious Energy Development Co., Ltd. (BHED) from the host party, the P.R. China and Clean Air Capital Ltd from the Annex I party, Netherlands.

According to the project participant /vi/, Beijing Harmonious Energy Development Co., Ltd. is a Chinese investment entity based in Beijing which was established on 23<sup>rd</sup> July 2010 /41/. The host party, the P.R. China meets all relevant participation requirements in CDM. The Letter of Approval (LoA) issued by the DNA of P.R. China, i.e. NDRC is received for authorizing BHED as a voluntary project participant and confirming that the project contributes to China's sustainable development /6/. The relevant project approval has been announced in NDRC's webpage /6/.

The Letter of Approval (LoA) from the DNA of Netherlands, i.e. Ministry of Housing, Spatial Planning and the Environment, that authorizes Clean Air Capital Ltd as a voluntary project participant has been reviewed /13/. The relevant project approval has been confirmed by looking up the announcement in the Dutch DNA's webpage /13/.

According to Annex 2 of the PDD, the project does not receive any public funding. The validation team do not reveal any information indicating that the project can be seen as a diversion of official development assistance (ODA) towards China. As stated from the local Agricultural Bureau, Energy Station /iii, xiii/ and project developer /vi/ /46/ during the OSV, there is no ODA and financial support from the State and local government for the project activity. The project developer stated that project funding will be raised from internal accrual only. The project total upfront investment was reported as about RMB 21.04 million. In addition, the validation team reviewed the official clarification document issued by the Zhangye City Agricultural Bureau /45/, in which it stated that there was no financial assistance to the proposed project activity.

Table 4: It summarizes the project participants and parties involved.

<b>Project participant</b>	Beijing Harmonious Energy Development Co., Ltd.	Clean Air Capital Ltd
<b>Parties involved</b>	P.R. China (host)	Netherlands (Annex I party)
<b>APPROVAL</b>		
LoA received	Yes	Yes
Date of LoA	June 2011	14 <sup>th</sup> December 2010
Reference to document	No. 3006 (English version)	ANL2010-421
LoA received from	Project Participant	Project Participant
Validation of authenticity	Document Review and the announcement from NDRC's webpage <sup>1</sup>	By document Review and the announcement from Dutch DNA's webpage /13/
Validity of LoA	Valid	Valid
<b>PARTICIPATION</b>		
Party is party to Kyoto Protocol	Yes. P. R. China ratified the Kyoto Protocol on 30 <sup>th</sup> August 2002. <sup>1</sup>	Yes. Netherlands ratified the Kyoto Protocol on 31 <sup>st</sup> May 2002. <sup>1</sup>
Voluntary participation	Yes. Approved by the DNA of P.R. China	Yes. Approved by the DNA of Netherlands
Diversion of official development aid towards host country	N/A	No

<sup>1</sup> Information from UNFCCC website:

[http://unfccc.int/files/kyoto\\_protocol/status\\_of\\_ratification/application/pdf/kp\\_ratification.pdf](http://unfccc.int/files/kyoto_protocol/status_of_ratification/application/pdf/kp_ratification.pdf)

Project contribution to SD	Yes. Approved by the DNA of P.R. China	N/A
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### 3.2 Project Design Document

The Project Design Document /1/ is based on the currently valid PDD template and is correctly completed in accordance with the applicable guidance document /3/.

### 3.3 Project Description

The “Heqing Solar Cooker Project II” is a small-scale solar cooker project to be implemented in the rural area of Gaotai County and Linze County, Gansu Province of the P.R. China. The Gaotai County and Linze County are located at the North-western Gansu Province. The project will cover 8 townships in Gaotai County and 7 townships in Linze County. The geographic coordinates of the center points of the 15 townships are presented in the PDD.

The geographic coordinates of the townships are listed below:

Counties	Townships	Geographic Coordinates	
Linze County	Shahe	100° 9'20.91"E, 39° 8'52.05"N	100.1558° E, 39.1478°N
	Xinhua	100° 1'22.76"E, 39°11'38.83"N	100.0230° E ,39.1941°N
	Banqiao	100°17'5.00"E, 39°16'33.04"N	100.2847° E, 39.2758°N
	Pingchuan	100° 5'57.48"E, 39°20'10.51"N	100.0993° E ,39.3363°N
	Liaoquan	100° 3'50.44"E, 39°19'8.67"N	100.0640° E ,39.3191°N
	Yanuan	100°14'12.34"E, 39°16'21.08"N	100.2368° E, 39.2725°N
	Nijiaying	100° 7'50.99"E, 39° 1'49.03"N	100.1308° E ,39.0303°N
Gaotai County	Xiangdao	99°49'50.50"E, 39°21'57.07"N	99.8307°E, 39.3659°N
	Heli	99°51'0.41"E, 39°23'30.79"N	99.8501°E, 39.3919°N
	Nanhua	99°48'2.86"E, 39°18'23.85"N	99.8008°E, 39.3066°N
	Xinba	99°52'46.83"E, 39°14'37.51"N	99.8797°E, 39.2438°N
	Luotuocheng	99°37'29.90"E, 39°21'9.83"N	99.6250°E, 39.3527°N
	Xuanhua	99°42'14.01"E, 39°25'50.49"N	99.7039°E, 39.4307°N
	Heiquan	99°37'44.68"E, 39°31'57.18"N	99.6291°E, 39.5326°N
	Luocheng	99°35'20.67"E, 39°41'1.59"N	99.5891°E, 39.6838°N

The map and the corresponding coordinates of the 15 townships are checked by the validation team from the public map source, Google Earth, and are confirmed to be valid to indicate the various locations of the townships.

The proposed project is the installation of 49,000 parabolic type solar thermal cookers for the rural residents in remote areas. According to the representatives from Agricultural Bureau /iii/, xiii/ and Local DRC/xi/, the rural population and the households in the 2 counties are shown below:

Table 5: the General Information of Gaotai County and Linze County in Gansu Province based on the OSV with the local officials and villagers:

	Total population	Rural population	Rural households	Rural Townships	Average income for rural population in 2009 (RMB) /29/ /47/
Gaotai County	160,000	130,000	37,000	9	3,600~4,000
Linze County	146,000	123,000	32,800	7	3,500~3,600

As confirmed by the project owner, one of townships in Gaotai County named Chengguan Township is not in the project list because that town has a significant portion of population living in or near the town. Therefore, they are not quite "rural", the project owner decided that township was excluded in this project scheme.

The project will cover around 70.2% of the households in the project region. The rated power of each solar cooker is 910 W thermal and the total installed capacity of the proposed project will be 44.59 MW thermal. According to the data from *Gansu Meteorology Information & Technical Equipment Guarantee Centre, Daily Irradiance Data in Zhangye City from 1993 to 2008* is 2,672 hour/year and 637.2 W/m<sup>2</sup>/30/. By reviewing the Specifications/14/ /15/ and Test Report/17/ /18/ from the potential manufacturers and third party test institute, the validation team confirms all the parameters indicated in the section A.4.2 in the PDD is valid. The proposed project will enable rural residents to efficiently utilize solar energy, and substitute for a portion of the fossil fuel (coal) used in daily cooking and water heating. Thus this could reduce GHG emissions that would otherwise be generated from fossil fuel consumption. The proposed project will neither generate any electricity nor connect to any power grids. There will be approximately 49,000 low-income households or 196,000 villagers directly benefiting from the implementation of the proposed project. (According to the Head of Energy Station /iii, xiii/ and the on-site interview with local villagers, there are about 3-4 people in one household.) The expected GHG emission reductions of the project activity are 143,762 tCO<sub>2</sub>e annually over the next 10 years of the fixed crediting period.

During the OSV, the project developer stated that the CER would be sold to the buyer, Clean Air Capital Ltd. The validation team reviewed the Term Sheet/31/ of CER purchasing between BHED and Clean Air Capital Ltd and confirm it is valid.

According to the representatives from local Agricultural Bureau /iii, xiii/, the average annual income of the rural population in these two Counties is less than RMB 4,000 per capita in 2009 (refer to table 5)/29//47/. About 253,000 people in the 2 Counties engage in the agricultural sector as farmers. Their income is derived mainly from the sale of crops. This kind of income means that there is relatively less floating capital among the community. According to the one of the solar cooker manufacturers in Gansu Province /xx/, the market price of each 2m<sup>2</sup> solar cooker is around RMB 390/40/. Therefore, it is reasonable for the validation team to consider that the cost of a solar cooker is a significant portion of average annual income for one household. During the OSV, the representatives from the Energy Station, Agricultural Bureau /iii, xiii/ stated that the solar cookers are not easily available in the local retail market. This may be due to the relatively low demand of solar cookers in the region. According to the on-site interview with the local villagers /viii-x, xvii-xix/, they would

not keen on purchasing solar cooker by sourcing from other markets outside their living region.

As stated by the local officials /iii, viii/ during on-site interview, the project proposal was notified to the Energy Station of Agricultural Bureau After understanding the project design, the representative from the Energy Station of Agricultural Bureau /iii, xiii/ stated that it is not necessary to obtain any official approval for this solar cooker project. The project proposal with the details of the project design was prepared by BHED in July 2010 /49/. The proposal was notified by the Zhangye City Development and Reform Commission (Ref. no.: ZhangFaGaiNengJiao(Bei) [2010]49) on 25<sup>th</sup> September 2010 /32/. The project approval was also confirmed by the Gaotai County and Linze County's government officials /iii, xi, xiii/ during OSV.

During the site interview with BHED's management representative /vi/, it is understood that BHED is responsible for organizing the necessary training for the operation, maintenance and monitoring of CDM project implementation. The training manuals for solar cooker users and monitoring team were reviewed by the validation team during OSV/7/ /9/. According to the training manual, operation procedures in form of desktop calendar will be distributed to the end users during the training sessions. According to the project developer, the training will be started when the project is submitted for request for registration in UNFCCC.. Based on the OSV and the PDD, the validation team confirms that no construction is required in this project. The installation, transportation and maintenance of the solar cookers would be responsible by the solar cooker manufacturers under the supervision of BHED. The project solar cooker maintenance & repair instructions prepared by BHED were reviewed by the validation team, and confirmed to be valid /38/. The CDM training and monitoring plan were introduced by the project owner during on-site meeting. The validation team confirms that the relevant CDM background knowledge, necessary training and monitoring process were comprehensively addressed in the plan.

The solar cooker price quotation document /40/ and solar cooker agreement with rural villagers (solar cooker users) /43/ were prepared by BHED for project implementation. It is confirmed by BHED's management representative /vi/ that the if necessary, the purchase of solar cookers will be carried out batch by batch, and distribution of solar cookers to users would be dependent on manufacturers' production capacity and the manpower availability for equipment delivery just after the project is submitted for registration in the UNFCCC. Under such circumstances, the validation team considers that the PP is able to implement the project activity if the proposed project is registered as a CDM project.

According to the Section C of the PDD, the starting date of the project activity will be planned on 15<sup>th</sup> August 2011 which is the planned tender bidding process start date. During the on-site interview, According to the Section C of the PDD, the starting date of the project activity will be planned on 15<sup>th</sup> August 2011. The starting date is justified as the tentative date to start the tender bidding process. During the on-site interview, the project owner stated that the project

would be tentatively started when the project is submitted for request for registration. The validation team agrees with the project implementation status for the selection of the starting date, and confirms that no implementation or real actions of the proposed project (such as purchase of solar cookers) have been carried out at this moment. A fixed crediting period of



10 years is selected and the starting date of the crediting period is 1<sup>st</sup> September 2011, or the date on which the complete request for registration is submitted, whichever is later. Since the expected operational lifetime of the proposed project activity is 10 years, the validation team considers the selection of fixed crediting period of 10 years is reasonable.

It is stated by the project developer that once the project is request for registration, the project will be tentatively started, they shall process tendering process and purchase orders to the solar cooker manufacturers. The purchase of solar cookers will be carried out batch by batch, depending on the manufacturers' production capacities. The equipment stock from the manufacturers will be distributed to the end users, and thus the emission reductions can be accounted once the first batch of solar cookers are being used by the users. According to the estimation from the project developer, it might take about one to two months to manufacture and distribute all the 49,000 cookers to the end users, and it will greatly depend on the production progress of the manufacturers. The emission reductions shall be based on the actual number of solar cooker used. The usage record of solar cookers will be monitored by the project owner according to the monitoring plan. The validation of monitoring plan will be covered in Section 3.6 in details.

Table 6: The critical project description milestones from the PDD are tabulated as follows:

Starting date of project	Expected project operational lifetime	Crediting period
15 <sup>th</sup> August 2011 (Tentative date for start of project tendering process)	10 years	10-year crediting period: 1 <sup>st</sup> September 2011 – 31 <sup>st</sup> August 2021

The validation team considers the project description in PDD version 9 is accurate and complete.

### 3.4 Baseline and Monitoring Methodology

#### 3.4.1 Applicability of the selected methodology to the project activity

The project applies the approved simplified baseline and monitoring methodology for small-scale CDM project activities AMS-I.C./Version 18 EB54 "Thermal energy for the user with or without electricity".

Applicability criteria for the baseline methodology are assessed by the validation team by means of document review and interview. It is agreed in the validation team's opinion that the project activity fully met the criteria as described below:

- The project activity applies renewable energy technology (solar cookers) that supplies individual households or users with thermal energy that displaces coal used for cooking and water-boiling. The technology of solar cookers is also included in the clause 1 of the approved methodology;
- The total installed capacity of the project activity is 44.59MW thermal, which does not exceed the threshold of 45MW thermal as stated in the approved methodology;

- The project activity only utilizes renewable solar energy without any fossil fuels. Thus it does not involve in any biomass system, co-fired system;
- The heat produced by the project activity is captured and used within the solar cookers. It does not involve in delivery to another facilities within the boundary;
- The project activity will be a new project using new solar cookers, and it does not seek to retrofit or modify any existing facility for renewable energy generation.

Thus the validation team considers that the project participant has correctly applied the approved methodology for the proposed project activity. In addition, the overall expected annual emission reductions for the proposed project are 143,762 tCO<sub>2</sub>e. As stated from the project developer /vi/, no auxiliary fuel will be used during the whole project period. Apart from this, the validation team confirms that there are no other major sources of emission reductions. Therefore the validation team considers that the greenhouse gas emissions occurring within the proposed CDM project activity boundary as a result of the implementation of the proposed CDM project activity which are not addressed by the applied methodology, is deemed to contribute less than 1% of the overall expected average annual emission reductions. Please refer to Section 3.4.4 for the detailed discussion.

With reference to "Guidelines on assessment of de-bundling for SSC project activities, version 3, EB54 Annex 13", the validation team has validated the project location for whether the project is not deemed to be a de-bundled component of a large scale project. The validation criteria are stated below:

- i. The same host project participant, BHED has got another solar Cooker Project in Gansu Province only, namely "Heqing Solar Cooker Project I" which is currently under validation<sup>2</sup>. Together with the proposed project activity, these two projects are in the same project category, applied with same technology, and located in the Gansu Province. The proposed project activity will be implemented in Gaotai County and Linze County, in which Linze County, is adjacent to the Ganzhou District of Zhangye City, where is the project location for "Heqing Solar Cooker Project I";
- ii. According to the clarification documents issued by the Rural Energy Station of Zhangye City /35/, it stated that the boundary of "Heqing Solar Cooker Project I" and "Heqing Solar Cooker Project II" is located at the regions of mountains, rivers and valley. The area is unsuitable for human living, and there are no populations within 1km along the boundary of the two counties";
- iii. According to the physical observation during the on-site visit, the validation team visited one of the border points along the boundary between two projects under validation, and realized that the two projects were separated by a river and a large area of muddy land. There are no rural populations within 1 km along the boundary of the two projects.

In addition, the unit capacity of each solar cooker will be 910W, which is less than 1% of the threshold of AMS-I.C. of 45MW thermal, i.e. 450,000W. According to the "Guidelines on Assessment of debundling for SSC project activities" EB 54, "if each of the independent subsystems (e.g., residential solar energy systems) included in one CDM project activity is no

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<sup>2</sup> UNFCCC CDM webpage,  
<http://cdm.unfccc.int/Projects/Validation/DB/LZ62M19M710GAD3UA3P1CULY01FVAH/view.html>



greater than 1% of the small scale thresholds defined by the applied methodology and the subsystems are indicated in the PDDs to be each implemented in multiple locations (e.g., installed at or in multiple homes), then the CDM project activity is exempted from performing a de-bundling check". Thus the validation team confirms that the project activity can be exempted from debundling check, and considered as being not a de-bundled component of a large scale activity.

### 3.4.2 Project Boundary

During the on-site visit, the validation team has visited Xiaotun Village in Linze County and Xuanhua village in Gaotai County that will participate in the project activity. It is confirmed that the villagers use coal for daily cooking, water heating and house warming as described in the PDD. They do not have any solar cookers in their houses as they considered the solar cookers were expensive. In addition, they stated that there is no solar cooker available in local retail market, and do not know where the solar cooker can be purchased.

The project boundary is clearly defined as the physical, geographical site of the project equipment generating the renewable solar energy, i.e. the locations within the 15 townships in Gaotai County and Linze County where the 49,000 nos. of solar cookers are to be operated and implemented for the project activity. According to the PDD, a unique project logo will be assigned and fabricated on each solar cooker before distribution to the users for identification. The project logo and the name of user will be the useful and simple identification strategy to differentiate the project solar cookers from other projects implemented by the project developer. This is considered encompassing all anthropogenic emissions by sources of greenhouse gases under the control of the project participants that are significantly and reasonably attributable to the CDM project activity. These 49,000 spots are nevertheless not yet identified at the current stage because the proposed project will only be implemented and become realistic after getting the CDM registration. It is confirmed that the project neither generates electricity on grid nor transports the thermal power to other regions. The project boundary is clear and reasonably demonstrated.

Table 7: The system boundary and the selected sources and gases are justified transparently and are presented as below:

	GHGs involved	Description
Baseline emissions	CO <sub>2</sub>	Major emission source
Project emissions	--	The proposed project utilizes solar resources for heat generation where no auxiliary fuel shall be used. Project emissions are thus deemed to be negligible.
Leakage	--	Since the project activity is a new project and the energy generating equipment is not transferred from another activity, leakage is thus considered negligible as per AMS-I.C Version 18.

### 3.4.3 Baseline Identification

According to AMS-I.C./Version 18, since the project activity involves renewable energy technology (solar cooker) that displaces technology using fossil fuel (coal-fired stove), the simplified baseline is the fuel consumption of the technologies that would have been used in the absence of the project activity multiplied by an emission factor for the fossil fuel displaced.

During the on-site interview with the rural residents /viii-x,xvii-xix/, they stated that using coal-fired stoves for their daily cooking and water heating are the common practice locally. The straw of maize and other biomass residues are mainly used as feedstuff only. This is also verified during the on-site interview with the officials /iii-v,xi-xvi/. Electricity is mainly used for lighting and other electric devices as the tariff is comparatively expensive for the local villagers. The official /iii/ also mentioned that about 2,400 relatively rich rural households in Linze County equip with biogas facilities, but the coverage is comparatively small for overall 32,800 households in the Linze County. For the Gaotai County, about 10% of households equip with biogas facilities as stated from the government official during OSV /xiii/. According to the project developer /vi/, for those relatively rich household equipped with other cooking facilities apart from coal-fired stoves, they will not be included as the solar cooker end user in the project as the target participants will be the poor households only. The validation team confirms the distribution process of the solar cooker described in the PDD is practical and valid.

In addition, the Rural Energy Station of Zhangye City issued an official document for the clarification of fuel consumption of local residents /36/. The document stated that:

“All the rural residents use (i) coal as energy source for their daily cooking and water heating; (ii) electricity is used for lighting only; (iii) the straw resource is limited, and it is used for feedstuff and industrial raw materials; and (iv) all livestock manures are used as fertilizers. According to the Forest Law of China, woodland harvest cutting and damage on the natural vegetation are prohibited. Thus the local residual only rely on coal as their energy source for cooking and water heating purpose.”

According to the China Energy Statistical Yearbooks 2006-2008, coal is the major energy source in rural area of Gansu Province/19/. People living in Gansu Province mainly consume low-cost coal for warming and daily cooking use. Therefore it can be confirmed that the baseline scenario is the emissions occurring due to cooking or water heating through coal-fired stoves.

Therefore it can be confirmed yet that the baseline scenario is the emissions occurring due to cooking or water heating through coal-fired stoves. The baseline determination is considered as transparent and reasonable.

The validation team has checked the following in according to the latest version of Approved CDM Validation and Verification Manual /2/, and the results are tabulated as follows. The details can be referred to Appendix A.

Table 8: Baseline Identification Table:

The approved baseline methodology applicable to the project <ul style="list-style-type: none"> <li>- explicit criteria</li> <li>- implicit criteria (e.g. available scenarios, applicability of formulas for BE/PE/LE calculations)</li> </ul>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per clause 13 of the AMS-I.C. /Version 18, the simplified baseline is prescribed. Please refer Section 3.4.1 for details.
PDD includes all assumptions and data used by project participants	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per clause 13 of the AMS-I.C. /Version 18, the simplified baseline is prescribed.
All the references and documents used are relevant for establishing the baseline scenario	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per clause 13 of the AMS-I.C. /Version 18, the simplified baseline is prescribed.
All the references and documents used are correctly quoted and conservatively interpreted in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per clause 13 of the AMS-I.C. /Version 18, the simplified baseline is prescribed.
All relevant policies / regulations considered are listed in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per the AMS-I.C. /Version 18, the policy regarding only coal as fuel in the baseline was considered;
Identified potential baseline scenarios reasonably represent what would/could occur in the absence of the proposed project activity	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per the AMS-I.C. /Version 18, the validation team confirms only coal was replaced if the project is launched through OSV.
The baseline scenario selection is appropriate and determined according to the methodology	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per clause 13 of the AMS-I.C. /Version 18, the simplified baseline is prescribed.
The approved methodology used is applicable to the identified baseline scenario	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per clause 13 of the AMS-I.C. /Version 18, the simplified baseline is prescribed.

### 3.4.4 GHG Emission Reductions

The GHG emissions calculations are transparently documented and appropriate assumptions regarding expected amount of heat generated have been used to forecast emission reductions.

According to the selected methodology AMS-I.C./Version 18 for thermal energy production with or without electricity, the emission reductions ( $ER_y$ ) by the project during the crediting period is the difference between the baseline emissions ( $BE_y$ ), project emissions ( $PE_y$ ) and leakage emissions ( $L_y$ ).

As the project utilizes solar energy for heat generation, no auxiliary fuel will be used and this was also verified by the validation team during the on-site visit. Hence the project emissions could be regarded as zero.

It is noted during OSV that all the solar cookers involved in the proposed project will be newly purchased from the equipment manufacturers. There will be no transfer of heat generating equipments from another activity because the solar cookers will be new equipments. According to the PDD, a unique project logo will be assigned and fabricated on each solar cooker before distribution to the users for identification. The project logo and the name of user will be the useful and simple identification strategy to differentiate the project solar cookers from other projects implemented by the project developer. The validation team confirmed with the management representative of BHED /vi/ that the monitoring team of BHED will check if there will be any transfers of the solar cookers by verifying the unique project logo during the regular monitoring schedule. The monitoring plan will be further discussed in Section 3.6. According to the AMS-I.C./Version 18, leakage is not required to be considered and is assumed as zero.

Since the project emissions and leakage emissions within the project boundary are zero, the emission reductions of the proposed project are equal to the baseline emissions.

According to the equation (2) of AMS-I.C Version 18, the following equation is correctly applied in the PDD for the calculation of baseline emissions. However, the annotation should be followed as indicated in the approved methodology.

$$BE_y = BE_{\text{thermal},\text{CO}_2,y} = EG_{\text{thermal},y} / \eta_{\text{BL},\text{thermal}} * EF_{\text{FF},\text{CO}_2} \quad (\text{PDD Equation 2})$$

Where:

$BE_y$  &  $BE_{\text{thermal},\text{CO}_2,y}$  = The baseline emissions from heat (generated by burning coal) displaced by the project activity during the year y in tCO<sub>2</sub>e

$EG_{\text{thermal},y}$  = The net quantity of heat supplied by the project activity during the year y in TJ

$EF_{\text{FF},\text{CO}_2}$  = The CO<sub>2</sub> emission factor of coal (tCO<sub>2</sub>/TJ), IPCC default emission factors 2006 are used

$\eta_{\text{BL},\text{thermal}}$  = The efficiency of the coal-fired stove (baseline unit) that would been used in the absence of the project activity

The equations (3), (4) and (5) in the PDD for the estimation of annual baseline emissions of the proposed project are correctly applied. The annual baseline emissions of the project ( $BE_i$ ) are based on the amount of 12-monthly net heat supplied by the project activity,  $EG_i$ , and  $EFCO_2$ , and  $\eta_{\text{th}}$ , which are calculated as follows:

$$EG_{\text{thermal},y} = \sum EG_{\text{thermal},i} \quad (i = 1 \sim 12) \quad (\text{PDD Equation 3})$$

$$BE_{\text{thermal},\text{CO}_2,y} = \sum BE_{\text{thermal},\text{CO}_2,i} \quad (i = 1 \sim 12) \quad (\text{PDD Equation 4})$$

$$BE_{\text{thermal},\text{CO}_2,y} = EG_{\text{thermal},i} / \eta_{\text{BL},\text{thermal}} * EF_{\text{FF},\text{CO}_2} \quad (i = 1 \sim 12) \quad (\text{PDD Equation 5})$$

Where

$EG_{\text{thermal},i}$  = The net heat supplied in month i in TJ

$BE_{\text{thermal},\text{CO}_2,i}$  = The baseline emissions in month i in tCO<sub>2</sub>e

***Determination of thermal efficiency of baseline unit (coal-fired stove)***

According to the clause 22 of AMS-I.C Version 18, for household systems whose maximum output capacity is less than 45kW thermal (the unit capacity of each solar cooker for the project activity is 910W), the efficiency of the baseline units shall be determined by adopting one of the following criteria:

- (a) Highest measured operational efficiency over the full range of operating conditions of a representative sample of units with similar specifications, using baseline fuel (i.e. coal in the project activity). The efficiency tests shall be conducted following the guidance provided in relevant national/international standards;
- (b) Highest of the efficiency values provided by two or more manufacturers for units with similar specifications, using baseline fuel (i.e. coal in the project activity);
- (c) Highest efficiency from referenced literature values of default efficiency of 100%.

The project owner adopts the criteria (a) for the determination of efficiency of the baseline units by providing the reference to justify the thermal efficiency of 14.6% for the traditional coal furnaces: #1) Physics & Electronic Department of Hexi University (PEHU), The test result and explanation of household coal-fired stove heat efficiency in rural Zhangye City, WuDianXi (2010) No.32, 28<sup>th</sup> September 2010; #2) Publication “Clean Energy for Development and Economic Growth: Biomass and Other Renewable Energy Options to Meet Energy and Development Needs in Poor Nations” issued by United Nations Development Programme (UNDP) in 2002.

According to AMS-I.C/Version 18, the validation team has reviewed the reference material, and the validation results are discussed in the following:

***Reference #1)***

It is confirmed on test report of Physics & Electronic Department of Hexi University on 28<sup>th</sup> September 2010, the current practice by residents in the rural areas of Zhangye region (including Ganzhou District, **Gaotai County**, **Linze County**, Shandan County, etc.) is the use of unimproved traditional stoves /36//37/. The thermal efficiency of these stoves was below 14.6% and the fuel used by these stoves for cooking and water heating was coal.

The stated thermal efficiency of 14.6% was obtained from a measurement campaign determining the thermal efficiency of domestically used rural coal-stoves in the region of Zhangye City, Gansu Province, performed by the PEHU during July to September 2010. This testing series was independent from the proposed project, and was originally aimed to obtain a clear understanding on the application status of coal-stoves by the rural households in the mountainous region of Zhangye City.

In the measurement test, totally 100 rural households were randomly selected over 1 district and 5 counties (including 20 households in Gaotai County and Linze County separately, where the proposed project is located) for measurement of the stove efficiency. The sampling distribution and coverage is checked by the validation team in the “sampling distribution table” /37/. The original testing records were checked by the validation team. The data record sheets indicating the highest measured efficiency of 14.6% are attached /37/. The test report /37/ also confirmed that the coal-stoves used by the rural residents in mountainous region of

Zhangye City, Gansu Province are all traditional, unimproved stoves with low efficiency. The measured thermal efficiency ranged from 9.8% to 14.6%, with an average of 12.6% according to the Chinese National Standard GB6412-86, "Method for testing household coal and stoves" /22/. Thus it is considered that the measurement results from the PEHU for the highest thermal efficiency of 14.6% is reasonable and traceable.

The validation team confirms that the thermal efficiency of 14.6% applied in the PDD is "the highest measured efficiency of a unit with similar specifications" obtained from a comprehensive authorized measurement campaign, thus it fulfils the requirements of the clause 18 of AMS-I.C/ Version 18.

### **Reference #2)**

It is cited in the page 8 of the publication reference issued by UNDP that "the most common method of cooking throughout rural areas of the developing world is the open hearth or three-stone fire, which typically transfers only 5-15% of the fuel's energy into the cooking pot..." /21/. During the OSV, the validation team visited several rural households and observed the type of stoves used by the local population in general. The observed stoves fall into the category of traditional, unimproved stoves as defined in the reference source "Improved Household Stoves in China: An Assessment of the National Improved Stove Program (NISP)" /23/. It is reported in page 17 of the reference source that the measured efficiency for traditional (unimproved) stoves is 10-15% in several provinces of China.

The heat supplied as stated in the PDD is determined with the basic energy law. The formula of Heat below as stated in the PDD is correctly applied in accordance with physics principles. It is confirmed by the validation team to be appropriate for the heat estimation. The monthly net heat is calculated as follows:

$$\text{Heat} = \text{Power} * \text{Time}$$

$$EG_{\text{thermal},i} = n * [P_i * t_i * (3.6 \times 10^{-9} \text{ TJ/Wh})] \quad (\text{PDD Equation 6})$$

Where

- n = The total number of solar cookers to be installed by the proposed project. According to the PDD, totally 49,000 sets solar cookers will be installed.
- $P_i$  = The actual average power of the solar cooker in month i in W
- $t_i$  = The usage time of each solar cooker in month i in hour. The value adopted in the PDD is 129.3 (4.25 hours per day for 30days). According to the on-site interview with the representative from the local Energy Station /iii, xiii/ and villagers /viii-x,xvii-xix/, they stated that the rural families in Gaitai County and Linze County, the local villagers shall spend at least 4.25 hours per day for cooking and water heating by solar cookers in average. This is further checked for the official document issued by Rural Energy Station of Zhangye City dated 27<sup>th</sup> August 2010 /36/. It is stated in the document that it is a reasonable estimation of the average heating requirement of a solar cooker for one family as at least 4 hours and 15 minutes per day. In addition, the actual usage time will be monitored ex-post.



$$P_i = 910 * (R_i / 700) \quad (\text{PDD Equation 8})$$

Where

910W = Rated power of solar cooker, which shall be manufacturer's rated thermal energy output according to the AMS-I.C. This is refer to the technical specification of solar cooker from manufacturers, the validation team confirms that this is also one of the requirements for the equipment applied in the project activity as indicated in Section A.4.2 of PDD.

According to the Chinese National Standard (GB NY/T219-2003), in which  $700\text{W/m}^2$  is used for the standard value of solar irradiance rate. Hence the actual power output is the rated power of solar cooker times the ratio of actual irradiance rate to the standard value of solar irradiance rate of  $700\text{W/m}^2$ .

It is noted as per the clause 4 of the "General Guidelines for SSC CDM methodologies" version 17 EB 61, "maximum output" shall be calculated using a conversion factor of  $700\text{ Wth/m}^2$  for thermal applications of solar energy projects, however this is not applicable for solar thermal parabolic collectors (i.e. the type of solar cookers to be used in this project activity). Therefore, the PP applies the conversion factor determined by the Chinese National Standard, and the validation team considers that the chosen conversion factor is appropriate to the project activity.

Therefore the validation team consider the calculation of rated power of solar cooker of 910W is reasonable and transparent.

$R_i$  = The actual solar irradiance rate in month i in  $\text{W/m}^2$

The validation team has verified the Annex 3 of the PDD, in which the monthly solar irradiance and sunlight time are sourced from the reference, an official report /30/ which was provided to validation team, which is the Daily Irradiance Data in Zhangye City from 1993 to 2008 which was surveyed by Gansu Meteorology Information & Technical Equipment Guarantee Centre, in which indicates the irradiance values were ranged from  $364.2\text{ W/m}^2$  (in December) to  $822.2\text{ W/m}^2$  (in July) and the yearly average was  $637.2\text{ W/m}^2$ . The validation team considers that the irradiance values are reasonably applied in the calculation of baseline emissions.

While the project emissions & leakage are zero; the baseline emissions are equal to the emission reductions and have been estimated to be  $143,762\text{ tCO}_2\text{e}$  per year in the PDD. Based on above formula, input values and the ex-ante baseline emission factor of coal ( $\text{EFCO}_2$ ) of  $94.6\text{ tCO}_2\text{e/TJ}$  is from the IPCC Reference data<sup>3</sup>. The validation team has verified that a conservative emission factor has been adopted by the project owner among the emission factors of various coal products from the IPCC reference data, e.g. coke oven coke

<sup>3</sup> Volume 2, 2006 IPCC guidelines for national greenhouse gas inventories  
 (([http://www.ipccnggip.iges.or.jp/public/2006gl/pdf/2\\_Volume2/V2\\_2\\_Ch2\\_Stationary\\_Combustion.pdf](http://www.ipccnggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf)))

is 107tCO<sub>2</sub>e/TJ, lignite is 101tCO<sub>2</sub>e/TJ and sub-bituminous coal is 96.1tCO<sub>2</sub>e/TJ. The preciseness of the data was verified by the validation team through document review. According to the latest information<sup>4</sup> issued by the Chinese DNA, the P.R. China grid emission factors are calculated using IPCC values due to the lack of national fuel emission information. The validation team considers that the application of IPCC emission factors is reasonable, and it also fulfils the requirements in clause 13 in AMS-I.C./Version 18.

The ex-ante estimation of emission reductions is based on the monthly solar irradiance value and the relevant baseline emissions; therefore the validation team considers that the estimation was reasonably and transparently carried out.

Table 9: The ex-ante estimation of emission reductions table

All assumptions made for estimating GHG are listed in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per PDD Section B.6., assumptions were made for ex-ante GHG emission reductions.
All data used by project participants are listed in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	All data such as baseline emission factor, irradiance rate used by the PPs are listed in the Section B.6. of the PDD.
Their references and sources are also listed in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	All data from public sources, such as IPCC, local meteorological report are listed in the Section B.6. of the PDD.
Formulas, parameters, values are complete, accurate, transparent and conservative	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The validation team checked the reference information and confirms that the formulas, parameters, values applied in the PDD are accurate and transparent and conservative.
All the references and documents used are correctly quoted and conservatively interpreted in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The validation team checked the public references and documents, and confirms that these are correctly quoted and conservatively interpreted in the PDD.
Methodology has been applied correctly to calculate project emissions, baseline emissions, leakage emissions and emission reductions	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The AMS-I.C./Version 18 is applied correctly to calculate project emissions, baseline emissions, leakage emissions and emission reductions.
All the emissions of baseline emissions can be replicated using information provided in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The validation team checked the information provided in the PDD with the reference information, and all the emissions of baseline emissions can be replicated.

<sup>4</sup> 2009 Baseline Emission Factors for Regional Power Grids in China, <http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File2333.pdf>



### 3.5 Additionality

According to the PDD /1/, the project participant has provided an explanation to show the project activity would not have occurred anyway due to the investment barrier only. This fulfills the requirement of Attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities as referred to the “General Guidelines to SSC CDM methodologies version 16”.

#### 3.5.1 CDM consideration

According to the document review and on-site interview, the validation team has assessed the project development and the corresponding CDM consideration scenario and these are summarized below:

According to the latest “Guideline on the demonstration and assessment of prior consideration of the CDM” released in EB49, Annex 22, the PP should demonstrate the prior CDM consideration to the project. The PP must inform a Host Party DNA and the UNFCCC secretariat in writing of the commencement of project activity and of their intention to seek CDM status. Such notification is not necessary if a PDD has been published for GSP before the project activity start date.

According to the project owner, once the project is submitted for request for registration, they will sign contract with the solar cooker manufacturers to start the equipment purchase process. The global stakeholder consultation was carried out from 19<sup>th</sup> August 2010 to 17<sup>th</sup> September 2010. Consideration of CDM income as an important part of the project has been demonstrated in the project proposal in January 2010, in which it was reported that the registration as a CDM project could assist in building up the project revenue through the sale of the CERs /49/. The revenue from CERs is reflected as the critical factor to decide whether the project is financially feasible. Thus the validation team considers the PP has fulfilled the requirements in the latest “Guideline on the demonstration and assessment of prior consideration of the CDM”.

In summary, here are the important milestones according to the PDD:

Starting date of project	Justification of and evidences (references) on the starting date of project	Date of CDM consideration
15 <sup>th</sup> August 2011	Tentative date of start of project tendering process	Project GSP in UNFCCC 19 <sup>th</sup> August 2010 /26/

Table 10: the project timeline is tabulated as follows for detailed project development.

Time Period	Project Milestone	Remarks
January 2010	The project proposal was prepared by BHED	Project proposal /49/
April 2010	Local Stakeholder Consultation	Questionnaires/33/

30 <sup>th</sup> April 2010	Term Sheet of CER Purchasing signed	Term Sheet of CER Purchasing signed /31/
13 <sup>th</sup> August 2010	The project participant has commissioned the validation team of TÜV Rheinland to perform the validation of the project.	Validation service contract between the PP and TÜV Rheinland /25/
19 <sup>th</sup> August 2010 to 17 <sup>th</sup> September 2010	PDD publication on UNFCCC webpage (Details in Section 4.9.)	UNFCCC webpage
25 <sup>th</sup> September 2010	The Project was registered in Local DRC	Project local registration /32/
14 <sup>th</sup> December 2010	Letter of Approval from the DNA of Dutch	LoA from the Dutch DNA /13/
June 2011	Letter of Approval from the DNA of the P.R. China	LoA from the Chinese DNA /6/

### 3.5.2 Alternatives

The selected approved methodology AMS-I.C./Version 18 prescribes the baseline scenario and no further analysis of alternatives is thus required.

### 3.5.3 Investment analysis

According to Attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities” as referred to the “General Guidelines to SSC CDM methodologies version 16”, the project participant shall provide an explanation to show that the project activity would not have occurred anyway due to at least one barrier. As noted in the PDD, the investment barrier was selected, and the application of financial analysis of Net Present Value (NPV) without CDM revenue is carried out/51/.

As indicated in the PDD/1/ /32/, the proposed project shall not generate any revenue after its implementation. If the project is carried out without CDM support, the upfront project investment of RMB 21.04 million shall result in no return. The result of financial analysis is presented in the PDD. The NPV of the project without CDM subsidies is a negative value (RMB -27.14 million) which demonstrates that the project activity is unlikely to be financially viable without CDM support. The project can be financially feasible with CER revenues, in which a project IRR of 18.8% is anticipated /51/ /32/. As stated from the representative of BHED during the OSV, the project is planning to distribute one solar cooker to each household free for operation and maintenance of solar cookers throughout the entire project lifetime, (i.e. 10 years). This will be manipulated by the agreement /11/ with the local residents which will be signed at the time of the solar cooker distribution.

During the OSV, the validation team has verified via the interview with local residents /viii-x/,/xvii-xix/ that they are willing to purchase the solar cookers from the proposed project activity, and pay the project developer with around RMB35 per cooker for each household as the project administrative costs. The interviewed local residents stated that the solar cookers could help them to save money through reducing coal consumption for daily cooking and water heating. However, due to the limitations of the solar cooker (i.e. limited sunshine during rainy and cloudy weather, solar radiation intensity at night and winter season), the solar cooker cannot completely replace the coal-fired stove. Thus, the villagers consider that the

solar cooker is not an essential good for their livelihood. During the OSV, the representatives from the local Energy Station of Agricultural Bureau /iii, xiii/ stated that the solar cookers are not easily available in the local retail market. This may be due to the relatively low demand of solar cookers in the region. According to the on-site with the local villagers, they do not know where the solar cooker can be purchased and would not keen on purchasing solar cooker by sourcing from other markets outside their living region. According to the 2009 Zhangye City Statistics Bureau, regarding the annual income in Gaotai and Linze County, the average annual income was less than RMB4,000 per capita in 2008 /47/. Hence it is reasonable to believe that the local residents are unable to afford the payment to purchase the solar cookers at their own expenses (about 10% of their annual income).

In accordance with the “Guidance on the Assessment of Investment Analysis” from UNFCCC EB51 Report Annex 58, the validation team has independently checked the following critical project and financial input values for the NPV calculation as the basis of financial analysis.

Table 11: Some critical parameters based on the local and sectoral expertise of the validation team is tabulated as follows:

Item	Data & Source	Remarks on Validation of Parameters
Project lifetime	10 years (PDD)	<p>49,000 sets of 910W rated power solar cookers (National standard of P.R. China (GB), GB No.: NY/T219-2003)  Total power = 910W x 49,000 = 44.59MW thermal energy</p> <p>The validation team checked the product specification from one of the potential solar cooker manufacturers for the project activity, and confirmed that the solar cooker lifetime is at least 10 years /15/. In addition, it is in line with the “Guidance on the Assessment of Investment Analysis” in which a minimum period of 10 years will be appropriate for the project activity assets. The validation team also confirms that the estimation of project lifetime of 10 years in the PDD fulfils the requirements in the “Tool to determine the remaining lifetime of equipment”, EB50 Annex 15, in which the manufacturer’s information on the technical lifetime of equipment is applied.</p>
Equipment cost	RMB 19.44 million (PDD)	<p>Total equipment cost  = RMB 19.44 million  For 49,000 solar cookers, the unit price of solar cooker will be estimated as  = RMB 19.44 million / 49,000 sets = RMB 396.7</p> <p>The validation team has checked the quotations of solar cookers from 3 different manufacturers, confirmed that quoted prices were ranged from</p>

		RMB 395-400 per solar cooker including the transportation, installation and first 3-year maintenance service costs /40/. The quotation documents have been verified by the validation team. Thus the validation team considers the estimation of RMB396.7 per solar cooker is reasonable in the financial analysis.
Project Development Cost	RMB 0.16 million (PDD)	The development includes the project expense during the preliminary stage, which includes the development of project proposal, coordination work with government and potential equipment vendors, management costs and training arrangement etc. The validation team considers that the estimation of expense for project development is deemed reasonable.
Implementation Cost	RMB 1.47 million (PDD)	The implementation cost includes the project logistics management of solar cookers, training of users and monitoring team and project monitoring works, while the largest proportion will be contribute to the project monitoring cost. According to the project developer, the monitoring service will be carried out with the assistance from the local Energy Station under the project developer's management. During the OSV, the representatives from the local government stated that they were willing to provide assistance for the project activity if it is necessary. The monitoring plan /9/ have been verified by the validation team, and confirmed to be valid.
Annual maintenance cost:	RMB 1.01 million for the 4 <sup>th</sup> year (PDD)	<p>According to the PDD and quoted letters from the solar cooker manufacturers, the annual maintenance cost for the first 3 years will be RMB 20 per cooker. The maintenance fee from the fourth to the tenth year will be responsible by BHED. It is estimated by the project developer that the maintenance cost of each solar cooker is RMB 20 per year plus the inflation rate for subsequent operational years. Thus, the forth year maintenance fee is RMB 1.01 million plus the annual 3.3% inflation rate for subsequent operational years.</p> <p>The quotation documents /40/ were checked by the validation team, and were confirmed to be valid.</p>
Annual Inflation Rate	3.3% per annum (PDD)	The inflation rate of the P.R. China of 3.3% is sourced from the Global Economics Research,

		in which it is based on the past 3-year (i.e. August 2008-July 2010) monthly inflation values <sup>5</sup> to obtain the average annual inflation rate, i.e. 3.3%. The validation team considers that the reference applied is a reasonable assumption. In addition, the calculation of average inflation rate is checked by the validation team, and confirmed to be correct /49/ /51/.
Income Tax Rate	25% (PDD)	The standard corporate income tax rate in China is 25% <sup>6</sup> , which is confirmed by the validation team. There will be no tax benefit or privilege from the government for this project, in which this was confirmed with the government officials during the OSV /iii, xi/.
Discount Rate:	3.6% (PDD)	For the project developer, the capital investment cost is the opportunity cost of depositing same amount of fund in the bank. The validation team agrees that the expected rate of return on investment is the bank deposit rate, which is used as the discount rate in the NPV calculation. The discount rate of 3.6% <sup>7</sup> is used for NPV calculation, which is based on the 5-year deposit rate of RMB in Bank of China in December 2008. Since this is the latest long-term deposit rate available during the GSP, the validation team considers that the estimation of discount rate from the 5-year deposit rate is reasonable and transparent.
Contingency	8% of total investment (PDD)	Due to the innovative feature of project, there was no reference value for the contingency for such project type. 8% contingency is the estimation from the project proponent, which is based on its understanding of the project and its business experience. The validation team considers that the specific value of the contingency does not affect the additionality of the project, i.e., regardless of the contingency value, the NPV of the project without CDM is always negative.
Residual value	Nil	Since once the solar cooker is distributed to the users, the equipment belongs to the beneficiaries, there is no residual value left for the project developer.

<sup>5</sup> Trading Economics: Global Economics Research, China Inflation Rate (<http://www.tradingeconomics.com/Economics/Inflation-CPI.aspx?Symbol=CNY>)

<sup>6</sup> Corporation Income Tax Law of P.R. China, Clause 4 ([http://www.gov.cn/ziliao/flfg/2007-03/19/content\\_554243.htm](http://www.gov.cn/ziliao/flfg/2007-03/19/content_554243.htm))

<sup>7</sup> Bank of China, RMB deposit rate on December 2008, ([http://www.boc.cn/finadata/lilv/fd31/200812/t20081222\\_508225.html](http://www.boc.cn/finadata/lilv/fd31/200812/t20081222_508225.html))

Since all the parameters or values used in the project proposal /49/ which were prepared by the project owner are relied on the national standard (GB NY/T219-2003) and several comparable solar cooker suppliers (quotations), the validation team confirms all the values used are appropriate. Hence, based on the local expertise, the validation team confirms the data sources in the investment analysis used in the project proposal /49/ are valid and applicable and hence comply with the requirement of para. 113 (c) of VVM ver.1.2.

### **Sensitivity Analysis:**

It is noted in the PDD that the discussion of sensitivity analysis has not been carried out since the project does not generate any financial revenue except from CER revenues. The negative NPV indicates that the project encounters with a prohibitive financial barrier without CDM revenues. Under such circumstances, the proposed project would not be set up unless the proposed project is supported by CDM revenues.

### **3.5.4 Barrier analysis**

The project participant has provided an explanation to show the project activity would not have occurred anyway due to the investment barrier only. This fulfills the requirement of "General Guidelines to SSC CDM methodologies (version 16, EB59)",

### **3.5.5 Common practice analysis**

According to the approved monitoring methodology AMS-I.C. Version 18, there is no requirement for common practice analysis. The project participant does not carry out the common practice analysis in the PDD.

In summary, the requirements iterated in the "Attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities from UNFCCC (Version 06 issued on 30<sup>th</sup> September 2005)" were followed and demonstrated by the project activity through the documentation review and the interviews. The project activity without CDM revenue can be considered as financially unattractive. According to the clause 96 of the VVM /2/, the project activity without any CDM revenue is proven as additional and the project activity would not have occurred anyway due to the investment barrier.

## **3.6 Monitoring**

The monitoring plan is included in PDD Section B.7 based on the clause 40 of the approved monitoring methodology AMS-I.C./Version 18, and is correctly applied to the proposed CDM project activity. Monitoring of GHG emission reductions is based on measuring the number of solar cookers operating and the operational time of solar cookers by sampling, in which this is transparently presented in Section B.7 of the PDD.

### **3.6.1 Parameters determined ex-ante**

The project activity neither generates any project emissions nor leakage. The project is a new solar cooker project and there will be no equipment transfers from another activity. In addition, as confirmed with the project proponent during the OSV, no equipment will be transferred to other project activities. Hence leakage is not required to be considered in



accordance with AMS-I.C./Version 18. In addition, no auxiliary fuel will be used for the proposed project, the project emissions are regarded as zero. Therefore the monitoring of project emissions and leakage emissions are not required.

In addition, the project adopts the ex-ante calculation of the solar irradiance and emission factor of coal. The parameters applied in the calculation were validated by the validation team. Please refer to Section 3.4.4 for the detailed discussion.

### **3.6.2 Parameters monitored ex-post**

As stipulated in clause 40 (Table 1, no.1) of AMS-I.C./Version 18, if the emission reductions per system are less than 5 tCO<sub>2</sub>e per year, the project proponent has to: (i) record annually the number of systems in operation and; (ii) estimate the annual hours of operation of an average system; (iii) Monthly solar irradiance rate in project region; (iv) Baseline emission factor of Coal.

The validation team checked that the expected emission reductions per solar cooker would be less than 5 tCO<sub>2</sub>e per year (i.e.  $143,762 \text{ tCO}_2\text{e}/49,000 \text{ sets} = 2.93\text{tCO}_2\text{e/set} < 5\text{tCO}_2\text{e/set}$ ), thus the validation team considers that the proposed project has correctly applied the monitoring requirements in the AMS-I.C./Version 18.

The project monitoring plan in the PDD has clearly described the monitoring procedures in accordance with the monitoring methodology and identifies the responsible parties. In the monitoring plan, BHED will be responsible for the overall monitoring management. In order to demonstrate that the monitoring steps will be performed in a fair and independent way, Gaotai County Energy Station and Linze County Energy Station, i.e. the government organizations under Agricultural Bureau of Gaotai County and Linze County respectively, have agreed to provide assistance to execute the monitoring work in the future, in which this will be managed by the BHED /ii, vi/. BHED shall, prior to the installation of the solar cookers, provide appropriate training on monitoring procedures to ensure the competency of the monitoring staff. The accuracy of the monitoring data shall be under the supervision of the CDM buyer, i.e. Clean Air Capital Ltd.

#### Validation of monitoring of number of systems operating

The number of systems operating will be recorded annually by the Gaotai County Energy Station and Linze County Energy Station. A checklist has been prepared for data recording as indicated in the PDD. The details of the data collection procedures have been described in the monitoring plan, which was verified and confirmed by the validation team to be valid. Therefore, the monitoring requirements of AMS-I.C./Version 18 (i.e. Table 1 no. 1 (i) record annually the number of systems operation) can be fulfilled:

The record will be carried out by the monitoring team of the local Rural Energy Stations (e.g: Gaotai and Linze County). A checklist has been prepared for data recording as indicated in the PDD. The details of the data collection procedures have been described in the monitoring

plan, which was verified and confirmed by the validation team to be valid. Therefore, the monitoring requirements of AMS-I.C./Version 18 (i.e. Table 1 no. 1 (i) record annually the number of systems operation) can be fulfilled.

*Validation of monitoring of annual hours of operation of an average system and the Sampling Plan*

As stipulated in clause 40 (Table 1, no. 1)(ii) of the monitoring methodology, a survey method can be used to estimate the annual hours of operation of an average system. The annual hours of operation can be estimated from the total output, and output per hour. The details of the data collection procedures have been described in the sampling plan of the monitoring plan. According to the “General Guidelines for Sampling and Surveys for Small-Scale CDM Project Activities, EB50 Annex 30”, since there is no specific guidance in the AMS-I.C./Version 18, the project proponent applies the 90/10 confidence and precision level has been adopted for determining the sampling size for estimating the annual hours of operation of an average system. The calculation of sample size according to 90/10 of confidence/precision level has been verified by the validation team and it was considered appropriate for the project. A sample size of 79 will be picked from the 49,000 solar cookers. Simple Random Sample will be applied and 79 participating households will be randomly selected by the monitoring team. According to the monitoring plan, each household is required to fill in the record daily and Gaotai County Energy Station and Linze County Energy Station will collect the record at least once a month. Subsequently, the records will be consolidated annually. The monitoring requirements of AMS-I.C./Version 18, i.e. (ii) estimate the annual hours of operation of an average system, can be fulfilled. Therefore, the monitoring plan is deemed suitable for collection of the required data. The validation team considers that the monitoring plan has complied with the requirements in the approved methodology.

*Validation of monthly solar irradiance rate in project region and Baseline emission factor of coal:*

The pp states to use the annually updated solar irradiance rate which will be from relevant authoritative resources; and the baseline emission factor of coal can refer to the IPCC default value as per the AMS-I.C.(version 18). the validation team confirms this is valid.

As per AMS.I.C. (version 18) and the SSC 536 /58/, the use of national standard for the thermal efficiency value of 65% on the project is acceptable to determine the efficiency of solar cookers, the validation team confirms it is valid.

The validation team checked the sampling plan presented in the PDD and confirmed that it is prepared in accordance with the paragraph 33 of the “General Guidelines for Sampling and Surveys for Small-Scale CDM Project Activities, EB50 Annex 30”. The validation results are tabulated as follows:

Parameters	Validation Opinion
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Sampling Objective	It is defined that both total number of solar cooker operating and operation hours of solar cooker will be determined during the crediting period with a 90/10 confidence/precision, which fulfills the requirements in the mentioned Guideline.
Field Measurement Objectives and Data to be collected	It is defined that both total number of solar cooker operating and operation hours of solar cooker will be measured on-site by visual inspection and operational logs.
Target Population and Sampling Frame	49,000 is selected as the target population for sampling and this is also the maximum population for the project activity.
Sampling Method	The general situations in rural areas are similar to each other, thus is considered to be homogenous for the rural households. Therefore the simple random sampling is applied as per the mentioned Guideline. The sampling will be carried out with the aid of software "Microsoft Excel".
Desired Precision/Expected Variance and Sample Size	The sampling size of 79 is determined according to the 90/10 confidence/precision. Two individual sets of 79 nos. of samples will be selected during each crediting period. The validation team considers that this fulfills the requirements as stipulated in the mentioned Guideline.
Procedures for Administering Data Collection and Minimizing Non-Sampling Errors	Quality assurance and quality control procedures for recording, maintaining and data collection will be implemented. It is noted that in case of missing, damaged or abnormal data without valid reasons is identified, the data will be considered as zero value. The validation team considers that it is the most conservative approach to deal with the missing, damaged or abnormal data during quality control process. This instruction is clearly indicated in the project monitoring plan (Chinese version) /9/, and the project owner also advised that the monitoring plan will be covered comprehensively during the training of monitoring team.
Implementation	It is defined in the PDD that before each crediting period, the sampling will be implemented in order to collect the data for the 2 measured parameters listed in the sampling objective. The data collection will be carried out by the trained monitoring team, with the support from the local Rural Energy Station. Thus the validation team considers that the qualifications and experience can be ensured providing that the monitoring team will be well trained as per the training plan. In addition, the potential conflicts of interest can be also avoided since the monitoring will be carried out with the aid of government from Rural Energy Station.

In addition, the validation team has reviewed the sampling plan, and confirmed that it complies with the requirements of paragraph 34 of the "General Guidelines for Sampling and Surveys for Small-Scale CDM Project Activities, EB50 Annex 30". Here are the validation evaluations of the sampling plan:

- The sampling plan presents a reasonable approach for obtained unbiased, reliable estimates of the variable by using simple random sampling;
- The data collection/measurement method is likely to provide reliable data as the data collection will be carried out by the monitoring team with the aid from local Rural Energy Station;
- The sampling frame is clearly defined as the 49,000 for each sampling, which is the maximum population for the project activity;
- The sampling approach is suitable as it is fully complied with the requirements of the mentioned Guideline;
- The proposed sampling size is adequate as it follows the 90/10 confidence/precision as the criteria for reliability of sampling efforts as per the mentioned Guideline;
- The procedures for data measurements are well defined with the necessary forms to be used during the data measurement; adequate quality assurance and quality control procedures for recording, maintaining and data collection are also provided to avoid any bias;
- The persons conducting the sampling activities should be qualified as they will be trained to implement the monitoring plan as well as the sampling procedures.

According to clause 17 of “General Guidelines for SSC CDM methodologies” version 16, data elements that generally constant and indirectly related to the emission reductions should be measured, thus the solar cooker efficiency will be monitored by the PP at least annually. The measurement of solar cooker efficiency will be conducted by using survey method. The 90/10 confidence and precision level will be adopted for determining the sampling size. For the first measurement after the distribution of solar cooker to the participated users, maximum possible value of standard deviation will be used to determine the sampling size, thus this is conservative and the sample size is thus calculated as 79. Then for the subsequent measurement, as the solar cooker efficiency is considered as “generally constant”, the sample size will be determined by applying the standard deviation calculated from the previous set of data measurement. The validation team considers that this approach is reasonable as this is a widely used measurement of variability or diversity used in statistics.

According to the “General Guidelines to SSC CDM methodologies” (version 16, EB59 clause 17 (b), “data elements that are generally constant and indirectly related to the emission reductions should be measured or calculated at least once in a year”. It is stated that the thermal efficiency of solar cooker will be measured at least annually in the monitoring plan through sampling survey method. Hence, validation team can confirm it is valid.

According to clause 17 of “General Guidelines for SSC CDM methodologies” version 16, data elements that generally constant and indirectly related to the emission reductions should be measured, thus the solar cooker efficiency will be monitored by the PP at least annually. The measurement of solar cooker efficiency will be conducted by using survey method. The 90/10 confidence and precision level will be adopted for determining the sampling size. For the first measurement after the distribution of solar cooker to the participated users, maximum

possible value of standard deviation will be used to determine the sampling size, thus this is conservative and the sample size is thus calculated as 79. Then for the subsequent measurement, as the solar cooker efficiency is considered as “generally constant”, the sample size will be determined by applying the standard deviation calculated from the previous set of data measurement. The validation team considers that this approach is reasonable as this is a widely used measurement of variability or diversity used in statistics.

It is stated by the project developer that once the project is submitted to registration in the UNFCCC, they shall place tendering process to the solar cooker manufacturers. The equipment stock from the manufacturers will be distributed to the end users, and thus the usage time can be recorded once the first batch of cookers is being used by the users. At the initial stage of the project, it might not be able to distribute all the solar cookers to users for full-scale operation. According to the estimation from the project developer, it might take about one to two months to manufacture and distribute all the 49,000 cookers to the end users, and it will greatly depend on the production progress of the manufacturers. The emission reductions shall be based on the actual number of solar cooker used. The usage record of solar cookers will be monitored by the project owner according to the monitoring plan described above.

In summary, the collected monitoring data, including (i) number of solar cookers in the proposed project, and (ii) the monthly operating time of each solar cooker, will be recorded and counter-verified against the sales contract and the sampling survey record. (iii) thermal efficiency of the solar cooker. The overall monitoring procedure is clearly described in the monitoring plan, and has been verified by the validation team.

### **3.6.3 Management system and quality assurance**

According to the PDD, the project’s monitoring plan outlines the followings:-

- Monitoring Organization: establishment of management structure to carry out monitoring work;
- Data Monitored: including the number and operating time of solar cookers;
- Monitoring Method: the form and methodology for recording the above mentioned parameters by sampling;
- Data Collection: monitoring records will be kept and stored for validation and verification for a period of 2 years from the end of the crediting period;
- Maintenance: maintenance schedule and frequency for the solar cookers /38/;
- QA/QC Procedures: quality assurance and quality control procedures for recording, maintaining and data collection will be implemented. It is noted that in case of missing, damaged or abnormal data without valid reasons is identified, the data will be considered as zero value. The validation team considers that it is the most conservative approach to deal with the missing, damaged or abnormal data during quality control process. This instruction is clearly indicated in the project monitoring plan (Chinese version) /9/, and the project owner also stated that the monitoring plan will be covered comprehensively during the training of monitoring team.

#### *Steps undertaken to assess the monitoring plan*

The management team for monitoring of the project is identified in the PDD. As reported by the project developer, the training programme shall be provided to the management team and operation team when the project is requested for registration in UNFCCC for ensuring the relevant staffs are suitable and competent for carrying out the work. According to the monitoring plan, the training programme for project monitoring to the BHED management team and Gaotai County Energy Station and Linze County Energy Station should be started one month before the operation. The QA/QC procedures are also described in the PDD, including the procedures when errors are recorded. Detailed monitoring procedures have been developed and the implementation of these will enable subsequent verification of the project's emission reductions.

According to document review in PDD, on-site interview with representatives from the project developer /vi/ and the government officials /iii, xiii/, the monitoring arrangements described in the monitoring plan is assessed; it is reasonably believed that the monitoring plan can be feasible within the project operation stage. The validation team considered that project participant is capable to implement the monitoring plan provided that sufficient training can be arranged to the monitoring team, and with the assistance of CDM buyer and Gaotai County Energy Station and Linze County Energy Station

### **3.7 Sustainable Development**

The project is considered to be contributing to sustainable development in the host country, P. R. China, by utilizing the renewable solar energy for heat generation, and eliminating the environmental pollution caused by operation of coal-fired cooking units. In addition to CO<sub>2</sub> emission reductions, the project would mitigate emissions of other pollutants, such as SO<sub>2</sub>, NO<sub>x</sub> and particulates associated with heat generation from burning coal. Several more benefits would be expected by the implementation of the project activity, which includes providing rural residents with a clean and practical method for their daily cooking; and improving indoor air quality and therefore the health of rural residents through reducing coal burning. During the OSV, the validation team observed that all the cooking stoves in the region are placed inside the house without proper ventilation. Besides the hygiene problems caused by the dark smoke created during coal burning, the possible accumulation of carbon monoxide created by incomplete combustion could also be another health issue caused by coal burning. In addition, the reduction in coal consumption by using the solar cooker shall alleviate the financial burden of the poor households.

The representative from the project owner /vi/ indicated that job opportunities will be created to the local residents during the monitoring of the project activity. As confirmed by the local government officials from the local Agricultural Bureau /iii, xiii/ during the on-site interview, the sustainable development of the social, environmental and economic aspects can be achieved by the implementation of the proposed project. Furthermore, the validation team has checked the LoA issued by the DNA of the P.R. China for the confirmation of contribution of the project activity to sustainable development /6/.

### 3.8 Environmental Impacts

During the OSV, the representatives from the local Agricultural Bureau /iii, xiii/ consider that the project activity utilize renewable energy to generate heat energy for households' daily cooking and water heating usage, the project activity is not expected to cause any significant environmental impacts. During the OSV, the representatives /i, xii/ from local Environmental Protection Bureau (EPB) confirmed that there is no impact to the environment from the project activity. According to EPB, as the project type is not included in the national law on EIA, hence an EIA is not required for this type of solar cooker project.

No significant environmental impacts were expected to be identified during the OSV and this was confirmed by representatives from the local villagers /viii-x/, /xvii-xix/ and officials /iii/ /viii/. In addition, the opinion /59/ from Zhangye EPB indicates that no waste water, waste gas and solid will produce during the implementation of the project. 9<sup>th</sup> October 2010 and no EIA report is needed for the project. No special environmental mitigation measures will be required by the proposed project.

### 3.9 Local Stakeholder Consultation

According to the PDD, a stakeholder survey was carried out by the project developer during April 2010 which was prior to the publication of the PDD on the UNFCCC website.

It is reported that totally 100 copies of survey forms were issued to the local rural residents with all pieces of reply received. The stakeholders' comments from the questionnaires are summarized and recorded in the Section E of the PDD. The returned questionnaires (100 copies) were checked by the validation team, and confirmed to be valid /52/. The surveyed stakeholders included representatives from different gender, age groups and education background. From the background of the stakeholders, it is reasonably believed that the survey have reflected the general attitudes towards the project from the local villagers who are possibly affected by the project. According to the returned questionnaires, all the participants expressed support to the project activity and considered that no negative impacts would be caused by the project.

During the on-site visit, the representatives from the local villages (Xiaotun Village /viii-x/ and Xuanhua Village /xvii-xix/) were interviewed. In general, the interviewees showed adequate understanding of the nature of the proposed project through the introduction by the project developer and local Energy Stations. Most of the interviewees are engaged in agricultural works. They considered that the project would benefit the improvement in local social, economic and environmental development. During the OSV, the representatives from the local Agricultural Bureau /iii, xiii/ stated that the solar cookers are not easily available in the local retail market. The local villagers also indicated that they would not keen on purchasing solar cooker by sourcing from other markets outside their living region. However, they are willing to have one solar cooker free as stipulated in the project agreement template document for the rural residents/11/. The interviewees' overall response was supportive to the project activity.

The representatives from local Agricultural Bureau /iii/ /xiii/ and DRC/xi/ also stated that they did not receive any complaint from the residents about the project activity.

### **3.10 Comments by Parties, Stakeholders and NGOs**

The PDD version 1 dated 8<sup>th</sup> August 2010 was made publicly available on UNFCCC CDM's website:

(<http://cdm.unfccc.int/Projects/Validation/DB/QHQSLO6Z17LR8VBZST4C7F8SGSKOTV/view.html>) and parties, stakeholders and NGOs were invited to provide comments during a 30 days period from 19<sup>th</sup> August 2010 to 17<sup>th</sup> September 2010.

No public comments have been received during that period.

## **Appendix A**

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### **CDM VALIDATION PROTOCOL**

**PROJECT TITLE: HEQING SOLAR COOKER PROJECT II**

**PROJECT LOCATION: P. R. CHINA**

**REPORT No. 01 997 9105061237**

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
<b>1. Approval</b>					
<p>1.1 Have Letters of Approval have been provided from all involved Parties?</p> <p>If yes, indicate:</p> <ul style="list-style-type: none"> <li>– when and by which Party the LoA has been issued, with a clear reference to the LoA itself and any supporting documentation;</li> <li>– whether the LoA was provided to the DOE by the project participants or directly by the DNA;</li> <li>– the means of validation employed to assess the authenticity of the document; and</li> <li>– by a clear statement, that the DOE considers the LoA to be valid.</li> </ul>	/2/	DR	<p>The Letters of Approval (LoA) issued by the DNAs of China and Annex I party are not received.</p> <p><b>CAR01</b></p> <p>Please provide the relevant LoAs from the DNA of P.R. China and Annex I party for validation.</p>	<b>CAR01</b>	OK (Refer to Table 2)
1.2 Are all Parties, who issued the LoA, Parties to the Kyoto Protocol <u>and</u> is this stated in the LoA?	/2/	DR	<p>Yes. P. R. China is the unique party to issue the LoA. P.R. China ratified the Kyoto Protocol on 30<sup>th</sup> August 2002. The LoA issued by the DNA of the P.R. China is checked by the validation team.</p>	OK	OK
1.3 Is every LoA from the Parties involved issued by an organisation listed as Designated National Authority (DNA) on the UNFCCC web site?	/2/	DR	<p>Yes. National Development and Reform Commission of the P.R. China (NDRC) is listed as the DNA of the P.R. China on the UNFCCC web site.</p>	OK	OK

<sup>8</sup> MoV = Means of Verification, DR = Document Review, I = Interview, www = internet search.



**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
<i>Indicate the official name of the DNA and contact person name.</i>			<p>Contact Person: Mr. Wang Shu Project Officer of the Department of Climate Change, NDRC</p> <p>The Ministry of Housing, Spatial Planning and the Environment is listed as DNA of Netherlands on the UNFCCC web site. Contact Person: Mrs. Marisa Gerards Director for International Affairs</p> <p><a href="http://cdm.unfccc.int/DNA/index.html">http://cdm.unfccc.int/DNA/index.html</a></p>		
1.4 Is the participation in the CDM project activity voluntary <u>and</u> is this stated in all LoAs? <i>Indicate the source of proof.</i>	/2/	DR	There is insufficient information for confirmation of voluntary participation in the CDM project activity as the LoA from Annex I party is not yet received. Please refer to 1.1 of Table 1 for details.	<b>CAR01</b>	OK (Refer to Table 2)
1.5 Is the LoA unconditional with respect to 1.2 to 1.4?	/2/	DR	The LoA from Annex I party is not yet received. Please refer to 1.1 of Table 1 for details.	<b>CAR01</b>	OK (Refer to Table 2)
1.6 Is the title of the CDM project activity as given in the PDD identical with the title given in all LoAs and Modalities of Communication? <i>Provide Yes/No answer, and include details</i>	/2/	DR	N/A. The LoA from Annex I party and MoC are not yet received. Please refer to 1.1 of Table 1 for details.	<b>CAR01</b>	OK (Refer to Table 2)

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
<i>into Tables 2, 3 and 4 accordingly.</i>					
1.7 If any of provided LoAs contains additional specification of the CDM project activity (PDD version number, validation report version number, amount of ER, etc.) are those specifications valid and consistent with other documents?	/2/	DR	N/A. The LoA from Annex I party is not yet received. Please refer to 1.1 of Table 1 for details.	<b>CAR01</b>	OK (Refer to Table 2)
1.8 Does the project activity involve any public funding from Annex I Parties? <u>If yes</u> , has Annex I Party provided a written confirmation that the use of such funding does not lead to the diversion of the official development assistance.	/2/	DR	<p>According to Annex 2 of the PDD, the project does not receive any public funding. However, further information is requested to be provided for the financial condition of the project activity in order to assess the presence of ODA.</p> <p><b>CL01</b> Please substantiate whether the BHED involves with any foreign investment capital, and clarify with supporting information for the financial arrangement of sources of capital of the project activity.</p>	<b>CL01</b>	OK (Refer to Table 2)
<b>2. Participation (VVM E.2)</b>					
2.1 Are the Parties and project participants (PP) listed in the section A.3 of the PDD correctly <u>and</u> is this information consistent with the contact details provided in Annex 1 of the	/1/	DR	Yes. The project participants are correctly listed in the section A.3. of the PDD and they are consistent with the contact details provided in Annex 1 of	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
PDD?			the PDD.		
2.2 Has every Party involved approved the participation of each corresponding PP, either by means of a LoA or by a separate written document? <i>Indicate Yes / No answer and describe all inconsistencies in the Tables 2, 3 and 4 accordingly.</i>	/2/	DR	The LoA from Annex I party is not yet received. Please refer to 1.1 of Table 1 for details.	<b>CAR01</b>	OK (Refer to Table 2)
<b>3. Project Design Document (VVM E.3)</b>					
3.1 Is the PDD presented for validation based on the latest template available at the UNFCCC website? <i>Indicate Yes / No answer and describe all inconsistencies in the Tables 2, 3 and 4 accordingly.</i>	/1/, /3/	DR	Yes. The Project Design Document (Version 6 dated 11 <sup>th</sup> May 2011) is based on the latest template available at the UNFCCC website in accordance with the applicable guidance document /3/.	OK	OK
3.2 Has the PDD been established in accordance with the CDM requirements for completing PDDs issued by the CDM EB?	/1/, /3/	DR	Yes. The Project Design Document (Version 6 dated 11 <sup>th</sup> May 2011) has been established in accordance with CDM requirements.	OK	OK
<b>4. Project Description (VVM E.4)</b>					
4.1a) Does the PDD contain a description, which provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation?	/1/, /6/, /7/, /8/, /9/, /12/, /13/	DR	A description is contained in the PDD, in which a clear understanding of the precise nature of the project activity and the technical aspects of its implementation is provided. The	<b>CAR02</b> <b>CL02</b> <b>CL03</b> <b>CL04</b>	OK (Refer to Table 2)

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
4.1b) Is the description (incl. any process flow-charts, Spreadsheets etc.) complete, coherent and consistent with the provisions of the monitoring plan?			<p>description is considered as complete, coherent and consistent with the provisions of the monitoring plan.</p> <p><b>CAR02</b></p> <p>Project Participant is requested to clarify the following changes between the revised PDD and GSP-PDD:</p> <ul style="list-style-type: none"> <li>--Annual emission reductions;</li> <li>--Version of AMS-I.C;</li> <li>--Monthly Solar Irradiance Rate in the project region;</li> <li>--the Starting date of project activity</li> <li>--the starting date of crediting period.</li> </ul> <p><b><u>CL02</u></b></p> <p>Please provide the project proposal to the validation team.</p> <p>Please provide more detailed information in the PDD for the range of the project location for transparent presentation including the geographic coordinates of the project sites.</p> <p><b><u>CL03</u></b></p> <p>Please provide the supporting</p>	<p><b>CL05</b></p> <p><b>CL06</b></p>	

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			<p>information for the general information of Gaotai County and Linze County, such as population, average income and solar irradiance etc.</p> <p><b>CL04</b> Please provide the relevant documents for CER purchase to the validation team for validation.</p> <p><b>CL05</b> Please provide supporting information for whether relevant government officials have been notified for the project design.</p> <p><b>CL06</b> Please provide supporting information about the arrangement of CDM training to the end users and the project monitoring team.</p>		
<p>4.2 In the case of greenfield project activity, is the project design described sufficiently by means of specifications, drawings and manuals? <i>Provide Yes/No answer and indicate the documents which have been reviewed in relation to the issue.</i></p>	/1/, /6/, /7/, /8/, /9/	DR, I	<p>Yes. The project activity is a greenfield project. The project design is sufficiently described from the technical specifications, drawings and manuals of solar cookers. In addition, the validation checked the equipment design and specification in the template purchase document for the solar cooker manufacturer prepared by</p>	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			the project developer.		
4.3 Does the project activity reflects current good practices, uses state of the art technology or would the technology result in a significantly better performance, than any commonly used technologies in the host country? <i>Provide the description of how validation has been carried out and what comparisons have been made.</i>	/1/, /6/, /7/, /8/, /9/	DR, I	Yes. The solar cooker technology used for the project reflects current good practices where on one hand renewable solar energy would be utilized for heat generation, and on the other hand the environmental pollution caused by coal burning could be reduced.	OK	OK
4.4 In cases where the project activity involves the alteration of an existing installation or process, does the PDD provide a clear description of the differences between the project and the pre-project scenario? <i>Please, provide Yes/Now answer and update Tables 2, 3 and 4 accordingly, if there is anything unclear in the provided description.</i>	/1/, /2/, /3/	DR, I	N/A. According to validation team's physical inspection and on site interview with project participant, the project activity does not involve the alternation of existing installation or process.	OK	OK
<b>5. Baseline and Monitoring methodology</b>					
<b>5.1 General requirements</b>					
5.1.1 Is the methodology used in the project activity approved by the CDM EB <u>and</u> is the selected version still valid?	/1/, /2/, /3/	DR	Yes. The methodology used in the project activity is approved by the CDM EB and the selected version is still valid.	OK	OK
<b>5.2 Applicability of the selected methodology</b>					
5.2.1 Does the project activity qualify under the criteria for small-scale CDM project activities	/1/, /2/, /3/	DR, I	Yes. The project activity qualifies under the criteria for small-scale CDM project	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
<p>set out in § 6 (c) of decision 17/CP.7 and Annex II of the Modalities and Procedures for the CDM?</p> <p><i>Please provide Yes/No response and description of how this was validated.</i></p> <p><i>In case of calculated emission reductions varying over time, SSC-applicability limits must be met for every single year in any of the max. 3 subsequent crediting periods.</i></p>			<p>activities set out in § 6 (c) of decision 17/CP.7 and Annex II of the Modalities and Procedures for the CDM with application of AMS-I.C. Version 18:</p> <ul style="list-style-type: none"> <li>• The project activity applies renewable energy technology (solar cookers) that supply individual households or users with thermal energy that displaces coal used for cooking and water-boiling;</li> <li>• The total installed capacity of the project activity is 44.59MW thermal energy, which does not exceed the threshold of 45MW thermal energy as stated in the small-scale methodology;</li> <li>• The project activity only utilizes renewable solar energy without any fossil fuels. Thus it does not involve in any biomass system, co-fired system;</li> <li>• The heat produced by the project activity is captured and used within the solar cookers. It does not involve in delivery to another facilities within the boundary;</li> <li>• The project activity will be a new project using new solar cookers, and it does not seek to retrofit or modify any existing facility for</li> </ul>		

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			renewable energy generation.		
<p>5.2.1.1 If yes, does the PDD extensively demonstrates and confirms that the small-scale project activity is not a debundled component of a larger project?</p> <p><i>Please indicate Yes/No answer. In case of positive conclusion provide details of the validation measures taken and data found during the procedure. Otherwise amend the Tables 2, 3 and 4 accordingly.</i></p>	/1/, /2/, /3/	DR, I	<p>Yes. The same host project participant, BHED has got another solar Cooker Project I in Gansu Province only, namely "Heqing Solar Cooker Project I" which is currently under validation. Together with the proposed project activity, these two projects are in the same project category, applied with same technology, and located in the Gansu Province. The proposed project activity will be implemented in Linze County and Gaotai County, which is adjacent to the Ganzhou District, where is the project county for "Heqing Solar Cooker Project I". According to the physical observation during the on-site visit, the validation team visited one of the border points along the boundary between two projects under validation, and realized that the two projects were separated by a river and a large area of muddy land. There are no rural populations within 1 km along the boundary of the two projects.</p> <p><b>CL07</b> Please provide supporting information about the boundary of the project</p>	<b>CL07</b>	OK (Refer to Table 2)



**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			activity, and clarify that whether the project activity will be implemented within 1 km of the project boundary of another project under validation.		
5.2.2 Are all applicability conditions of the selected baseline and monitoring methodology and all tools involved satisfied by the project activity? <i>Please indicate Yes/No answer. In case of positive conclusion provide details of the validation measures. Otherwise amend the Tables 2, 3 and 4 accordingly.</i>	/1/, /2/, /3/, /4/, /5/	DR	Yes. All applicability conditions of the selected baseline and monitoring methodology and all tools involved are satisfied by the project activity as the project activity fulfils all the requirements in AMS-I.C. Version 18.	OK	OK
5.2.3 Is the selection of the applied baseline and monitoring methodology justified?	/1/, /2/, /3/, /4/	DR	Yes. The selection of the applied baseline and monitoring methodology is justified As per AMS-I.C./Version 18.	OK	OK
5.2.4 Is the selected methodology correctly quoted in all related documents?	/1/, /2/, /3/, /4/	DR	Yes. The selected methodology is correctly quoted in the PDD.	OK	OK
5.2.5 Does the PDD sufficiently describe all the GHG emission sources or sinks occurring as a result of project activity, which have not been accounted for under the selected methodology and are expected to contribute more than 1% of the overall expected average annual emission reductions? <i>Provide Yes/No answer. Indicate the sources or sinks of GHG, which were proved to be negligible. Otherwise amend the Tables 2, 3 and 4 accordingly.</i>	/1/, /2/, /3/, /4/, /5/	DR	Yes. The GHG emissions occurring within the proposed CDM project activity boundary as a result of the implementation of the proposed CDM project activity is negligible, and assumed to be zero in project emissions and leakage. As stated from the project participant, no auxiliary fuel will be used during the whole project period. Apart from this, the validation team considers that there are no other major sources of emission reductions.	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			Therefore the validation team considers that the greenhouse gas emissions occurring within the proposed CDM project activity boundary as a result of the implementation of the proposed CDM project activity which are not addressed by the applied methodology, is deemed to contribute less than 1% of the overall expected average annual emission reductions.		
<b>5.3 Project boundary</b>					
5.3.1 Does the PDD correctly describe the project boundary? <i>Provide Yes/No answer. And amend the Tables 2, 3 and 4, if needed.</i>	/1/, /2/, /3/, /4/	DR	Yes. As per AMS-I.C./Version 18, the project boundary is clearly defined as the physical, geographical site of the project equipment producing the renewable solar energy, i.e. Gaotai County and Linze County since the project neither generates electricity on grid nor transports the thermal power to other regions.	OK	OK
5.3.2 Does the PDD correctly indicate and describe the emission sources and sinks of GHG gases that are included in the project boundary?	/1/, /2/, /3/, /4/	DR	Yes. The PDD correctly indicate and describe the emission sources and sinks of GHG gases, in which it mainly comes from coal burning in the project boundary.	OK	OK
5.3.3 In cases where the methodology allows project participants to choose whether a	/1/, /2/, /3/, /4/	DR	Idem.	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
source or gas is to be included in the project boundary, is the choice explained and justified by PPs?					
<b>5.4 Baseline identification</b>					
5.4.1 Has the procedure contained in the selected methodology to identify the most reasonable baseline scenario been applied correctly and documented in the PDD?	/1/, /2/, /3/, /4/	DR	Yes. As per AMS-I.C./Version 18, the baseline is applied correctly and documented in the PDD. Please refer to Section 3.4.3 for details.	OK	OK
5.4.1.1 Is the identified baseline scenario plausible?	/1/, /2/, /3/, /4/	DR	Yes. As per AMS-I.C./Version 18, the identified baseline is plausible. Please refer to Section 3.4.3 for details.	OK	OK
5.4.1.2 Are all assumptions stated in a transparent and conservative manner?	/1/, /2/, /3/, /4/	DR	Yes. As per AMS-I.C./Version 18, all assumptions stated are in a transparent and conservative manner. Please refer to Section 3.4.3 for details.	OK	OK
5.4.2 Does the selected methodology require the use of tools <u>and</u> does PDD reflects that correctly?	/1/, /2/, /3/, /4/	DR	N/A. The selected methodology does not require the use of tool, but the PDD correctly reflect the additionality of the project by applying the information on additionality (attachment A to appendix B).	OK	OK
5.4.2.1 Were all the tools applied correctly?	/1/, /2/, /3/, /4/	DR	Idem	OK	OK
5.4.3 In case the methodology requires several	/1/, /2/, /3/,	DR	The methodology does not require	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
alternative scenarios to be considered in the identification of the most reasonable baseline scenario, have all scenarios been considered <u>and</u> have no reasonable alternative scenario been excluded?	/4/		alternatives scenarios to be considered in the identification of the most reasonable baseline scenarios.		
5.4.3.1 Has the choice of the baseline scenario been done using conservative assumptions?	/1/, /2/, /3/, /4/	DR	Yes. As per AMS-I.C./Version 18, the baseline is prescribed. Please refer to Section 3.4.3 for details.	OK	OK
5.4.4 Is the identified baseline scenario reasonable according to the assumptions, calculations and rationales used in the PDD and other reference sources?	/1/, /2/, /3/, /4/	DR	<b>CL08</b> Please provide the official document of energy sources for cooking and heating in rural area in recent years in Linze County and Gaotai County.	<b>CL18</b>	OK (Refer to Table 2)
5.4.6 Does the PDD describe how the national and sectoral policies relevant to the baseline scenario have been identified and considered in the PDD?	/1/, /2/, /3/, /4/	DR	Yes. As per AMS-I.C./Version 18, the baseline is prescribed and identified as the fuel consumption of the technologies that would have been used in the absence of the project activity multiplied by an emission coefficient for the fossil fuel displaced. No national and sectoral policies are required to be identified.	OK	OK
5.4.7 Does the PDD provide a verifiable description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take	/1/, /2/, /3/, /4/	DR	Yes. As per AMS-I.C./Version 18, the PDD provides a verifiable description of the identified baseline scenario. Please refer to Section 3.4.3 for	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
place in the absence of the project activity?			details.		
<b>5.5 Algorithm and/or formulae used to determine emission reductions</b>					
<p>5.5.1a) Are all calculations applied and documented according to the selected methodology and in a complete and transparent manner?</p> <p>5.5.1b) Are correct units applied and consistency between parameter dimensions and parameter value ensured?</p> <p>See also Question 4.1.b) with respect to consistency of parameter values between calculation spreadsheets and PDD.</p>	/1/, /3/, /4/, /10/, /17/	DR	<p>Yes. The calculations applied and documented are in accordance with the selected methodology and in a complete and transparent manner.</p> <p><b>CL09</b> Please follow the annotations in the equations of the AMS-I.C version 18 as applied in the PDD.</p> <p><b>CL10</b> Please clarify how the thermal efficiency tests are conducted following the guidance provided in relevant national/international standards.</p> <p><b>CL11</b> Please provide supporting information for how the solar cookers' thermal efficiency can be maintained throughout 10 years of operational lifetime.</p>	<b>CL09</b> <b>CL10</b> <b>CL11</b>	OK (Refer to Table 2)
5.5.2 In case the methodology allows a selection between different options for equations or parameters, has adequate justification been given and have the correct equations and	/1/, /3/, /4/, /10/, /17/	DR	Yes. Idem.	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
parameters been used, in accordance with the methodology selected?					
5.5.3 In case some data and parameters will not be monitored throughout the crediting period, but have already been determined and fixed, are all data sources, assumptions and calculations correct, applicable to the proposed CDM project activity and conservative?	/1/, /3/, /4/, /10/, /17/	DR	Yes. Idem.	OK	OK
5.5.4 In case data and parameters will be monitored on implementation and hence become available only after validation of the project activity, are the estimates provided in the PDD for these data and parameters reasonable?	/1/, /3/, /4/, /10/, /17/	DR	Yes. Idem.	OK	OK
5.5.5 Have the major risks and uncertainties, which can influence the emission reduction estimates, been identified and addressed in the PDD?	/1/, /3/, /4/, /10/, /17/	DR	Yes. Idem.	OK	OK
<b>5.6 Leakage</b>					
5.6.1 Has the leakage been identified and calculated according to the approved methodology?	/1/, /2/, /3/, /4/	DR, I	Yes. It is noted during OSV that no auxiliary fuel will be used for the project activity. As per AMS-I.C./Version 18, leakage is identified as not required to be considered and is assumed as zero.	OK	OK
5.6.2 Have the leakage been addressed in complete, conservative and substantiated manner?	/1/, /2/, /3/, /4/	DR, I	Yes. Idem.	OK	OK
5.6.3 Are uncertainties in the leakage emission	/1/, /2/, /3/,	DR, I	Yes. Idem.	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
estimates properly addressed?	/4/				
<b>6. Methodology-related issues for afforestation or reforestation CDM project activities</b>					
Add specific A/R requirements – if applicable!	N/A	N/A	Not applicable for this CDM project activity	OK	OK
<b>7. Additionality</b>					
<b>7.1 Prior consideration of the CDM (VVM E.6.III.a)</b>					
7.1.1 Is there documented evidence provided by the project participants on how and when the decision to proceed with the project activity was taken?	/1/, /2/ /25/, /26/	DR, I	Yes. The validation team has checked the shareholder meeting minutes provided by the PP on how and when the decision of CDM development to proceed with the project activity. Please refer to Section 3.5.1 for details.	OK	OK
7.1.2 Is the starting date of the project activity, reported in the PDD, in accordance with the “Glossary of CDM terms” <u>and</u> CDM VVM (§97)? Note: Confirm the starting date indicated in C.1. is consistent within the PDD, in particular with respect to the project implementation history.	/1/, /2/, /3/ /25/, /26/	DR, I	Yes. The PP has reported a start date for the project activity as “planned tender bidding process start date” in the PDD. During the OSV, the project owner informed that the project will only be started after the proposed project is registered as a CDM project. The validation team agrees with the project implementation status for the selection of the starting date, and confirms that no implementation or real actions of the proposed project (such as purchase of solar cookers) have been carried out at this moment. It is	OK	OK



**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			confirmed that the starting date in Section C.1. is consistent within the PDD with respect to the future project implementation schedule.		
7.1.3 Is the date stated in the provided evidence consistent with other available evidence (e.g. dates of construction, purchase orders for equipment)?	/1/, /2/, /3/, /25/, /26/	DR, I	Idem.	OK	OK
7.1.4 If the project was not published and the starting date is on or after 2 <sup>nd</sup> August 2008, was it possible to receive from UNFCCC secretariat and DNA a written confirmation that PPs previously informed the above entities on commencement of the project activity and of their intention to seek CDM status?	/1/, /2/, /3/, /26/	DR	N/A. The project was published in August 2010, and the project activity will be started once the project is registered as CDM project.	OK	OK
7.1.5 For the project activities with a starting date before 2 <sup>nd</sup> August 2008 and before the actual publication, was there enough evidence presented to prove that PPs were previously aware of CDM?	/1/, /2/, /3/, /25/, /26/	DR, I	N/A. The project was published in August 2010, and the project activity will be started once the project is registered as CDM project.	OK	OK
7.1.6 For the project activities with a starting date before 2 <sup>nd</sup> August 2008 and before the actual publication, was there enough evidence presented to prove that CDM benefits have been a decisive factor in the decision to proceed with the project activity?	/1/, /2/, /3/, /25/, /26/	DR, I	N/A. The project was published in August 2010, and the project activity will be started once the project is registered as CDM project.	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
7.1.7 Does the individual or body that took the decision to proceed with the project activity have/had the authority to do so?	/1/, /2/, /3/	DR, I	Yes. During the on-site interview, the representative from local Agricultural Bureau stated that the project owner had authority to proceed with the project activity, and there is no need for any approval document for the project activity.	OK	OK
7.1.8 For the project activities with a starting date before 2 <sup>nd</sup> August 2008 and before the actual publication, was there enough evidence presented to prove that PPs were taking continuing and real actions to secure CDM status for the project in parallel with its implementation?	/1/, /2/, /3/, /25/, /26/	DR, I	N/A. The project was published in August 2010, and the project activity will be started once the project is registered as CDM project.	OK	OK
7.1.7 In case there is a significant gap between the start date of the project activity and the commencement of validation, how was it possible for the project participant to commit funds to the project in advance of receiving a positive validation opinion?	/1/, /2/, /3/, /25/, /26/	DR, I	<b>CL01</b> Please substantiate whether the BHED involves with any foreign investment capital, and clarify with supporting information for the financial arrangement of sources of capital of the project activity.	<b>CL01</b>	OK (Refer to Table 2)
<b>7.2 Identification of alternatives</b>					
7.2.1 Does the PDD identify and list credible alternatives to the CDM project activity in order to determine the most realistic baseline scenario, unless selected approved methodology prescribes/identifies the baseline scenario and no further analysis is required?	/1/, /2/, /3/, /4/, /5/	DR	The PP correctly applies the approved methodology which prescribes the baseline scenario and no further analysis of alternatives is required.	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
7.2.2 Does the list of alternatives include as one of the options that the project activity is undertaken without being registered as a CDM project activity?	/1/, /2/, /3/, /4/, /5/	DR	The PP correctly applies the approved methodology which prescribes the baseline scenario and no further analysis of alternatives is required.	OK	OK
7.2.3 Does the list contain all realistic/credible alternatives that the DOE, on the basis of its local and sectoral knowledge, considers to be viable means of supplying the outputs or services that are to be supplied by the project activity? <i>Note: All alternatives listed in the selected methodology should be included, as well as those not covered by the methodology.</i>	/1/, /2/, /3/, /4/, /5/	DR	The PP correctly applies the approved methodology which prescribes the baseline scenario and no further analysis of alternatives is required.	OK	OK
7.2.4 Is the exclusion of the alternatives for legal reasons justified? <i>Note: Some alternatives might be illegal, according to the local regulations, but still widely practiced due to lack of enforcement. It should be verified.</i>	/1/, /2/, /3/, /4/, /5/	DR	The PP correctly applies the approved methodology which prescribes the baseline scenario and no further analysis of alternatives is required.	OK	OK
<b>7.3 Investment Analysis</b>					
7.3.1 Are all sources of revenues (including savings) have been considered in the PDD and all calculations?	/1/, /2/, /3/, /4/, /5/, /6/	DR, I	Yes. All sources of revenues have been considered in the PDD. However the PP stated that other revenues such as project administrative fee may be included.  <u>CL11</u>	<b>CL11</b>	OK (Refer to Table 2)

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			Please confirm all the revenues in the project activity and provide the calculation of investment analysis accordingly.		
7.3.2 Is the type of investment analysis selected correctly in the PDD?	/1/, /5/ /6/	DR, I	Yes. The PP applies NPV calculation in the investment analysis for the project activity without CDM revenues.	OK	OK
7.3.3 Is the selected financial indicator chosen and applied correctly?	/1/, /5/, /6/	DR, I	Yes. The PP applies NPV calculation in the investment analysis for the project activity without CDM revenues. A negative value of NPV represents that the project is not financially feasible.	OK	OK
7.3.4 Is the guidance on IRR calculation and assessment correctly applied? <i>Note: Means of validation should be recorded.</i>	/1/, /5/ /6/	DR, I	N/A. The PP applies NPV calculation in the investment analysis for the project activity without CDM revenues. A negative value of NPV represents that the project is not financially feasible.	OK	OK
7.3.5 In case project participants use values from Feasibility Study Reports (FSR) is it possible to verify that the period between the FSR date and investment decision was reasonably short and FSR values did not change materially?	/1/, /5/ /6/	DR, I	N/A. The PP applies the own estimated values from the project proposal in the NPV calculation, in which a negative value is resulted to illustrate that project is not financially feasible. Since the only profitable income of the project comes from the CDM revenue, the time between the finalization of project proposal and investment decision would not be a critical factor in this	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			project activity.		
7.3.6 Are all the values consistent between FSR and PDD <u>and</u> are inconsistencies properly justified?	/1/, /5/ /6/	DR, I	The PP applied values from the estimation of the project owner. These values are checked by the validation team, and confirmed to be valid for the financial analysis.	OK	OK
7.3.7 Were all the values from FSR applicable and valid at the time of the investment decision?	/1/, /5/ /6/	DR, I	<p>The PP applied values from the estimation of the project owner. These values are checked by the validation team, and confirmed to be valid for the financial analysis. However, some clarifications are requested as follows:</p> <p><b>CL12</b> Please provide supporting information for the estimation of total equipment cost and maintenance cost of the project activity.</p> <p><b>CL13</b> Please confirm the source of inflation rate and clarify how the inflation rate is estimated for the subsequent years after the project implementation.</p>	<b>CL12</b> <b>CL13</b>	OK (Refer to Table 2)
7.3.8 Is it reasonable to assume that no investment would be made at a rate of return lower than the benchmark by, for example, assessing	/1/, /5/ /6/	DR, I	The project activity is the first two projects developed by the project developer in the Gansu Province. The	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
previous investment decisions by the project participants or some verifiable circumstances that have lead to a change in the benchmark?			two projects are currently under validation, and also encountered with same financial problems, and will be started only when the projects are registered as CDM projects. Thus it is reasonable to assume that no investment would be made since the NPV is negative. The major source of income is the CDM revenue, and the project will not generate other profitable income.		
7.3.9 Is the Investment Analysis prepared in compliance with the latest version of the "Guidance on the Assessment of Investment Analysis" as provided by the CDM EB?	/1/, /2/, /3/, /5/, /6/	DR, I	Yes. The investment analysis prepared in compliance with the latest version of the "Guidance on the Assessment of Investment Analysis" as provided by the CDM EB.	OK	OK
<b>7.4 Barrier analysis</b>					
7.4.1 Are there any issues addressed in the barrier analysis that have a clear impact on the financial viability of the project activity and that shall be assessed by an investment analysis?	/1/, /2/, /3/, /4/, /5/	DR	There is no other barrier analysis for the proposed project except the investment barrier. The project participant has provided an explanation to show the project activity would not have occurred anyway due to the investment barrier only. This fulfils the requirement of "Non-binding best practice examples to demonstrate additionality for SCC project activities" in EB35 Annex 34.	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
<p>7.4.2 Do the listed barriers exist <u>and</u> is their existence substantiated?</p> <p>Note:</p> <p>(a) by independent sources of data such as relevant national legislation, surveys of local conditions and national or international statistics and/or</p> <p>(b) by interviews with relevant individuals: including members of industry associations, government officials or local experts if necessary?</p>	/1/, /2/, /3/, /4/, /5/	DR	Not applicable.	OK	OK
<p>7.4.3 Would any of the identified barriers prevent the implementation of the project activity but not equally prevent the implementation of the possible alternatives, in particular the implementation of the identified baseline scenario?</p>	/1/, /2/, /3/, /4/, /5/	DR	Not applicable.	OK	OK
<b>7.5 Common practice analysis</b>					
<p>7.5.1 If the PPs claim in the PDD that CDM project activity is the “first of its kind”, is it justified?</p>	/1/, /2/, /3/, /4/, /5/	DR	Not applicable. As per AMS-I.C./Version 18, no common practice analysis is required.	OK	OK
<p>7.5.2 Are the geographical boundaries of the project activity identified correctly?</p>	/1/, /2/, /3/, /4/, /5/	DR	Not applicable.	OK	OK
<p>7.5.3 Does the PDD provide an explanation why this region was selected and deemed more appropriate <u>and</u> is this explanation traceable and reliable?</p>	/1/, /2/, /3/, /4/, /5/	DR	Not applicable.	OK	OK



**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
7.5.4 Are there similar operational project activities, other than CDM activities, “widely observed and commonly carried out” in the defined region? <i>Note: Use official sources and local and industry expertise.</i>	/1/, /2/, /3/, /4/, /5/	DR	Not applicable.	OK	OK
7.5.5 In case there are similar commercially operated project activities, other than CDM activities, already “widely observed and commonly carried out” in the defined region, are there essential distinctions between the CDM project activity and the other similar activities?	/1/, /2/, /3/, /4/, /5/	DR	Not applicable.	OK	OK
<b>8. Monitoring plan</b>					
8.1 Are all parameters required by the selected approved methodology or tool identified <u>and</u> listed in the PDD? Note: not all methodologies indicate monitoring parameters in tabular form or by reference to the variables used in formulae; Nonetheless, all parameters indicated in the methodology and applicable to the project must be listed in the PDD, omissions due to non-applicability be justified.	/1/, /2/, /3/, /4/, /5/	DR	Yes. All parameters required by the selected approved methodology or tool identified and listed in the PDD. All parameters indicated in the methodology (Table 1, no. 1) and applicable to the project are listed in the PDD. Please refer to Section 3.6 for details.	OK	OK
8.2 Is the measurement method clearly stated for each value to be monitored and deemed appropriate? Does the monitoring plan record data in the original form as generated, providing QA/QC procedures to	/1/, /2/, /3/, /4/, /5/	DR, I	Yes. All parameters required by the selected approved methodology or tool identified are listed in the PDD. The monitoring plan indicates record data in the original form as generated, and the	<del>CL17</del> <del>CL24</del>	OK (Refer to Table 2)

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
be used on the measurement method?			<p>QA/QC procedures will be used on the measurement method in order to ensure the recorded data is accurate. Please refer to Section 3.6 for details.</p> <p><b>CL17</b> The project participant should clarify how the actual number of systems operating can be ensured during the project implementation. In addition, please also discuss in the PDD for any identification system to ensure that the real and measureable emission reductions of each operating system can be traced transparently.</p> <p><b>CL21</b> Since Team A and Team B are organized in monitoring plan. What are the estimated quantity of staffs in team A and Team B, which organizations do they belong to ( work for) ? Who should be reported to in case of abnormal monitoring data?</p>		
8.3 Are values of the ex-ante parameters / monitoring parameters selected correctly and conservative in accordance to methodology or tools?	/1/, /2/, /3/, /4/	DR, I	The project adopts the ex-ante parameters for calculation of emission factor as detailed in PDD Annex 3.	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
See the NOTE in section 3.6.1 above.					
8.4 Is the measurement equipment for each parameter described and deemed appropriate?	/1/, /2/, /3/, /4/	DR, I	Yes. The measurement equipment is simple paper records for all parameters but managed by the local government, and is deemed appropriate.	OK	OK
8.5 Is the measurement accuracy addressed and deemed appropriate?	/1/, /2/, /3/, /4/	DR, I	Yes. The measurement equipment is simple paper records for all parameters but managed by the local government, and is deemed appropriate.	OK	OK
8.6 Are procedures in place on how to deal with erroneous measurements <u>and</u> are the corrective actions identified?	/1/, /2/, /3/, /4/	DR, I	Yes. As reported in PDD and advised from PP, there are QC/QA procedures to deal with erroneous measurements and the corrective actions are also identified.	OK	OK
8.7 Is the frequency of measurement identified and deemed appropriate?	/1/, /2/, /3/, /4/	DR, I	Yes. The measurement recording frequency for number and operational hours of solar cookers are identified as “annually recorded” in PDD, in which this fulfils the requirement in AMS-I.C./Version 18. Thus the measurement frequency is deemed as appropriate.	OK	OK
8.8 Is the monitoring plan documented according to the approved methodology and in a complete and transparent manner?	/1/, /2/, /3/, /4/	DR, I	Yes. The monitoring plan is documented in PDD Section B.7, according to AMS-I.C./Version 18 in a complete and transparent manner.  <b><u>CL14</u></b>	<b>CL14</b> <b>CL15</b>	OK (Refer to Table 2)

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			<p>Please provide in the sampling plan for how the sampling practices can be ensured according to clause 32 of General Guidelines for Sampling and Surveys for Small-Scale CDM Project Activities version 01.</p> <p><b>CL15</b> Please discuss whether the thermal efficiency of solar cooker should be monitored according to the General Guidelines to SSC CDM methodologies version 14.1.</p>		
8.9 Are the sampling, measurement methods and procedures defined?	/1/, /2/, /3/, /4/	DR, I	Yes. The sampling, measurement methods are defined and documented in PDD Section B.7, according to AMS-I.C./Version 18 in a complete and transparent manner.	OK	OK
8.10 Are procedures identified for maintenance of monitoring equipment and installations?	/1/, /2/, /3/, /4/	DR, I	N/A. The measurement equipment is simple paper records for all parameters but managed by the local government, and is deemed appropriate.	OK	OK
8.11 Are the equipment calibration intervals identified and justified?	/1/, /2/, /3/, /4/	DR, I	N/A. The measurement equipment is simple paper records for all parameters but managed by the local government, and is deemed appropriate.	OK	OK
8.12 Are procedures identified for day-to-day	/1/, /2/, /3/,	DR, I	Yes. There is a "Data Management	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
records handling (including what records to keep, storage area of records and how to process performance documentation)?	/4/		System identified in PDD for collection, handling, and storage of monitoring records.		
8.13 Are the monitoring arrangements described in the monitoring plan feasible within the project design?	/1/, /2/, /3/, /4/	DR, I	Yes. The validation team has checked the monitoring plan in PDD and considered that the monitoring arrangements including the sampling plan are feasible provided that sufficient training can be arranged to the monitoring team.	OK	OK
8.14 Are the means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, sufficient to ensure that the emission reductions achieved by / resulting from the project activity can be reported ex post and verified?	/1/, /2/, /3/, /4/	DR, I	Yes. Through the implementation of monitoring plan, it is sufficient to ensure that the emission reductions resulting from the activity can be reported ex post and verified.	OK	OK
8.15 Do the PPs make provisions for personnel training needs?	/1/, /2/, /3/, /4/, /7/	DR, I	During the OSV with PP, it was understood that the project owner will be responsible for organizing the necessary technical training for the operation, maintenance and monitoring of project activity. The training will be provided to the monitoring team, which will be managed by the local Energy Station under the Agricultural Bureau, within one month after the project registration.	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
8.16 Is the authority and responsibility of overall project management clearly described?	/1/, /2/, /3/, /4/, /9/	DR, I	Yes. The management structure for monitoring is clearly described in the PDD with the responsibility of overall project management. In addition, the monitoring will be also managed by the local government authority.	OK	OK
8.17 Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1/, /2/, /3/, /4/	DR, I	Not applicable. According to the project design, such emissions are not expected to occur.	OK	OK
8.18 Are procedures identified for review of reported results/data?	/1/, /2/, /3/, /4/	DR, I	Yes. The quality assurance and quality control procedure is identified in the PDD for review of reported results/data.	OK	OK
8.19 Is the data archiving period for this project activity stated in the PDD and appropriate? <i>Note: All archived monitoring data, required for verification and issuance, should be kept for at least two years after the end of the crediting period or the last issuance of CER.</i>	/1/, /2/, /3/, /4/	DR, I	Yes. The "Data Management System" in monitoring plan of PDD describes the data archiving period for this project activity for two years after the end of the last crediting period.	OK	OK
<b>8.2 Monitoring of the leakage</b>					
8.2.1 Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	/1/, /2/, /3/, /4/	DR, I	No leakages have to be considered according to AMS-I.C./Version 18. No monitoring shall therefore be required.	OK	OK
8.2.2 Is the choice of project leakage indicators made according to selected methodology in a	/1/, /2/, /3/, /4/	DR, I	Yes. Idem.	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
reasonable and conservative manner? <i>Note: local knowledge and sectoral expertise shall also be considered.</i>					
8.2.3 Is the measurement method clearly stated and deemed appropriate for each leakage value?	/1/, /2/, /3/, /4/	DR, I	Yes. Idem.	OK	OK
<b>9. Sustainable development</b>					
9.1 Does the LoA from the Host country DNA contain the confirmation that the proposed CDM project activity contributes to the sustainable development of the host Party?	/2/, /6/	DR, I	N/A. The LoA from P.R. China contains the confirmation that the proposed CDM project activity contributes to the sustainable development of the host Party is not yet received.  <b>CL18</b> Please provide the relevant document from the DNA of the P.R. China for the confirmation of project contribution to sustainable development.	<b>CL18</b>	OK (Refer to Table 2)
9.2 If PDD indicates any additional environmental benefits of the project, other than GHG emission reductions, were those benefits properly substantiated?	/1/, /2/, /3/, /4/, /6/	DR, I	Yes. Apart from environmental benefits, the project can contribute to social and economic benefits by saving money for local residents and providing job opportunities to local society.	OK	OK
<b>10. Stakeholders' consultation and comments</b>					
10.1 Were the stakeholders identified in appropriate and complete manner?	/1/, /2/, /3/, /4/, /13/	DR, I	<b>CL20</b> Since the project is located in 2 Counties in Zhangye City, Please	<b>CL20</b>	OK (Refer to Table 2)

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			clearly define the process of stakeholder comment survey. Please provide all the 100 questionnaires to validation team		
10.2 Are the identified stakeholders plausible?	/1/, /2/, /3/, /4/, /13/	DR, I	Idem.	<b>CL20</b>	OK (Refer to Table 2)
10.3 Does PDD describe the means being used to invite local stakeholder's comments?	/1/, /2/, /3/, /4/, /13/	DR, I	Yes. According to PDD, the local stakeholder's comments were invited through distribution of questionnaires to the local residents with all pieces of reply received.	OK	OK
10.4 Were those means appropriate?	/1/, /2/, /3/, /4/, /13/	DR, I	Yes. A stakeholder consultation process is not mandatory in China. Refer to <b>CL20</b>	<b>CL20</b>	OK (Refer to Table 2)
10.5 Was the project presented to the stakeholders in unbiased manner?	/1/, /2/, /3/, /4/, /13/	DR, I	Refer to <b>CL20</b>	<b>CL20</b>	OK (Refer to Table 2)
10.6 If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	/1/, /2/, /3/, /4/, /13/	DR, I	Yes. A stakeholder consultation process is not mandatory in China. The PP invited stakeholder's comment through questionnaire and the details are described in Section E of PDD.	OK	OK
10.7 Is a summary of the stakeholder comments provided in the PDD?	/1/, /2/, /3/, /4/, /13/	DR, I	Yes. A summary of the stakeholder comments is provided in Section E of PDD.	<b>CL20</b>	OK



**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			However, refer to <b>CL20</b>		
10.8 Has due account of any stakeholder comments been taken by PPs and reflected in the PDD?	/1/, /2/, /3/, /4/, /13/	DR, I	Through the questionnaire and on-site interview with local stakeholder, the interviewees considered that there is no adverse impact for the project activity.	OK	OK
<b>11. Environmental impacts</b>					
11.1 Is the documentation supplied by the PPs regarding environmental impacts relevant and accurately reflected in the PDD?	/1/, /2/, /3/, /4/, /9/	DR, I	<b>CL19</b> Please clarify whether an analysis of environmental impacts is required for the project activity.	<b>CL19</b>	OK
11.2 Is an environmental impact assessment (EIA) required for the CDM project activity? <i>Note: determine by using a review of relevant legislation and local expertise.</i>	/1/, /2/, /3/, /4/, /9/	DR, I	Idem.	<b>CL19</b>	OK
11.3 In case an EIA is required, has the EIA has been approved by local authorities and is the outcome accurately reflected in the PDD?	/1/, /2/, /3/, /4/, /9/	DR, I	Idem.	<b>CL19</b>	OK
11.4 Does the PDD include a brief description of the environmental effects of the project, including transboundary?	/1/, /2/, /3/, /4/, /9/	DR, I	Yes. The Section D of PDD includes a brief description of the environmental effects of the project.	OK	OK
11.5 Are those effects properly addressed in the design of the project activity?	/1/, /2/, /3/, /4/, /9/	DR, I	Yes. Please refer to 11.1 of Table 1 for detail.	OK	OK
11.6 Does the project comply with environmental legislation in the host country?	/1/, /2/, /3/, /4/, /9/	DR, I	Yes. This is confirmed by the interview with the official from the local	OK	

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV <sup>8</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			Agricultural Bureau. The project activity complies with environmental legislation.		OK

**Table 2: List of Requests for Corrective Action (CAR) and Clarification (CL)**

No.	CAR/CL	Observation (CAR/CL)	Reference	Summary of project owner response	Validation team conclusion
1.	✓	<p><b>CAR01</b></p> <p>Please provide the relevant LoAs from the DNA of P.R. China and Annex I party for validation.</p>	1.1	<p>- The Annex I LoA Is attached</p> <p>- The project has been approved by Chinese DNA. The Chinese LoA will be ready shortly.</p>	Yes, both LoAs from Annex I country and China were received, this CAR is closed.
2.	✓	<p><b>CAR02</b></p> <p>Project Participant is requested to clarify the following changes between the revised PDD and GSP-PDD:</p> <p>1. Annual emission reductions and Monthly Solar Irradiance Rate in the project region;</p> <p>2. Version of AMS-I.C;</p> <p>3. the Starting date of project activity and the starting date of crediting period.</p>	4.1	<p>1. In the GSP PDD the Monthly Solar Irradiance Rate was the average date for Gansu province (of which Zhangye is a region), not Zhangye region. Later on, we obtained the solar irradiance data for Zhangye region, then we replaced the solar data of Gansu by the solar data of Zhangye to generate more accurate emission reduction value.</p> <p>2. the methodology AMS-I.C revised from version 17 to version 18 in UNFCCC website, the PDD of the project was revised too.</p> <p>3. The starting date of project and crediting period in GSP-PDD was the estimation at the time of GSP. Since the only income in project operation stage is the CER revenue, the project validation process is very crucial to the start date of the project. Due to the delay in validation process, we had to revise starting date of project and crediting period to later dates.</p>	<p>1. Yes, during the PDD design time, the pp got the radiance rate data of Zhangye District which is adjacent to the Linze and Gaitai County, the data was revised and cause the CER value in PDD revised.</p> <p>2. the methodology is revised and cause the PDD revised too.</p> <p>3. the project starting date and the crediting date were revised too, since the project registration is the pre-request to the real project start.</p> <p>All the 3 explanation are reasonable and this CL is closed.</p>

3.	✓	<p><b>CL01</b></p> <p>Please substantiate whether the BHED involves with any foreign investment capital, and clarify with supporting information for the financial arrangement of sources of capital of the project activity.</p> <p><b>Follow-up 1:</b></p> <ul style="list-style-type: none"> <li>-This statement is a contradiction with the chapter 5 of project proposal, please clarify.</li> <li>-Does the buyer use ODA funding from Netherlands for the project?</li> <li>-Do you have any statement on the ODA issue by local government?</li> <li>-Please provide business license of BHED for validation.</li> </ul> <p><b>Follow-up 2:</b></p> <p>Please provide if any official document stating the project is developed without ODA.</p>	<p>1.8 7.1.7</p>	<p><b>1<sup>st</sup> Response from PP:</b></p> <p>BHED is a Chinese company and does not have foreign investment capital. The financial source of the project activity will be arranged by the buyer.</p> <p><b>2<sup>nd</sup> Response from PP:</b></p> <p>We apologize for the typing error- what we meant to say is that the financial resources of the project activity will be arrange by the seller, i.e., BHED. Therefore, the ODA funding questions on the buyer does not apply.</p> <p>The business license of BHED is attached.</p> <p><b>3<sup>rd</sup> Response from PP:</b></p> <ul style="list-style-type: none"> <li>- The official letter from the seller that confirms there is no ODA involved</li> <li>- The official letter from local government that confirms no ODA involved</li> </ul>	<p><b>Conclusion:</b></p> <p>Since there are 2 letters from both local government and the buyer separately for confirming no ODA involving in the project, validation team confirm is is valid. This CL is closed.</p>
4.	✓	<p><b>CL02</b></p> <p>Please provide the project proposal to the validation team.</p> <p>Please provide more detailed information in the PDD for the range of the project location for transparent presentation including the geographic coordinates of the project sites.</p>	<p>4.1</p>	<p><b>1<sup>st</sup> Response from PP</b></p> <p>The project proposal is attached.</p> <p>The project location information is also attached.</p> <p>The PDD has been updated with the detailed location information including the geographic coordinates of the project sites.</p>	<p><b>Conclusion:</b></p> <p>This CL is closed since the project description is clear shown by the geographic coordinates of the township center.</p>

			<b><u>Follow-up 1:</u></b> -What is each location of geographic coordinate stand for? -Please also indicate the geographic coordinate with 4 decimals and the table should be in English.		<b><u>2<sup>nd</sup> Response from PP</u></b> The geographic coordinates represent the approximate locations of the centers of the townships where the project will be implemented.  The coordinates has been converted into the format that uses the 4 decimals points of degrees. The Excel spreadsheet used for the conversion is attached  The table has been changed to English and attached	
5.		✓	<b><u>CL03</u></b> Please provide the supporting information for the general information of Gaotai County and Linze County, such as population, average income and solar irradiance etc.  <b><u>Follow-up 1:</u></b> From the provided document on year 2002, the population of Gaotai and Linze County are 160,000 and 150,000; the annual incomes of the farmer are 3,255CNY and 3,144CNY respectively, do you have latest information?	4.1	The supporting information for population, income, and Solar Irradiance data of Zhangye has been attached  <b><u>2<sup>nd</sup> Response from PP</u></b> The updated population and income information is attached	<b><u>Conclusion:</u></b> Yes, the updated population and income information is provided to validation team, it was confirmed to be valid. This CL is closed.
6.		✓	<b><u>CL04</u></b> Please provide the relevant	4.1	The excerpt of signed term sheet between buyer and seller is attached.	Term sheet is provided, hence, this CL could be closed.

			documents for CER purchase to the validation team for validation.			
7.		✓	<b>CL05</b> Please provide supporting information for whether relevant government officials have been notified for the project design.	4.1	The project has been registered with Zhangye DRC. The project registration letter is attached	Yes, this CL could be closed.
8.		✓	<b>CL06</b> Please provide supporting information about the arrangement of CDM training to the end users and the project monitoring team.  <b>Follow-up 1:</b> Is the training included in the agreement between the users and BHED? Please provide to validation team.	4.1	<b>1<sup>st</sup> Response from PP:</b> The user training and monitoring plan are attached. <b>2<sup>nd</sup> Response from PP:</b> The user training has been included in the agreement between the users and BHED. Please see the attached sample agreement.	<b>Conclusion:</b> The validation team checked the solar cooker user training plan, the training include the operation and maintenance theories and procedures before the distribution of solar cookers to the users. In addition, a monitoring program launched by Clean Air Capital Ltd was submitted to validation team, and user training program too, hence this CL is closed.
9.		✓	<b>CL07</b> Please provide supporting information about the boundary of the project activity, and clarify that whether the project activity will be implemented within 1 km of the project boundary of another project under validation.	5.2.1.1	<b>1<sup>st</sup> Response from PP:</b> The official document from Zhangye Rural Energy Work Office is attached. The document confirms that there is no project activity within 1km of the project boundary between Heqing Solar Cooker Project I and II. <b>2<sup>nd</sup> Response from PP:</b> The English translation of the document is provided.	<b>Conclusion:</b> Yes, it is corrected recited in the PDD that the project can be exempted from performing a de-bundling check as per EB 54 Annex 13, para.7. In addition, the validation team

			<p><b>Follow-up 1:</b> Please provide partially English Translation for the provided boundary document.</p> <p><b>Follow-up 2:</b> Please cite the de-bundling issue on the project in the PDD as per EB54 Annex 13 required.</p>		<p><b>3<sup>rd</sup> Response from PP:</b> according to EB 54 Annex 13, paragraph 7, if each of the independent subsystems/measures (e.g., biogas digesters, residential solar energy systems, kerosene or incandescent lighting replacements) included in one or more CDM project activities is no greater than 1% of the small scale thresholds defined by the applied methodology and the subsystems/measures are indicated in the PDDs to be each implemented at or in multiple locations (e.g., installed at or in multiple homes) then these CDM project activities are exempted from performing a de-bundling check, i.e., considered as being not a de-bundled component of a large scale activity.</p> <p>45MW thermal is the threshold for AMS-I.C, and 1% of 45MW thermal is 450,000W. The capacity of a single solar cooker in the project is just 910 W thermal, far less than 450,000W thermal, and the solar cookers will be installed in multiple homes. Therefore, the proposed project is exempted from performing a de-bundling check, i.e., the proposed project is not considered as being a de-bundled component of a large scale activity.</p>	confirmed through OSV that there are no similar solar cooker projects in the project boundary. Hence, this CL is closed.
10.		✓	<p><b>CL08</b> Please provide the supporting document of energy sources for cooking and heating in rural area in</p>	5.4.4	<p>The official letter from Rural Energy Work Office of Zhangye confirmed that the energy source in all rural area of Zhangye (which includes Linze and Gaotai) is coal. The letter is</p>	Yes, the submitted report from Zhangye government confirmed the cooking and heating sources in

			recent years in Linze County and Gaotai County.		attached.	the rural area is coal, since use electricity is expensive, and burning the biomass is forbidden by the national and local regulations. this CL is closed.
11.		✓	<b>CL09</b> Please follow the annotations in the equations of the AMS-I.C version 18 as applied in the PDD.	5.5.1	The new annotations in AMS-IC v18 has been adopted in the revised PDD.	Yes, this CL is closed.
12.		✓	<b>CL10</b> Please clarify the how thermal efficiency of the baseline units can be determined according to the clause 22 of AMS-I.C. version 18.  <b>Follow-up 1:</b> -As required by 22 (a) of AMS-I.C. Version 18, the efficiency test shall be conducted following the guidance provided in relevant national standard. Please demonstrate the test result with test method, raw data, data processing, used facilities, household sampling, etc. Please also indicate the test methods in the PDD. -How many households in Linze and Gaotai County were involved in this test? Please provide GB6412-86 to validation team.	5.5.1	<b>1<sup>st</sup> Response from PP:</b> The thermal efficiency of baseline units was determined by using the highest measured efficiency conducted by Hexi University, a prestigious academic institution in Zhangye.  The measurement result report is attached. <b>2<sup>nd</sup> Response from PP:</b> Please see the attached testing report for more details of the test.  GB6412-86 is attached	<b>Conclusion:</b> The rural cooker thermal efficiency of test report of Zhangye District is provided to the validation team. This report shows a baseline investigation of the Zhangye area which includes Gaotai County and Linze County. This CL is closed.



13.		✓	<p><b>CL11</b> Please provide supporting information for how the solar cookers' thermal efficiency can be maintained throughout 10 years of operational lifetime.</p> <p><b>Follow-up 1:</b> Yes, that is one of the evidence to maintain the thermal efficiency of the cookers in the 10 years operational time, do you have more measures or evidences on that?</p>	5.5.1	<p><b>1<sup>st</sup> Response from PP:</b> The solar cooker user manuals are attached. The manuals confirm that the efficiency can be maintained throughout the 10 year operational lifetime.</p> <p><b>2<sup>nd</sup> Response from PP:</b> Please see the PP's response to CL16.</p>	<p><b>Conclusion:</b> The users are trained before /during the operation period, so that the solar cooker efficiency can be maintained under proper maintenance as per the agreement between the BHED and solar cooker users, hence, this CL is closed.</p>
14.		✓	<p><b>CL12</b> Please confirm all the revenues in the project activity and provide the calculation of investment analysis accordingly.</p> <p><b>Follow-up 1:</b> Please explain the difference of equipment fee between the IRR sheet and the Project Proposal</p> <p><b>Follow-up 2:</b> The validation team checked the financial calculation worksheet for the project activity. According to the solar cooker quotation from 3 manufactures, the cost of each</p>	7.3.1	<p><b>1<sup>st</sup> Response from PP:</b> The financial calculation spreadsheet is attached. All the revenues are included in the spreadsheet.</p> <p><b>2<sup>nd</sup> Response from PP:</b> The IRR spreadsheet was made later than the project proposal. There have been some updates on the data since the proposal was written. This is why there is a slight difference in equipment cost between the IRR sheet and the proposal.</p> <p><b>3<sup>rd</sup> Response from PP:</b> The average quote of the 3 vendors = <math>(395+395+400)/3 = 396.7</math></p> <p><math>396.7*49000 = 19.44M</math></p> <p>"Contribution from user" was not</p>	<p><b>Conclusion:</b> Yes, it is clearly explained the difference between the project proposal and the IRR sheet, and the project can only have CDM revenue if it is implemented. This CL is closed.</p>

			solar cooker is ranged from RMB395-400. Please clarify in the PDD how the total equipment cost is calculated as RMB19.44M (average cost of the solar cooker?). Please also confirm in the PDD and excel worksheet whether "contribution from user" is included for project without CDM income.		included in the calculation of "Project Without CDM Revenue". In the revised PDD and Excel sheet, this item was added.	
15.		✓	<p><b>CL13</b></p> <p>Please provide supporting information for the estimation of total equipment cost and maintenance cost of the project activity.</p> <p><b>Follow-up 1:</b></p> <p>Yes, the quotes of 3 solar cooker manufacturers were submitted, the unit price is from 395-400CNY, Please include in the PDD for the estimation of average cost for the solar cooker according to vendors' quotation.</p>	7.3.7	<p><b>1<sup>st</sup> Response from PP:</b></p> <p>The quotes from solar cooker manufacturers are attached.</p> <p>The average price from the quotes was used to estimate the equipment cost.</p> <p><b>2<sup>nd</sup> Response from PP:</b></p> <p>The average price has been added in the footnote 3 of the revised PDD</p>	<p><b>Conclusion:</b></p> <p>Yes, the total investment cost is clearly demonstrated in the PDD and in the IRR sheet, validation team confirms it is valid. This CL is closed.</p>
16.		✓	<p><b>CL14</b></p> <p>Please confirm the source of inflation rate and clarify how the inflation rate is estimated for the subsequent years after the project implementation.</p>	7.3.7	<p>The inflation rate was estimated using the past average inflation rate of the past 3 years. The estimation is in the "Inflation" Tab of the financial spreadsheet provided for CL12</p>	<p>Yes, the inflation rate was estimated according to the past 3 years' data in China, it is reasonable and can be traceable. This CL is closed.</p>
17.		✓	<p><b>CL15</b></p> <p>Please provide in the sampling plan</p>	8.8	<p><b>1<sup>st</sup> Response from PP:</b></p> <p>On page 20 of the PDD, the points of</p>	<p><b>Conclusion:</b></p> <p>Since the clause 32</p>

			<p>for how the sampling practices can be ensured according to clause 32 of General Guidelines for Sampling and Surveys for Small-Scale CDM Project Activities version 01.</p> <p><b><u>Follow-up 1:</u></b> How does the PP determine the sampling size? Please provide the sampling software and data source for validation.</p> <p><b><u>Follow-up 2:</u></b> Please also address in the PDD for how the requirements in the clause 32 of the Guidelines are followed as requested from the Guidelines. Please depict maintaining the records of "sampling process of the target populations" in the monitoring plan.</p>		<p>clause 32 of "General Guidelines for Sampling and Surveys for Small-Scale CDM Project Activities (version 01)" are covered in detail.</p> <p><b>2<sup>nd</sup> Response from PP:</b> The sample size is determined by the statistical formulas listed in the PDD. The sampling software to be used is Excel. A demonstration file on how to use Excel for sampling has been provided.</p> <p><b>3<sup>rd</sup> Response from PP:</b> The PDD has been revised to address the requirements in both clause 32 In PDD B7.2, "4. Data collection" section, the following has been added: "The records of the sampling process of the target population will be maintained."</p>	<p>of the Guidelines is followed in the revised PDD, this CL is closed.</p>
18.		✓	<p><b><u>CL16</u></b> Please discuss whether the thermal efficiency of solar cooker should be monitored according to the General Guidelines to SSC CDM methodologies version 14.1.</p> <p><b><u>Follow-up 1:</u></b> The answer is not likely to meet the methodology of 17(b) of General Guidelines to SSC CDM methodologies version 14.1.</p>	8.8	<p><b>1<sup>st</sup> Response from PP:</b> The thermal efficiency of the solar cooker does not need to be monitored because the specifications by the manufacturers have confirmed that the thermal efficiency will not deteriorate during the lifetime of the cooker.</p> <p><b>2<sup>nd</sup> Response from PP:</b> According to statistical analysis presented in PDD, assuming the largest</p>	<p><b>Conclusion:</b> Yes, the pp plans to measure the efficiency of the solar cooker once per year, the sampling method for the test is acceptable, hence the revised PDD on the issue of the thermal efficiency test can meet the methodology of 17(b)</p>

			<p><b>Follow-up 2:</b> Does that mean pp will test 79 solar cookers once per year in the future to meet 17(b) of General Guidelines to SSC CDM methodologies version 14.1?</p>	<p>standard deviation (the most conservative scenario), 79 samples is sufficient to represent the entire 49000 solar cookers.</p> <p>Therefore, before the solar cookers are distributed to the users, 79 sample cookers will be randomly selected and their efficiencies will be tested. Then the standard deviation (S) of the efficiencies of the 79 sample cookers will be calculated.</p> <p>Using the S calculated above, the sample size needed for measuring the efficiencies during the monitoring phase can be determined by the following steps:</p> $n_1 = z^2 S^2 / e^2$ $n_2 = n_1 N / (N + n_1)$ $n_3 = B n_2,$ $n_4 = n_3 / r$ $n = n_4 * (110\%),$ <p>where z, e, B, r have same meanings as in PDD</p> <p><b>3<sup>rd</sup> Response from PP:</b> To measure the efficiency of the cookers, a set of cooker samples will be drawn at least once a year and the efficiencies of these sample cookers will be tested, i.e., the interval of sampling and testing is no more than one year.</p>	<p>of General Guidelines to SSC CDM methodologies version 14.1, then this CL is closed.</p>
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				<p>Regarding the sample size, only the sample size of the first sampling (the sampling before the cooker distribution) is certain to be 79 because the first sampling assumes the largest possible standard deviation (0.5) which yields to a sample size of 79.</p> <p>The sample size for the subsequent samplings will be calculated from the standard deviation of the previous sampling. Thus, the sample size is not necessarily to be 79 except the first sampling.</p>	
19.		✓	<p><b>CL17</b></p> <p>The project participant should clarify how the actual number of systems operating can be ensured during the project implementation. In addition, please also discuss in the PDD for any identification system to ensure that the real and measureable emission reductions of each operating system can be traced transparently.</p> <p><b>Follow-up 1:</b></p> <ul style="list-style-type: none"> <li>-How does the pp handle the cognominal cases?</li> <li>-“Marking each user’s name on each cooker” is not indicated in the monitoring plan.</li> </ul>	<p><b>8.2</b></p> <p><b>1<sup>st</sup> Response from PP:</b></p> <p>The actual number of systems operating will be checked at the end of each monitoring period.</p> <p>The name of the user will be written on each cooker using marker pen to ensure that each operating system can be traced transparently.</p> <p><b>2<sup>nd</sup> Response from PP:</b></p> <p>If there is any cognominal case, the name of the user’s spouse, child, or parent will be used.</p> <p>-“Marking each user’s name on each cooker” will be done during the distribution of the cooker to the user, not in the monitoring period. This is why it is not in the monitoring plan.</p>	<p><b>Conclusion:</b></p> <p>The identification is applied in terms of solar cooker owners’ names and family names by marking this information onto the solar cooker. The validation team considers that this can be also used to identify the specific owner for each solar cooker distributed. In addition, through checking the names of solar cookers’ owners and their family names, double-counting can be avoided during the monitoring of system</p>

						operating. This CL is closed.
20.		✓	<b>CL18</b> Please provide the relevant document from the DNA of the P.R. China for the confirmation of project contribution to sustainable development.	9.1	The project has been approved by Chinese DNA. And the Chinese LoA will be issued shortly. The Chinese LoA will confirm the project's contribution to sustainable development.	Yes, the LoA from China DNA is provided and shown the contribution to the sustainable development. This CL is closed.
21.		✓	<b>CL19</b> Please clarify whether an analysis of environmental impacts is required for the project activity.	11.1	The project activity only involves distributing solar cookers to the rural households, which does not have environmental impacts. Thus, the environmental analysis is not required for the project activity.	During the on-site interview with the representative from local EPB, the official stated that this solar cooker project is a clean energy project and would not cause any adverse impacts to the local environment, and no pollution will be induced from the project implementation. The EPB has been notified for the project development, and claimed that there is no special requirement for the project to conduct any analysis of environmental impacts for the solar cooker projects as the solar cooker is not in the

						list of monitoring projects from the local environmental protection regulations. This CL is closed.
22.		✓	<b>CL20</b> Since the project is located in 2 Counties in Zhangye City, Please clearly define the process of stakeholder comment survey. Please provide all the 100 questionnaires to validation team	10.1 10.4 10.5 10.7	The 100 questionnaires have been provided to the validation team previously.	Yes, this CL could be closed.
23.		✓	<b>CL21</b> Since Team A and Team B are organized in monitoring plan. What are the estimated quantity of staffs in team A and Team B, which organizations do they belong to (work for) ? Who should be reported to in case of abnormal monitoring data? <b>Follow-up 1:</b> Please define the reporting manner of abnormal data in the monitoring plan.	8.2	<b>1<sup>st</sup> Response from PP:</b> The monitoring team will work for the project owner, BHED, and they will report to BHED in case of abnormal data. The quantities of the teams will be decided when the project is getting closer to implementation. <b>2<sup>nd</sup> Response from PP:</b> The procedures for abnormal (missing or damaged) data has been described in page 22 of the revised PDD	<b>Conclusion:</b> Yes, the revised PDD shows the monitoring team arrangement and the data reporting process including the abnormal data reporting process, hence, this CL is closed.

## Appendix B

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### CERTIFICATES OF COMPETENCE



## Qualification

Hai, Harold /

### Emission Trading

#### United Nations Framework Convention on Climate Change

Auditor No. :  
(AuditorenRegNr)

Appointed:  
(Zugelassen)

☒ ja

Qualification Level: Auditor  
(Qualifikationsstufe)

External:  
(Externer)

☐ ja

Add. reviewer: ☐ yes  
(Zus-tzlicher Prüfer)

EAC Scopes:  
(EAC Branchen)

CDM 13 – Waste handling and disposal  
CDM 01 – Energy industries (renewable – / non-renewable sources)

Add. qualification:  
(zus. Qualifikation)

First Appointment:  
(Erstberufung)

2007-12-19

Valid to:  
(Gültig bis)

2012-09-25

Remarks:

2010-10: revised to meet Accreditation Standard Ver.02:  
– CDM 01 limited to TA1.2 – Renewable Energies  
– CDM 13 limited to TA 13.1– Waste handling & disposal

Languages:

Chinese  
English  
Mandarin  
Chinese simplified  
Chinese traditional

### Experience Exchange

Date

Location

Remarks

Accreditation

### Monitoring

Latest Monitoring:  
(letzte Beurteilung)

Next  
Monitoring:  
(n-chste  
Beurteilung)

Remarks:

## History of scope allocation

Date: 2010-04-15  
Change: CDM 01 Energy Industries added  
By: Manfred Brinkmann  
Reason: Scope 1: limited to renewable energies except biomass power generation / geothermal

Date: 2007-12-20  
Change: EAC CDM added  
By: Manfred Brinkmann  
Reason:

## History

Created:	2007-12-19 14:32:34	Harold Hai/Hk/Chn/TUV
Modified:	2011-01-31 09:25:37	Cuiping Deng/Bj/Chn/TUV
	2011-01-04 15:16:31 ZE9	Manfred Brinkmann/Jpn/TUV
	2011-01-04 15:16:11 ZE9	Manfred Brinkmann/Jpn/TUV
	2011-01-04 15:15:12 ZE9	Manfred Brinkmann/Jpn/TUV
	2010-09-13 14:53:26 ZE9	Manfred Brinkmann/Jpn/TUV

## Qualification

Hu, Feng /

### Emission Trading

#### United Nations Framework Convention on Climate Change

Auditor No. :  
(AuditorenRegNr)

Appointed:  
(Zugelassen)

☒ ja

Qualification Level: Expert  
(Qualifikationsstufe)

External:  
(Externer)

☐ ja

Add. reviewer: ☐ yes  
(Zus-tzlicher Prüfer)

EAC Scopes:  
(EAC Branchen)

CDM 01 – Energy industries (renewable – / non-renewable sources)

Add. qualification:  
(zus. Qualifikation)

First Appointment:  
(Erstberufung)

2011-01-23

Valid to:  
(Gültig bis)

2014-01-22

Remarks:

Valid for TA 1.2

Languages:

Chinese  
English  
German

### Experience Exchange

Date

Location

Remarks

Accreditation

### Monitoring

Latest Monitoring:  
(letzte Beurteilung)

Next  
Monitoring:  
(n-chste  
Beurteilung)

Remarks:

### History of scope allocation

Date: 2011-01-24  
Change: EAC CDM added  
By: Manfred Brinkmann  
Reason: Valid for TA 1.2

## History

Created:	2010-11-01 11:53:12	Feng Hu/Hk/Chn/TUV
Modified:	2011-01-24 10:10:57 ZE9	Manfred Brinkmann/Jpn/TUV
	2010-11-01 11:53:39	Feng Hu/Hk/Chn/TUV

## Qualification

Lo, Tommy /

### Emission Trading

#### United Nations Framework Convention on Climate Change

Auditor No. :  
(AuditorenRegNr)

Appointed:  
(Zugelassen)

☒ ja

Qualification Level: Auditor  
(Qualifikationsstufe)

External:  
(Externer)

☐ ja

Add. reviewer: ☐ yes  
(Zus-tzlicher Prüfer)

EAC Scopes:  
(EAC Branchen)

CDM 13 – Waste handling and disposal  
CDM 01 – Energy industries (renewable – / non-renewable sources)

Add. qualification:  
(zus. Qualifikation)

First Appointment:  
(Erstberufung)

2008-04-28

Valid to:  
(Gültig bis)

2012-10-12

Remarks:

CDM 01 limited to TA1.2 – Renewable Energies  
CDM 13 limited to TA13.1 – Waste handling and disposal  
  
(as GHG auditor from 2009-10-14)

Languages:

Chinese  
English  
Mandarin  
Chinese simplified  
Chinese traditional

### Experience Exchange

Date

Location

Remarks

Accreditation

### Monitoring

Latest Monitoring:  
(letzte Beurteilung)

Next  
Monitoring:  
(n-chste  
Beurteilung)

Remarks:

## History of scope allocation

Date: 2008-04-29  
Change: EAC CDM, CDM added  
By: Manfred Brinkmann  
Reason:

### History

Created:	2008-04-27 15:19:00 ZE9	Manfred Brinkmann/Jpn/TUV
Modified:	2011-01-13 15:13:56 ZE9	Manfred Brinkmann/Jpn/TUV
	2011-01-13 15:12:34 ZE9	Manfred Brinkmann/Jpn/TUV
	2011-01-13 15:12:05 ZE9	Manfred Brinkmann/Jpn/TUV
	2010-09-13 23:37:26 ZE9	Manfred Brinkmann/Jpn/TUV

## Qualification

Huang, Minglong /

### Emission Trading

United Nations Framework Convention on Climate Change

Auditor No. :  
(AuditorenRegNr)

Appointed:  
(Zugelassen)

☒ ja

Qualification Level:  
(Qualifikationsstufe)

External:  
(Externer)

☐ ja

Add. reviewer:  
(Zus-tzlicher Prüfer)

☐ yes

EAC Scopes:  
(EAC Branchen)

CDM 01 – Energy industries (renewable – / non-renewable sources)  
CDM 05 – Chemical industry  
CDM 11 – Fugitive emissions from production and consumption of halocarbons and sulphur hexafluoride  
CDM 12 – Solvents use

Add. qualification:  
(zus. Qualifikation)

First Appointment:  
(Erstberufung)

2009-12-28

Valid to:  
(Gültig bis)

2012-12-27

Remarks:

CDM 01 valid for TA1.2 – Renewable Energies  
CDM 5.1 / 11.1 / 12.1 – Chemical process industries

Languages:

Chinese  
Chinese simplified  
English  
Cantonese  
French

### Experience Exchange

Date

Location

Remarks

Accreditation

### Monitoring

Latest Monitoring:  
(letzte Beurteilung)

Next  
Monitoring:  
(n-chste)

Beurteilung)

Remarks:

[View](#) / [Edit Monitoring](#)

## History of scope allocation

Date:  
Change:  
By:  
Reason:

Date: 2010-03-30  
Change: EAC CDM, CDM, CDM added  
By: Manfred Brinkmann  
Reason: Scope 1 / renewable energies (except biomass)

## History

Created:	2010-01-13 14:23:26	Minglong Huang/Sz/Chn/TUV
Modified:	2011-01-13 15:46:27 ZE9	Manfred Brinkmann/Jpn/TUV
	2011-01-13 15:45:40 ZE9	Manfred Brinkmann/Jpn/TUV
	2011-01-04 15:27:57 ZE9	Manfred Brinkmann/Jpn/TUV
	2011-01-04 15:27:42 ZE9	Manfred Brinkmann/Jpn/TUV
	2011-01-04 15:26:53 ZE9	Manfred Brinkmann/Jpn/TUV
	2011-01-04 15:25:18 ZE9	Manfred Brinkmann/Jpn/TUV
	2011-01-04 15:24:11 ZE9	Manfred Brinkmann/Jpn/TUV
	2010-03-30 01:45:18 ZE9	Manfred Brinkmann/Jpn/TUV



## Qualification

Chan, Wilfred /

### Emission Trading

#### United Nations Framework Convention on Climate Change

Auditor No.:

(AuditorenRegNr)

Appointed:

(Zugelassen)

☒ ja

Qualification Level: Auditor

(Qualifikationsstufe)

External:

(Externer)

☐ ja

Add. reviewer:

(Zus-tzlicher Prüfer)

☐ yes

EAC Scopes:

(EAC Branchen)

CDM 06 - Construction

CDM 13 - Waste handling and disposal

CDM 01 - Energy industries (renewable - / non-renewable sources)

Add. qualification:

(zus. Qualifikation)

First Appointment:

(Erstberufung)

03/24/2008

Valid to:

(Gültig bis)

03/23/2011

Remarks:

2008-08-03:

Addition of CDM-01 based on project experience, but limited to renewable energies except Biomass power / cogeneration projects.

Languages:

Chinese

Chinese simplified

Chinese traditional

English

Mandarin

### Experience Exchange

Date

Location

Remarks

Accreditation(s)

### Monitoring

Latest Monitoring:  
(letzte Beurteilung)

Next  
Monitoring:  
(n-chste  
Beurteilung)

Remarks:

[View / Edit Monitoring](#)

## History of scope allocation

Date:  
Change:  
By:  
Reason:

Date: 2007-06-24  
Change: EAC CDM, CDM added  
By: Manfred Brinkmann  
Reason: No indication yet for training as CDM auditor and participation in completed validation / verification activities, therefore changed application to 'Expert'.

## History

Created:	05/23/2007 01:58:07 PM	Wilfred Chan/Hk/Chn/TUV
Modified:	08/03/2008 10:37:43 AM	Manfred Brinkmann/Jpn/TUV

## Qualification

Deng, Cuiping /

### Emission Trading

#### United Nations Framework Convention on Climate Change

Auditor No.:

(AuditorenRegNr)

Appointed:

(Zugelassen)

☒ ja

Qualification Level:

(Qualifikationsstufe)

External:

(Externer)

☐ ja

Add. reviewer:

(Zus-tzlicher Prüfer)

☒ yes

EAC Scopes:

(EAC Branchen)

CDM 01 – Energy industries (renewable – / non-renewable sources)

CDM 05 – Chemical industry

CDM 11 – Fugitive emissions from production and consumption of halocarbons and sulphur hexafluoride

CDM 12 – Solvents use

Add. qualification:

(zus. Qualifikation)

First Appointment:

(Erstberufung)

2010-10-09

Valid to:

(Gültig bis)

2013-10-08

Remarks:

Appointed as Technical Reviewer for

TA 1.2

TA 5.1, 11.1, 12.1

Languages:

### Experience Exchange

Date

Location

Remarks

Accreditation

### Monitoring

Latest Monitoring:

(letzte Beurteilung)

Next

Monitoring:

(n-chste

Beurteilung)

Remarks:

## History of scope allocation

Date: 2010-11-11  
Change: EAC CDM, CDM, CDM, CDM added  
By: Manfred Brinkmann  
Reason: Appointed as Technical Reviewer for  
TA 1.2  
TA 5.1, 11.1, 12.1

## History

Created:	2010-08-13 11:19:43	Cuiping Deng/Bj/Chn/TUV
Modified:	2010-11-11 12:00:44 ZE9	Manfred Brinkmann/Jpn/TUV
	2010-11-11 11:59:20 ZE9	Manfred Brinkmann/Jpn/TUV
	2010-11-11 11:58:18 ZE9	Manfred Brinkmann/Jpn/TUV
	2010-08-13 11:21:37	Cuiping Deng/Bj/Chn/TUV