

# VERIFICATION AND CERTIFICATION REPORT

## INNER MONGOLIA CHINA WATER GROUP HUADE NIUJIAFANGZI WIND FARM 49.5MW PROJECT

UNFCCC Ref. No.: 5992

Monitoring Period:

11 April 2012 to 28 February 2014

Report No.: CTI/NB-2014-0402-5

Rev. No.: 01

Date: 28 August 2014

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<b>Verification Organisation:</b>	<b>Client:</b>								
Shenzhen CTI International Certification Co., Ltd	Eco-Tec Asia (UK) Ltd								
<b>Project Title:</b>	<b>Report Number:</b>								
Inner Mongolia China Water Group Huade Niujiatangzi Wind Farm 49.5MW Project	CTI/NB-2014-0402-5								
<b>Monitoring period:</b>	<b>Applied methodology/version:</b>								
11 April 2012 to 28 February 2014	ACM0002, version 12.1.0								
<b>Summary:</b>									
<p>Shenzhen CTI International Certification Co., Ltd (CTI) has performed the verification of the emission reductions reported for the "Inner Mongolia China Water Group Huade Niujiatangzi Wind Farm 49.5MW Project" in China (UNFCCC Ref. No. 5992) for the period 11 April 2012 to 28 February 2014.</p> <p>In our opinion, the GHG emission reductions reported for the project in the monitoring report (version 2.0 dated 28 July 2014) are fairly stated. The GHG emission reductions were calculated correctly on the basis of the approved monitoring methodology ACM0002 (version 12.1.0) and the monitoring plan contained in the revised Project Design Document (version 2.0 dated 28 July 2014).</p> <p>CTI can confirm that the GHG emission reductions are calculated without material misstatements. Based on the evidence and information that are considered necessary to guarantee that GHG emission reductions are appropriately calculated, CTI is able to certify that emission reductions from Inner Mongolia China Water Group Huade Niujiatangzi Wind Farm 49.5MW Project during the period 11 April 2012 to 28 February 2014 amount to 101,771 tCO<sub>2</sub>e.</p> <p>Since this monitoring period covers the 1<sup>st</sup> commitment period and 2<sup>nd</sup> commitment period, the actual GHG emission reductions achieved for the period up to 31 December 2012 (1<sup>st</sup> commitment period) and the period from 1 January 2013 onwards were provided respectively as follows:</p> <table border="0"> <tr> <td>Period up to 31 December 2012:</td> <td>11 April 2012 to 31 December 2012</td> </tr> <tr> <td>Emission reductions:</td> <td>0 tCO<sub>2</sub>e</td> </tr> <tr> <td>Period from 1 January 2013 onwards:</td> <td>1 January 2013 to 28 February 2014</td> </tr> <tr> <td>Emission reductions:</td> <td>101,771 tCO<sub>2</sub>e</td> </tr> </table>		Period up to 31 December 2012:	11 April 2012 to 31 December 2012	Emission reductions:	0 tCO <sub>2</sub> e	Period from 1 January 2013 onwards:	1 January 2013 to 28 February 2014	Emission reductions:	101,771 tCO <sub>2</sub> e
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<b>Date of the issue:</b>	<b>Rev. No.:</b>	<b>No. of Pages:</b>		
28 August 2014	01	24		

### ***Abbreviations***

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction(s)
CL	Clarification request
CO <sub>2</sub>	Carbon dioxide
CO <sub>2</sub> e	Carbon dioxide equivalent
CTI	Shenzhen CTI International Certification Co., Ltd
DOE	Designated Operational Entity
EF	Emission Factor
ER	Emission Reduction
ETN	Electricity Transaction Note
FAR	Forward Action Request
GHG	Greenhouse gas(es)
MR	Monitoring Report
NCPG	North China Power Grid
PDD	Project Design Document
PPA	Power Purchase Agreement
PS	Project Standard
tCO <sub>2</sub> e	Tonnes of CO <sub>2</sub> equivalents
UNFCCC	United Nations Framework Convention on Climate Change
VVS	CDM Validation and Verification Standard

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## 1 INTRODUCTION

Eco-Tec Asia (UK) Ltd has commissioned Shenzhen CTI International Certification Co., Ltd (CTI) to carry out the verification and certification of emission reductions reported for the “Inner Mongolia China Water Group Huade Niujiatangzi Wind Farm 49.5MW Project” (the project) for the period 11 April 2012 to 28 February 2014. This report contains the findings from the verification and a certification statement for the certified emission reductions.

### 1.1 Objective

Verification is the periodic independent review and *ex post* determination by a Designated Operational Entity (DOE) of the monitored reductions in GHG emissions that have occurred as a result of the registered CDM project activity during a defined verification period.

Certification is the written assurance by a DOE that, during a specific period in time, a project activity achieved the emission reductions as verified.

The objective of this verification was to verify and certify emission reductions reported for the “Inner Mongolia China Water Group Huade Niujiatangzi Wind Farm 49.5MW Project” for the period 11 April 2012 to 28 February 2014.

### 1.2 Scope and criteria

The scope of the verification is to verify that:

- The project activity has been implemented and operated in accordance with the registered PDD or any approved revised PDD;
- The monitoring plan complies with the monitoring methodology and the actual monitoring complies with the monitoring plan, including compliance with any guidance provided by the Board regarding deviations from the provisions of a registered plan and/or methodology;
- The data and calculation of GHG emission reductions have been assessed to correctly support the emission reductions being claimed.

The verification shall ensure that reported emission reductions are complete and accurate in order to be certified.

### 1.3 CDM project Description and period covered

Project Parties:	China (Host Party) and United Kingdom of Great Britain and Northern Ireland (Other Party)
Project title:	Inner Mongolia China Water Group Huade Niujiatangzi Wind Farm 49.5MW Project
UNFCCC registration No:	5992
UNFCCC registration date:	11 April 2012
Applied methodology:	ACM0002 (version 12.1.0)
Project Participants:	China Water Group Huade Wind Power Co., Ltd from China

Eco-Tec Asia (UK) Ltd from United Kingdom of Great Britain and Northern Ireland

Location of the project activity: Changshun Town, Huade County, Ulanqab City, Inner Mongolia Autonomous Region, P. R. China.

Project's crediting period: 11 April 2012 to 10 April 2022 (Fixed)

Period verified in this verification: 11 April 2012 to 28 February 2014

## 1.4 Methodology for determining emission reductions

According to the applied methodology ACM0002 (version 12.1.0) /29/, the emission reductions are determined as the difference between the baseline emissions, project emissions and leakage:

$$ER_y = BE_y - PE_y - L_y$$

$PE_y$  and  $L_y$  are considered to be zero as per ACM0002 (version 12.1.0) /29/, the registered PDD /20/ and the validation report/21/.

Thus, the emission reductions for the project are accounted as follows,

$$ER_y = BE_y = EG_{\text{facility},y} \times EF_{\text{grid},\text{CM},y}$$

Where,

$EG_{\text{facility},y}$  is the net electricity generation supplied to the grid, which is determined by the Power supplied to the grid by the project minus the Power supplied to the project from the grid.  $EF_{\text{grid},\text{CM},y}$  is emission factor of the grid, which was calculated *ex-ante* and will not be updated during the fixed crediting period.  $EF_{\text{grid},\text{CM},y}$  of the proposed project in the PDD is 0.9309 tCO<sub>2</sub>e/MWh, which has been verified during the validation stage.

## 1.5 Verification team

Based on the requirements of competency, experience and qualified sectoral scopes, CTI appointed a verification team in accordance with CTI's internal procedures. The qualification of each team member is detail in Appendix C to this report.

Function	Name	Technical competence	Task Performance*
Team Leader	Li Ziqi	1.2	<input checked="" type="checkbox"/> DR <input checked="" type="checkbox"/> SV <input checked="" type="checkbox"/> RP <input type="checkbox"/> TR
Technical Reviewer	Zhang Lei	1.1, 1.2, 4.1, 4.3, 4.4, 13.1, 13.2	<input type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RP <input checked="" type="checkbox"/> TR

\*DR=Document review; SV=Site visit; RP=Reporting; TR=Technical review

## 2 METHODOLOGY

CTI has assessed and determined that the implementation and operation of the project activity, and the steps taken to report emission reductions comply with the CDM criteria and relevant guidance provided by the Board. The assessment involved a document review of relevant documentation as well as an on-site visit(s).

## 2.1 Document review

The monitoring report was published on UNFCCC website on 18 June 2014. In addition to the monitoring report (version 1.0 dated 16 June 2014 and updated version 2.0 dated 28 July 2014) /1/, CTI reviewed:

- The PDD for the project activity /20/, including the monitoring plan and the corresponding validation report /21/; and the revised PDD (version 2.0 dated 28 July 2014) /22/, including the monitoring plan and corresponding validation opinion /23/
- Baseline and monitoring methodology ACM0002 (version 12.1.0) applied by the project /29/;
- Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board /26/ -/28/ /30/ /31/; and
- Other information and references relevant to the project activity /2/-/19/.

During the desk review, CTI has applied standard auditing techniques to assess the quality of information provided. The following activities were performed:

- A review of the data and information presented to verify their completeness;
- A review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures; and
- An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

## 2.2 On-site assessment

On 10 July 2014, CTI visited China Water Group Huade Wind Power Co., Ltd, and performed on-site assessment. The key personnel of the project were interviewed or assisted the verification team /32/ /33/.

During the on-site assessment, CTI has applied standard auditing techniques to assess the quality of information provided. The following aspects of the CDM project activity have been verified:

- An assessment of the implementation and operation of the registered project activity is as per the PDD for the project activity;
- A review of information flows for generating, aggregating and reporting the monitoring parameters; and
- Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the PDD;
- A cross-check between information provided in the monitoring report and data from other sources such as plant logbooks and electricity sale receipts;
- A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PDD and the selected methodology;

- A review of calculations and assumptions made in determining the GHG data and emission reductions; and
- An identification that quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

The data presented in the monitoring report were assessed by review of the detailed project documentation and production records, as well as by interviews with personnel from the project participant Eco-Tec Asia (UK) Ltd and China Water Group Huade Wind Power Co., Ltd, and observation of collection of measurements, observation of established monitoring and reporting practices and assessment of the reliability of monitoring equipment. This has enabled the verification team to assess the accuracy and completeness of reported monitoring results, to verify the correct application of the approved monitoring methodology and the determination of the emission reductions.

In addition all parameters required by the monitoring methodology ACM0002 (version 12.1.0), and the management system were assessed during the site visit.

## **2.3 Reporting of findings**

The objective of this phase of the verification was to resolve any issues which needed be clarified prior to CTI's conclusion that i) the project activity has been implemented and operated in accordance with the registered PDD or any approved revised PDD, ii) the monitoring plan complies with the monitoring methodology and the actual monitoring complies with the monitoring plan and iii) the data and calculation of GHG emission reductions are correct.

A corrective action request (CAR) is issued, where:

- i. Non-conformities with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- ii. Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
- iii. Mistakes have been made in applying assumptions, data or calculations of emission reductions which will impair the estimate of emission reductions;
- iv. Issues identified in a FAR during validation to be verified during verification have not been resolved by the project participants.

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

A forward action request (FAR) is issued for actions if the monitoring and reporting require attention and/or adjustment for the next monitoring period.

The verification team identified two CARs and three CLs in this monitoring period, and no FAR was raised. The CARs and CLs were satisfactorily addressed by the project participants in the revised monitoring report (refer to Appendix A for further details). All changes made to the monitoring report (version 2.0 dated 28 July 2014) are as a result of the verification findings.



### 3 VERIFICATION FINDINGS

This section summarises the findings from the verification of the emission reductions reported for the “Inner Mongolia China Water Group Huade Niujiatangzi Wind Farm 49.5MW Project” for the period 11 April 2012 to 28 February 2014.

#### 3.1 Remaining issues from previous validation/verification

This monitoring period 11 April 2012 to 28 February 2014 is the first verification of the project. No remaining issues were identified in the previous validation /21/.

#### 3.2 Post registration changes

The post registration changes described in Appendix B were identified by CTI during this verification. These post registration changes were assessed by CTI.

For post registration changes not requiring prior approval by the CDM EB in accordance with Appendix 1 to the CDM Project Standard /27/, the assessment of the changes (in the form of a duly completed “Post-registration changes request form” (F-CDM-PRC) and CTI’s assessment opinion on the changes) /23/ is submitted together with the revised PDD (version 2.0 dated 28 July 2014) /22/ for acceptance by the CDM EB as part of the request for issuance for this monitoring period.

The assessment of compliance with the project description and the monitoring plan contained in the PDD, as described in the following sections, is based on the revised PDD (version 2.0 dated 28 July 2014).

#### 3.3 Project implementation

The project activity was registered as a CDM project on 11 April 2012. The selected monitoring period 11 April 2012 to 28 February 2014 is the 1<sup>st</sup> monitoring period of the project, which is within the fixed crediting period 11 April 2012 to 10 April 2022.

The project is a 49.5 MW wind power farm, located at Changshun Town, Huade County, Ulanqab City, Inner Mongolia Autonomous Region of China. The project consists of 33 sets of wind turbines with a unit capacity of 1.5 MW (type GW77/1500kW) produced by Xinjiang Goldwind Technology Co., Ltd /19/. The details of installed turbines with respect to installation and capacity have been verified by CTI through checking the wind turbine nameplate and turbine purchase agreement /19/ during on-site visit to be consistent with the description indicated in the revised PDD /22/.

The project was put into full operation on 1 March 2013 /13/. After the commissioning and operation, the *Full operation acceptance for the project* has been accepted by Xinjiang Goldwind Technology Co., Ltd, which proved that the project is constructed as planned and was able to satisfy the requirements of operation and implementation /6/. Furthermore, the environmental protection measurement taken during project construction and operation as stipulated in the environment impact assessment has been inspected and accepted by local environmental authority /7/.

The electricity generated by the project activity was supplied to the North China Power Grid (NCPG), which can be confirmed by the Power purchase agreement (PPA) /4/. All the monitoring system in operation period is consistent with the description in the revised PDD. The control system at the power plant is automated and assures continuous operation, including monitoring on malfunction of equipment. By checking the daily operation and

maintenance records /9/ during site visit, CTI can confirm that no malfunction was occurred and the plant was under a normal operation as expected in this monitoring period.

On-site training for the CDM related procedures including monitoring, recording and reporting was verified to be in place /8/ and their implementation was confirmed by interview with the key operators /32/ and observing the operation.

As part of the site visit, CTI confirms that the project implementation is in accordance with the project description contained in revised PDD (version 2.0 dated 28 July 2014). The verification team confirmed through visual inspection and document review that all physical features of the proposed CDM project activity including data collection systems and storage systems have been implemented in accordance with the revised PDD.

### 3.4 Compliance of monitoring plan with monitoring methodology

CTI is able to confirm that the monitoring plan in the revised PDD (version 2.0 dated 28 July 2014) /22/ is in accordance with the approved methodology applied by the project activity, i.e. ACM0002 (version 12.1.0) /29/.

### 3.5 Compliance of monitoring with the monitoring plan

The monitoring has been carried out in accordance with the monitoring plan contained in the revised PDD (version 2.0 dated 28 July 2014) /22/. CTI confirms that all parameters stated in the monitoring plan are monitored and reported appropriately except for  $ES_{j,i,import,y}$  (the electricity imported from the grid to the Phase  $j$  project part  $I$  measured by the meter  $M_{j,i}$  at the project site), which was identified as the temporary deviation from the monitoring plan and assessed in the CTI's validation assessment on the post registration change. All parameters required to be monitored by the monitoring plan as per the monitoring methodology ACM0002 (version 12.1.0) /29/ and the management system were assessed during the site visit. The monitoring report lists each parameter required by the monitoring plan and the information flow (i.e. from data generation, aggregation, recording, calculation and reporting) for these parameters is provided. The information flow for the each parameter in further verified in the following sections.

#### 3.5.1 Parameters monitored

- (1) Electricity exported to the grid by the Phase  $j$  project ( $j=I, II, III, IV, V, VI, VII, VIII$ ) part  $i$  ( $i=1, 2, 3, 4$  for Phase  $I$  project,  $i=1, 2, 3$  for the other 7 projects) ( $ES_{j,i,export,y}$ )
- (2) Electricity imported from the grid to the Phase  $j$  project ( $j=I, II, III, IV, V, VI, VII, VIII$ ) part  $i$  ( $i=1, 2, 3, 4$  for Phase  $I$  project,  $i=1, 2, 3$  for the other 7 projects) ( $ES_{j,i,import,y}$ )
- (3) Total electricity exported to the grid by all the 8 projects (including the Project) ( $ES_{total,export,y}$ )
- (4) Total electricity imported from the grid to all the 8 projects (including the Project) ( $ES_{total,import,y}$ )
- (5) The amount of electricity exported to the grid from the wind farm connected to the transformer  $p$  ( $p=A, B, C, D, E$ ) ( $ES_{p,export,y}$ )
- (6) The amount of electricity imported from the grid to the wind farm connected to the transformer  $p$  ( $p=A, B, C, D, E$ ) ( $ES_{p,import,y}$ )
- (7) Quantity of net electricity generation supplied by the Project to the grid ( $EG_{facility,y}$ )

The project will share the same gateway electrical meters at the Xingguang 220kV Substation with other seven projects developed by the same project owner. The list of the eight projects

that share the same gateway electrical meters at the Xingguang 220kV Substation is as below:

- Huade Phase I project: Huade Changshun 49.5MW Wind Power Project (ref. No. 2093);
- Huade Phase II project: Inner Mongolia China Water Group Huade Sandaogou Wind Farm 49.5MW Project (ref. No. 5781);
- Huade Phase III project: Inner Mongolia China Water Group Huade Heping Wind Farm 49.5MW Project (ref. No. 5900);
- Huade Phase IV project: Inner Mongolia China Water Group Huade Niujiacun Wind Farm 49.5MW Project (ref. No. 5883);
- The Project:  
Huade Phase V project: Inner Mongolia China Water Group Huade Niujiafangzi Wind Farm 49.5MW Project (ref. No. 5992);
- Huade Phase VI project: Inner Mongolia China Water Group Huade Sitaifangzi Wind Farm 49.5MW Project (ref. No. 5990);
- Huade Phase VII project: Inner Mongolia China Water Group Huade Erligetu Wind Farm 49.5MW Project (ref. No. 5904);
- Huade Phase VIII project: Inner Mongolia China Water Group Huade Cheliwusu Wind Farm 49.5MW Project (ref. No. 5909);

The two bi-directional gateway meters ( $M_{g1}$  as main and  $M_{g2}$  as its back-up) have been installed at the Xingguang 220kV Substation to monitor the total amount of electricity delivered to and purchased from the NCPG by the eight projects simultaneously and the net total amount of electricity supplied to the NCPG by the eight projects activity would be calculated based on the readings of those meters; another two meters are installed at the other side of the Xingguang 220kV Substation as the evaluation meters ( $M_{e1}$  as main and  $M_{e2}$  as its back-up) /11/. When the main of the gateway meter  $M_{g1}$  is out of order, the readings from the back-up of the gateway meter  $M_{g2}$  will be used for calculation. In case of both the gateway meters falling out of order, the readings from the evaluation meters will be used for reference with consideration of historical transmission line losses. In order to calculate the exact amount of electricity delivered to and purchased from the NCPG by the eight projects respectively, there have installed an bi-directional electrical meters at each of the 35kV transmission lines for each project and five electrical meters at the 220kV sides of the main transformer connecting to the Project at the wind farm on-site booster station /11/:

Name	Meter			
Phase I: Changshun	$M_{1.1}$	$M_{1.2}$	$M_{1.3}$	$M_{1.4}$
Phase II: Sandaogou	$M_{2.1}$	$M_{2.2}$	$M_{2.3}$	-
Phase III: Heping	$M_{3.1}$	$M_{3.2}$	$M_{3.3}$	-
Phase IV: Niujiacun	$M_{4.1}$	$M_{4.2}$	$M_{4.3}$	-
Phase V: Niujiafangzi	$M_{5.1}$	$M_{5.2}$	$M_{5.3}$	-

Phase VI: Sitaifangzi	M <sub>6.1</sub>	M <sub>6.2</sub>	M <sub>6.3</sub>	-
Phase VII: Erligetu	M <sub>7.1</sub>	M <sub>7.2</sub>	M <sub>7.3</sub>	-
Phase VIII: Cheliwusu	M <sub>8.1</sub>	M <sub>8.2</sub>	M <sub>8.3</sub>	-
Changshun 220 kV Booster Station Main Transformer #1	M <sub>A</sub>			
Changshun 220 kV Booster Station Main Transformer #2	M <sub>B</sub>			
Changshun 220 kV Booster Station Main Transformer #3	M <sub>C</sub>			
Niujiafang 220 kV Booster Station Main Transformer #1	M <sub>D</sub>			
Niujiafang 220 kV Booster Station Main Transformer #2	M <sub>E</sub>			

The verification team has on-site checked the location of the meters against the diagram of power connection system /11/ and found them to be consistent, and also installed in accordance with the revised PDD. The meters monitoring the electricity imported from the grid to the Phase j project were managed and recorded by the 8 projects' owner. The incompleteness and loss of monitoring data for 8 projects from these meters in some months during this monitoring period were reported by the project participants. The project participants were thus temporarily unable to monitor  $ES_{j, i, import, y}$  in accordance with the registered monitoring plan in the duration of 11 April 2012 to 28 February 2014. To be conservative, the total amount of electricity imported from the grid to all 8 projects was applied as the electricity imported from the grid for the proposed project in this monitoring period, and the net electricity generation supplied by the Project to the grid  $EG_{facility, y}$  is calculated with the formula:

$$EG_{facility, y} = ES_{total, export, y} \times \frac{\sum_{i=1}^3 ES_{V, i, export, y}}{\sum_{i=1}^4 ES_{I, i, export, y} + \sum_{j=II}^{VIII} \sum_{i=1}^3 ES_{j, i, export, y}} - ES_{total, import, y}.$$

All the monitoring facilities and system have been verified by CTI during on-site visit.

On the 20<sup>th</sup> of every month, the Grid Company together with the project owner recorded the meters' readings (M<sub>g1</sub>, M<sub>g2</sub>, M<sub>e1</sub> and M<sub>e2</sub>) of electricity export and import into the monthly reading records /10/ and issued the electricity transaction notes (ETNs) /12/. Data in the monthly reading records were used to the report, through a cross check with the ETNs, and the conservative values from electricity export and import were applied to calculate the net electricity supplied to the grid by the project /2/. The data reported in the monitoring report and ERs calculation spreadsheet has been verified by the verification team. Supporting references and data required to determine the net electricity supplied to the grid by the project is found to be complete and transparent.

### 3.5.2 Monitoring equipment and calibration

The meters installed for the project activity have been calibrated periodically as per the relevant industrial standard by the accredited qualified third party to ensure the monitoring equipments' accuracy and in good conditions. The relevant information of meters' calibration

is listed as below.

is listed as 001071

Item	Main meter M <sub>g1</sub>	Backup meter M <sub>g2</sub>	Main evaluation meter M <sub>e1</sub>	Backup evaluation meter M <sub>e2</sub>
Type	LANDIS	LANDIS	LANDIS	LANDIS
SN	95411060	95411068	96057671	95411066
Accuracy class	0.2S			
Calibration frequency	Annual			
Calibration date	4 March 2012 1 June 2012 22 March 2013		3 March 2012 31 May 2012 22 March 2013	
Valid period	3 March 2013 31 May 2013 21 March 2014		2 March 2013 30 May 2013 21 March 2014	
Calibration entity	Inner Mongolia Electric Power Research Institute Electric Metering Testing Center			

Item	$M_{1.1}$	$M_{1.2}$	$M_{1.3}$	$M_{1.4}$	$M_{2.1}$
Type	DTSD341	DTSD341	DTSD341	DTSD341	DTSD341
SN	090600948600 05	090600948600 04	090600948600 10	0906009486001 1	100804020900 0013
Accuracy class	0.5S				
Calibration frequency	Annual				
Calibration date	1 February 2012 10 July 2012 7 July 2013				
Valid period	31 January 2013 9 July 2013 6 July 2014				
Calibration entity	Ulanqab Electric Power Bureau (1 February 2012) Inner Mongolia Ke Gao Electric Technology Testing Co. Ltd (10 July 2012 and 7 July 2013)				

Item	$M_{2.2}$	$M_{2.3}$	$M_{3.1}$	$M_{3.2}$	$M_{3.3}$
Type	DTSD341	DTSD341	DTSD341	DTSD341	DTSD341
SN	100804020900 0009	100804020900 0014	100804020900 0008	1008040209000 002	100804020900 0012
Accuracy class	0.5S				

<b>Calibration frequency</b>	Annual
<b>Calibration date</b>	1 February 2012 10 July 2012 7 July 2013
<b>Valid period</b>	31 January 2013 9 July 2013 6 July 2014
<b>Calibration entity</b>	Ulanqab Electric Power Bureau (1 February 2012) Inner Mongolia Ke Gao Electric Technology Testing Co. Ltd (10 July 2012 and 7 July 2013)

<b>Item</b>	<b>M<sub>4.1</sub></b>	<b>M<sub>4.2</sub></b>	<b>M<sub>4.3</sub></b>	<b>M<sub>5.1</sub></b>	<b>M<sub>5.2</sub></b>
<b>Type</b>	DTSD341	DTSD341	DTSD341	DTSD719	DTSD719
<b>SN</b>	100804020900 0004	100804020900 0003	100804020900 0001	4200525041108 348712	420052504110 8348711
<b>Accuracy class</b>	0.5S				
<b>Calibration frequency</b>	Annual				
<b>Calibration date</b>	1 February 2012 10 July 2012 7 July 2013				
<b>Valid period</b>	31 January 2013 9 July 2013 6 July 2014				
<b>Calibration entity</b>	Ulanqab Electric Power Bureau (1 February 2012) Inner Mongolia Ke Gao Electric Technology Testing Co. Ltd (10 July 2012 and 7 July 2013)				

<b>Item</b>	<b>M<sub>5.3</sub></b>	<b>M<sub>6.1</sub></b>	<b>M<sub>6.2</sub></b>	<b>M<sub>6.3</sub></b>	<b>M<sub>7.1</sub></b>
<b>Type</b>	DTSD719	DTSD719	DTSD719	DTSD719	DTSD719
<b>SN</b>	420052504110 8348706	420052504110 8348709	420052504110 8348713	4200525041108 348718	420052504110 8348704
<b>Accuracy class</b>	0.5S				
<b>Calibration frequency</b>	Annual				
<b>Calibration date</b>	1 February 2012 10 July 2012 7 July 2013				
<b>Valid period</b>	31 January 2013 9 July 2013				

	6 July 2014
<b>Calibration entity</b>	Ulanqab Electric Power Bureau (1 February 2012) Inner Mongolia Ke Gao Electric Technology Testing Co. Ltd (10 July 2012 and 7 July 2013)

<b>Item</b>	<b>M<sub>7.2</sub></b>	<b>M<sub>7.3</sub></b>	<b>M<sub>8.1</sub></b>	<b>M<sub>8.2</sub></b>	<b>M<sub>8.3</sub></b>
<b>Type</b>	DTSD719	DTSD719	DTSD719	DTSD719	DTSD719
<b>SN</b>	420052504110 8348720	420052504110 8348707	420052504110 8348715	4200525041108 348705	420052504110 8348721
<b>Accuracy class</b>	0.5S				
<b>Calibration frequency</b>	Annual				
<b>Calibration date</b>	1 February 2012 10 July 2012 7 July 2013				
<b>Valid period</b>	31 January 2013 9 July 2013 6 July 2014				
<b>Calibration entity</b>	Ulanqab Electric Power Bureau (1 February 2012) Inner Mongolia Ke Gao Electric Technology Testing Co. Ltd (10 July 2012 and 7 July 2013)				

<b>Item</b>	<b>M<sub>A</sub></b>	<b>M<sub>B</sub></b>	<b>M<sub>C</sub></b>	<b>M<sub>D</sub></b>	<b>M<sub>E</sub></b>
<b>Type</b>	DTSD718	DTSD341	DTSD341	DTSD718	DTSD718
<b>SN</b>	4200415041108 347261	1008040184000 1	1008040184000 2	4200415041108 347258	4200415041108 347260
<b>Accuracy class</b>	0.2S				
<b>Calibration frequency</b>	Annual				
<b>Calibration date</b>	1 February 2012 1 May 2012 1 April 2013				
<b>Valid period</b>	31 January 2013 30 April 2013 31 March 2014				
<b>Calibration entity</b>	Ulanqab Electric Power Bureau (1 February 2012 and 1 May 2012) Inner Mongolia Ke Gao Electric Technology Testing Co. Ltd (1 April 2013)				

Calibration records and accreditation certificates /14/-/17/ have been verified by the verification team. In the revised PDD, it stated “the bidirectional gateway meter(s) M<sub>g1</sub> (and M<sub>g2</sub> as its back-up meter) at the 220kV Xingguang substation with the accuracy of 0.2S, and



the bidirectional evaluation meter(s)  $M_{e1}$  (and  $M_{e2}$  as its back-up) at the wind farm's side of the 220kV Xingguang substation with the accuracy of 0.2S in accordance with national regulations”, “the separate bi-directional meter at the Phase j project’s site with the accuracy of 0.5S” and “the electrical meter  $M_P$  at the 220kV side of the 35~220kV on-site booster station with the accuracy of 0.2S (p=A, B, C, D, E) respectively”. The actual accuracies of meters installed are verified to be 0.2S for  $M_{g1}$ ,  $M_{g2}$ ,  $M_{e1}$ ,  $M_{e2}$ ,  $M_A$ ,  $M_B$ ,  $M_C$ ,  $M_D$  and  $M_E$ , and 0.5S for other meters, which are the same as specified in the revised PDD and in compliance with the calibrating standards “AC power meter field calibration specifications (JJG1055-1997)” /18/.

The calibration frequency of meters is annual, which is consistent with the information in the PDD as “The electricity meters will be calibrated and checked annually for accuracy in accordance with the *Technical Administrative Code of Electric Energy Metering (DL/T448-2000)*, *Verification regulation of electrical energy meters with electronics (JJG596 - 1999)* and the *AC power meter field calibration specifications (JJG1055-1997)*”.

Hence, CTI can thus confirm that the meters’ accuracy and calibration interval are in line with the requirement of the monitoring plan of the revised PDD, and the calibrations of meters are verified to be valid for the whole reporting period.

### 3.5.3 Data management and control

All necessary documentations are collected, referenced and aggregated. The quality assurance and quality control procedures have been addressed in the CDM project management and monitoring manual /5/, including the organization structure with the responsibilities, personnel competencies, monitoring procedures and monitoring management. All monitoring devices have been calibrated and maintained periodically to ensure the accuracy of measurement. By interviewing with the staff /32/ and checking records /9/ during on-site visit, it can be confirmed that the monitoring management system is in place.

## 3.6 Assessment of data and calculation of emission reductions

CTI confirms that appropriate methods and formula for calculating baseline emissions, project emissions and leakage have been followed, and the assumptions, emission factors and default values that are applied in the calculation have been justified.

According to the applied methodology ACM0002 (version 12.1.0) /29/, the emission reductions are determined as the difference between the baseline emissions, project emissions and leakage:

$$ER_y = BE_y - PE_y - L_y$$

The project emissions and leakage are regarded as zero according to the applied methodology ACM0002 (version 12.1.0). Thus, the emission reductions for the project are accounted as follows:

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

### Grid emission factor ( $EF_{grid,CM,y}$ )

$EF_{grid,CM,y}$  is emission factor of the grid, which was calculated *ex-ante* and will not be updated during the fixed crediting period.  $EF_{grid,CM,y}$  of the project in the revised PDD is 0.9309 tCO<sub>2</sub>/MWh /22/.



### Net electricity generation supplied by the Project to the grid ( $EG_{\text{facility},y}$ )

The net electricity generation supplied by the Project to the grid ( $EG_{\text{facility},y}$ ) was applied for the final ER calculation.  $EG_{\text{facility},y}$  is calculated as formula in section 3.5.1 above:

$$EG_{\text{facility},y} = ES_{\text{total},\text{export},y} \times \frac{\sum_{i=1}^3 ES_{V,i,\text{export},y}}{\sum_{i=1}^4 ES_{I,i,\text{export},y} + \sum_{j=II}^{VIII} \sum_{i=1}^3 ES_{j,i,\text{export},y}} - ES_{\text{total},\text{import},y}$$

Data in the monthly reading records were used to report /10/, through a cross check with the ETNs /12/, the most conservative values were applied to calculate the electricity supplied to and imported from the grid by the project activity, which was checked by the verification team in the ER spreadsheet /2/.

Summary of electricity exported to the grid:

Period		PHASE I: CHANGSH UN (ref. No. 2093)	PHASE II: SANDAOG OU (ref. No. 5781)	PHASE III: HEPING (ref. No. 5900)	PHASE IV: NIUJIACU N (ref. No. 5883)	PHASE V: NIUJIAFA NGZI (ref. No. 5992)	PHASE VI: SITAIFAN GZI (ref. No. 5990)	PHASE VII: ERLIGETU (ref. No. 5904)	PHASE VIII: CHELIWUSU (ref. No. 5909)	Sub-total
		ES <sub>I</sub> , export ,y	ES <sub>II</sub> , export ,y	ES <sub>III</sub> , export ,y	ES <sub>IV</sub> , export ,y	ES <sub>V</sub> , export ,y	ES <sub>VI</sub> , export ,y	ES <sub>VII</sub> , export ,y	ES <sub>VIII</sub> , export ,y	
From	To	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh
11/04/2012	20/04/2012	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
21/04/2012	20/05/2012	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
21/05/2012	20/06/2012	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
21/06/2012	20/07/2012	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
21/07/2012	20/08/2012	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
21/08/2012	20/09/2012	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
21/09/2012	20/10/2012	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
21/10/2012	20/11/2012	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
21/11/2012	20/12/2012	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
21/12/2012	20/01/2013	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
21/01/2013	20/02/2013	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
21/02/2013	28/02/2013	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
01/03/2013	20/03/2013	16,016.28	6,953.24	6,160.00	6,881.56	17,976.56	8,710.52	17,668.56	6,364.12	86,730.84
21/03/2013	20/04/2013	11,564.84	14,293.72	14,733.04	12,534.20	13,395.76	13,885.20	12,688.48	12,909.68	106,004.92
21/04/2013	20/05/2013	9,792.16	13,404.16	12,725.16	11,165.28	12,183.36	11,563.44	11,581.08	10,989.44	93,404.08
21/05/2013	20/06/2013	10,712.80	12,513.48	10,653.72	11,108.72	10,695.44	11,174.24	10,547.60	10,913.00	88,319.00

Period		PHASE I: CHANGSH UN (ref. No. 2093)	PHASE II: SANDAOG OU (ref. No. 5781)	PHASE III: HEPING (ref. No. 5900)	PHASE IV: NIUJIACU N (ref. No. 5883)	PHASE V: NIUJIAFA NGZI (ref. No. 5992)	PHASE VI: SITAI FAN GZI (ref. No. 5990)	PHASE VII: ERLIGETU (ref. No. 5904)	PHASE VIII: CHELIWUSU (ref. No. 5909)	Sub-total
		ES <sub>I</sub> , export ,y	ES <sub>II</sub> , export ,y	ES <sub>III</sub> , export ,y	ES <sub>IV</sub> , export ,y	ES <sub>V</sub> , export ,y	ES <sub>VI</sub> , export ,y	ES <sub>VII</sub> , export ,y	ES <sub>VIII</sub> , export ,y	
From	To	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh
21/06/2013	20/07/2013	5,401.48	7,523.32	6,711.04	7,486.92	6,142.64	6,750.52	5,803.00	6,480.88	52,299.80
21/07/2013	20/08/2013	6,178.48	8,768.20	8,267.56	8,443.96	5,749.80	6,377.84	6,564.60	7,235.20	57,585.64
21/08/2013	20/09/2013	6,860.84	8,207.92	8,242.92	7,818.44	6,653.92	7,073.92	6,775.16	7,192.36	58,825.48
21/09/2013	20/10/2013	9,527.28	12,934.88	11,519.20	11,653.32	10,539.20	10,917.48	10,045.00	10,376.80	87,513.16
21/10/2013	20/11/2013	9,976.68	9,922.08	10,877.44	10,556.28	8,630.72	9,000.04	10,144.40	10,314.08	79,421.72
21/11/2013	20/12/2013	8,670.76	7,364.00	9,496.20	9,597.28	8,362.20	8,542.24	8,433.32	8,716.12	69,182.12
21/12/2013	20/01/2014	10,658.20	10,484.60	12,015.08	11,629.24	9,244.48	9,918.72	10,439.24	11,058.04	85,447.60
21/01/2014	20/02/2014	5,174.96	5,662.72	6,842.92	6,766.20	5,131.56	5,486.60	5,573.68	5,991.44	46,630.08
21/02/2014	28/02/2014	1,581.16	2,014.60	2,126.04	1,815.80	1,452.92	1,523.20	1,350.72	1,560.16	13,424.60
<b>Total</b>		<b>112,115.92</b>	<b>120,046.92</b>	<b>120,370.32</b>	<b>117,457.20</b>	<b>116,158.56</b>	<b>110,923.96</b>	<b>117,614.84</b>	<b>110,101.32</b>	<b>924,789.04</b>

Summary of electricity exported to the grid:

Period		ES <sub>total, export, y</sub> (M <sub>gl</sub> )	ETN	Adopted value = min (M <sub>gl</sub> , ETN)
From	To	MWh	MWh	MWh
11/04/2012	20/04/2012	n.a.	n.a.	n.a.
21/04/2012	20/05/2012	n.a.	n.a.	n.a.
21/05/2012	20/06/2012	n.a.	n.a.	n.a.
21/06/2012	20/07/2012	n.a.	n.a.	n.a.
21/07/2012	20/08/2012	n.a.	n.a.	n.a.
21/08/2012	20/09/2012	n.a.	n.a.	n.a.
21/09/2012	20/10/2012	n.a.	n.a.	n.a.
21/10/2012	20/11/2012	n.a.	n.a.	n.a.
21/11/2012	20/12/2012	n.a.	n.a.	n.a.
21/12/2012	20/01/2013	n.a.	n.a.	n.a.
21/01/2013	20/02/2013	n.a.	n.a.	n.a.
21/02/2013	28/02/2013	n.a.	n.a.	n.a.
01/03/2013	20/03/2013	77,103.83	74,811.794	74,811.79
21/03/2013	20/04/2013	104,304.30	103,423.130	103,423.13
21/04/2013	20/05/2013	90,848.38	89,180.430	89,180.43
21/05/2013	20/06/2013	87,024.32	86,372.090	86,372.09
21/06/2013	20/07/2013	51,616.34	51,307.570	51,307.57
21/07/2013	20/08/2013	57,016.32	56,652.540	56,652.54
21/08/2013	20/09/2013	57,654.67	57,264.530	57,264.53
21/09/2013	20/10/2013	86,857.42	86,222.460	86,222.46
21/10/2013	20/11/2013	78,271.51	77,695.610	77,695.61
21/11/2013	20/12/2013	68,198.30	67,796.440	67,796.44
21/12/2013	20/01/2014	85,110.92	95,850.434	85,110.92
21/01/2014	20/02/2014	45,806.88	45,538.810	45,538.81
21/02/2014	28/02/2014	13,321.00	13,201.320	13,201.32
<b>Total</b>		-	-	<b>894,577.64</b>

Summary of electricity imported from the grid:

Period		ES <sub>total, import .y</sub> (M <sub>gl</sub> )	ETN	Adopted value = max (M <sub>gl</sub> , ETN)
From	To	MWh	MWh	MWh
11/04/2012	20/04/2012	n.a.	n.a.	n.a.
21/04/2012	20/05/2012	n.a.	n.a.	n.a.
21/05/2012	20/06/2012	n.a.	n.a.	n.a.
21/06/2012	20/07/2012	n.a.	n.a.	n.a.
21/07/2012	20/08/2012	n.a.	n.a.	n.a.
21/08/2012	20/09/2012	n.a.	n.a.	n.a.
21/09/2012	20/10/2012	n.a.	n.a.	n.a.
21/10/2012	20/11/2012	n.a.	n.a.	n.a.
21/11/2012	20/12/2012	n.a.	n.a.	n.a.
21/12/2012	20/01/2013	n.a.	n.a.	n.a.
21/01/2013	20/02/2013	n.a.	n.a.	n.a.
21/02/2013	28/02/2013	n.a.	n.a.	n.a.
01/03/2013	20/03/2013	46.44	135.00	135.00
21/03/2013	20/04/2013	94.61	209.25	209.25
21/04/2013	20/05/2013	110.40	202.50	202.50
21/05/2013	20/06/2013	133.77	209.25	209.25
21/06/2013	20/07/2013	199.68	202.50	202.50
21/07/2013	20/08/2013	104.83	209.25	209.25
21/08/2013	20/09/2013	303.73	209.25	303.73
21/09/2013	20/10/2013	13.19	98.80	98.80
21/10/2013	20/11/2013	154.82	138.14	154.82
21/11/2013	20/12/2013	42.87	138.14	138.14
21/12/2013	20/01/2014	108.69	46.68	108.69
21/01/2014	20/02/2014	151.75	157.54	157.54
21/02/2014	28/02/2014	42.34	42.71	42.71
<b>Total</b>		-	-	<b>2,172.18</b>

Note:

(1) As regulated by the grid company, the grid company and the Project owner recorded these data on the 20<sup>th</sup> of every month. Data in the monthly reading records were used to report, and crosschecked by ETNs. The verification team accepted this approach for ERs calculation and cross check since it is conservative and reasonable.

(2) Phase II ~ Phase VIII projects (including the Project) started connecting to the grid from 1 March 2013, thus the electricity exported to the grid and the electricity imported from the grid before 1 March 2013 is 0. Phase I has been exporting electricity to the grid and importing electricity from the grid during the period 11 April 2012 to 28 February 2013, it is not taken into consideration in the calculation for the Project and set as default value 0, since it makes no difference on determining the Project's exported electricity and imported electricity.

Net electricity generation supplied by the Project to the grid ( $EG_{facility,y}$ )

Period		Phase V: Niujiatangzi (Ref. No.5992) $EG_{facility,y}$
From	To	MWh
11/04/2012	20/04/2012	n.a.
21/04/2012	20/05/2012	n.a.
21/05/2012	20/06/2012	n.a.
21/06/2012	20/07/2012	n.a.
21/07/2012	20/08/2012	n.a.
21/08/2012	20/09/2012	n.a.
21/09/2012	20/10/2012	n.a.
21/10/2012	20/11/2012	n.a.
21/11/2012	20/12/2012	n.a.
21/12/2012	20/01/2013	n.a.
21/01/2013	20/02/2013	n.a.
21/02/2013	28/02/2013	n.a.
01/03/2013	20/03/2013	15,371.12
21/03/2013	20/04/2013	12,860.25
21/04/2013	20/05/2013	11,429.94
21/05/2013	20/06/2013	10,250.42
21/06/2013	20/07/2013	5,823.60
21/07/2013	20/08/2013	5,447.38
21/08/2013	20/09/2013	6,173.63
21/09/2013	20/10/2013	10,284.96

21/10/2013	20/11/2013	8,288.32
21/11/2013	20/12/2013	8,056.57
21/12/2013	20/01/2014	9,099.36
21/01/2014	20/02/2014	4,853.93
21/02/2014	28/02/2014	1,386.04
<b>Subtotal up to 31/12/2012</b>		<b>0</b>
<b>Subtotal from 01/01/2013 onwards</b>		<b>109,326</b>
<b>Total</b>		<b>109,326</b>

Hence, the emission reductions for this monitoring period were calculated as:

$$ER_y = BE_y = EG_{\text{facility},y} \times EF_{\text{grid,CM},y} = 109,326 \text{ MWh} \times 0.9309 \text{ tCO}_2/\text{MWh} = 101,771 \text{ tCO}_2$$

According to Annex 3 of EB69, “Standard for application of the global warming potential to clean development mechanism project activities and programmes of activities for the second commitment period of the Kyoto Protocol” /30/, all emission reductions and removals achieved by CDM project activities in the second commitment period shall be calculated using the global warming potentials (GWPs) adopted by the Conference of the Parties serving as the meeting of the Parties at its seventh session in accordance with decision 4/CMP.7, and this requirement shall apply from 1 January 2013. The proposed monitoring period starts before 31 December 2012 and ends on 28 February 2014, hence covers the 1<sup>st</sup> commitment period and 2<sup>nd</sup> commitment period. The project activity is a renewable newly-built wind project. According to the methodology ACM0002 (version 12.1.0) applied by the project and revised PDD, only the greenhouse gas CO<sub>2</sub> was included in the project boundary, and also considered in the emission reduction calculation. Hence, the verification team confirmed that there is no effect from Annex 3 of EB69 for the project activity in this monitoring period.

Further, the proposed monitoring period starts before 31 December 2012 and ends on 28 February 2014, hence covers the 1<sup>st</sup> commitment period and 2<sup>nd</sup> commitment period. According to “CDM monitoring report form” /31/, the actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved for the period up to 31 December 2012 (1<sup>st</sup> commitment period) and the period from 1 January 2013 onwards shall be provided respectively. Hence, emission reductions achieved during the monitoring period 11 April 2012 to 28 February 2014 are rounded down and verified by the verification team as /2/:

Item	Actual values achieved up to 31 December 2012 (11 April 2012 to 31 December 2012)	Actual values achieved from 1 January 2013 onwards (1 January 2013 to 28 February 2014)
<b>EG<sub>facility,y</sub> (MWh)</b>	0	109,326
<b>ER<sub>y</sub> (tCO<sub>2</sub>)</b>	0	101,771

### **Comparison of actual emission reductions or net anthropogenic GHG removals by sinks with estimates in the PDD**

The emission reductions claimed are 101,771 tCO<sub>2</sub>e in this monitoring period (i.e. 689 days). Compared with yearly expected emission reductions 96,159 tCO<sub>2</sub>e (365 days) in the revised PDD (corresponding to 181,517 tCO<sub>2</sub>e for this monitoring period), the reported emission reductions in this monitoring period are 43.93% lower than the expected.

However, the project was put into operation on 1 March 2013, the actual emission reductions 101,771 tCO<sub>2</sub>e were achieved only from 1 March 2013 to 28 February 2014 (i.e. 365 days). Compared with yearly expected emission reductions 96,159 tCO<sub>2</sub>e (365 days) in the revised PDD, the reported emission reductions (also net electricity generation by the project) are 5.84% higher than the estimated value in the PDD. CTI considered the higher net electricity generation by the project was due to the wind resource fluctuation. Further, as assessment in the PDD, only when the annual output increases more than 23.8%, the IRR of the project will exceed the benchmark of 8%. The electricity output for the project from 1 March 2013 to 28 February 2014 only increased 5.84%, thus the project IRR is lower than the benchmark of 8% and the project is still additional. Therefore, CTI is able to confirm that the actual power supply and also emission reductions reported in this monitoring period are reasonable and appropriate.

CTI verified the input data for calculating emission reductions and the calculating process, and confirmed the result were complete and transparent.

### **3.7 Quality of evidence to determine emission reductions**

All necessary documentations are collected, referenced and aggregated, which is easily accessible in hard-copy or electronic format. Measurements are performed by calibrated equipment, and the key data can also be cross-checked via other sources, such as records, receipts and inventory data. No assumptions are used that have any material influence on reported emission reductions.

CTI concludes that during this monitoring period, the evidences for determination of emission reductions are sufficient and reasonable, and the calculation of emission reductions is reliable.

### **3.8 Management and operational system**

China Water Group Huade Wind Power Co., Ltd is responsible for operation and routine maintenance of power plant under the CDM activity. The quality assurance and quality control procedures have been addressed in the CDM project management and monitoring manual /5/, including the organization structure with the responsibilities, personnel competencies, monitoring procedures and monitoring management. By interviewing with the staff /33/ and checking records /9/ during on-site visit, it can be confirmed that the monitoring management system is implemented following the CDM project management and monitoring manual.

All monitoring devices have been calibrated and maintained periodically to ensure the accuracy of measurement. Calibration records of instruments used in measurements were made available during the verification visit and found to be valid for the entire period of the verification. Competence and training records of in-plant personnel engaged in measurement of plant parameters were presented during verification and found to be in order /8/. All data have been archived electronically and/or in hard copy, and will be kept for two years after the end of the last crediting period.



#### 4 VERIFICATION AND CERTIFICATION STATEMENT

Shenzhen CTI International Certification Co., Ltd (CTI) has performed the verification of the emission reductions that have been reported for the CDM project activity 5992 “Inner Mongolia China Water Group Huade Niujiatangzi Wind Farm 49.5MW Project” in China for the period 11 April 2012 to 28 February 2014.

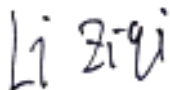
The verification is based on the baseline and monitoring methodology ACM0002 (version 12.1.0), the validated and revised PDD (version 2.0 dated 28 July 2014) and the monitoring report (version 2.0 dated 28 July 2014). The verification consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification and certification report.

The project participants are responsible for the collection, calculation and determination of the GHG data in accordance with the monitoring plan and the reporting of GHG emission reductions on the basis set out within the project monitoring report.

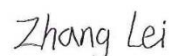
It is CTI's responsibility to provide an independent verification statement on the reported GHG emission reductions for the project. Based on an understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these, CTI planned and performed our work to obtain the information and explanations that we considered necessary to provide reasonable assurance that reported GHG emission reductions are fairly stated.

CTI can confirm that the GHG emission reductions are calculated without material misstatements. Based on the evidence and information that are considered necessary to guarantee that GHG emission reductions are appropriately calculated, CTI confirms the following statement:

Item	Reporting period (11 April 2012 to 28 February 2014)	Period up to 31 December 2012 (11 April 2012 to 31 December 2012)	Period from 1 January 2013 onwards (1 January 2013 to 28 February 2014)
Emission reductions (tCO <sub>2</sub> e)	101,771	0	101,771



Mr. Li Ziqi  
Team Leader  
28 August 2014



Mr. Zhang Lei  
Technical Reviewer  
28 August 2014

## 5 REFERENCES

### Documentation to verify the information provided by the project participants

- /1/ Eco-Tec Asia (UK) Ltd: Monitoring Report for Inner Mongolia China Water Group Huade Niujiatangzi Wind Farm 49.5MW Project, version 1.0 dated 16 June 2014 and version 2.0 dated 28 July 2014.
- /2/ Eco-Tec Asia (UK) Ltd Emission reduction calculation spreadsheet for Inner Mongolia China Water Group Huade Niujiatangzi Wind Farm 49.5MW Project, version 1.0 dated 16 June 2014 and version 2.0 dated 28 July 2014.
- /3/ Huade County Industrial and Commercial Administration: Business licence for China Water Group Huade Wind Power Co., Ltd, 1 April 2013.
- /4/ China Water Group Huade Wind Power Co., Ltd and Inner Mongolia Power (Group) Co., Ltd (on behalf of NCPG): Power purchase agreement for Inner Mongolia China Water Group Huade Niujiatangzi Wind Farm 49.5MW Project, signed on January 2013;
- /5/ China Water Group Huade Wind Power Co., Ltd: CDM monitoring manual and management procedure, March 2012.
- /6/ China Water Group Huade Wind Power Co., Ltd and Xinjiang Goldwind Technology Co., Ltd: Full operation acceptance for all wind turbines for Inner Mongolia China Water Group Huade Niujiatangzi Wind Farm 49.5MW Project.
- /7/ Ulanqab City Environmental Protection Bureau: Notification of check and acceptance on project environmental protection during project completion.
- /8/ China Water Group Huade Wind Power Co., Ltd: Planning and records of training for on-site staff, 18 February 2012.
- /9/ China Water Group Huade Wind Power Co., Ltd: Operation log sheets, from 11 April 2012 to 28 February 2014.
- /10/ China Water Group Huade Wind Power Co., Ltd: Monthly reading records of electricity imported and exported by Inner Mongolia China Water Group Huade Niujiatangzi Wind Farm 49.5MW Project, from 11 April 2012 to 28 February 2014.
- /11/ China Water Group Huade Wind Power Co., Ltd: Diagram of power connection system.
- /12/ Inner Mongolia Power (Group) Co., Ltd: Monthly electricity transaction notes of electricity export to and import from the grid, from 11 April 2012 to 28 February 2014.
- /13/ China Water Group Huade Wind Power Co., Ltd and Inner Mongolia Power (Group) Co., Ltd: Grid Connection Dispatch Agreement for Inner Mongolia China Water Group Huade Niujiatangzi Wind Farm 49.5MW Project, dated 1 March 2013.
- /14/ Inner Mongolia Autonomous Region Administration of Quality and Technology Supervision: Accreditation certificate of Inner Mongolia Electric Power Research Institute Electric Metering Testing Centre issued on 2 January 2009 and valid to 1 January 2014;  
Inner Mongolia Autonomous Region Administration of Quality and Technology Supervision: Accreditation certificate of Ulanqab Electric Power Bureau issued on 2 January 2009 and valid to 1 January 2014;  
Inner Mongolia Autonomous Region Administration of Quality and Technology

- Supervision: Accreditation certificate of Inner Mongolia Ke Gao Electric Technology Testing Co., Ltd issued on 4 May 2012 and valid to 3 May 2015.
- /15/ Inner Mongolia Electric Power Research Institute Electric Metering Testing Centre: Calibration certificates for meter M<sub>g1</sub> and M<sub>g2</sub>, issued on 4 March 2012, 1 June 2012 and 22 March 2013;  
Calibration certificates for M<sub>e1</sub> and M<sub>e2</sub>, issued on 3 March 2012, 31 May 2012 and 22 March 2013.
- /16/ Ulanqab Electric Power Bureau: Calibration certificates for meter M<sub>1.1</sub>, M<sub>1.2</sub>, M<sub>1.3</sub>, M<sub>1.4</sub>, M<sub>2.1</sub>, M<sub>2.2</sub>, M<sub>2.3</sub>, M<sub>3.1</sub>, M<sub>3.2</sub>, M<sub>3.3</sub>, M<sub>4.1</sub>, M<sub>4.2</sub>, M<sub>4.3</sub>, M<sub>5.1</sub>, M<sub>5.2</sub>, M<sub>5.3</sub>, M<sub>6.1</sub>, M<sub>6.2</sub>, M<sub>6.3</sub>, M<sub>7.1</sub>, M<sub>7.2</sub>, M<sub>7.3</sub>, M<sub>8.1</sub>, M<sub>8.2</sub>, M<sub>8.3</sub>, issued on 1 February 2012;  
Calibration certificates for meter M<sub>A</sub>, M<sub>B</sub>, M<sub>C</sub>, M<sub>D</sub> and M<sub>E</sub>, issued on 1 February 2012 and 1 May 2012.
- /17/ Inner Mongolia Ke Gao Electric Technology Testing Co., Ltd: Calibration certificates for meter M<sub>1.1</sub>, M<sub>1.2</sub>, M<sub>1.3</sub>, M<sub>1.4</sub>, M<sub>2.1</sub>, M<sub>2.2</sub>, M<sub>2.3</sub>, M<sub>3.1</sub>, M<sub>3.2</sub>, M<sub>3.3</sub>, M<sub>4.1</sub>, M<sub>4.2</sub>, M<sub>4.3</sub>, M<sub>5.1</sub>, M<sub>5.2</sub>, M<sub>5.3</sub>, M<sub>6.1</sub>, M<sub>6.2</sub>, M<sub>6.3</sub>, M<sub>7.1</sub>, M<sub>7.2</sub>, M<sub>7.3</sub>, M<sub>8.1</sub>, M<sub>8.2</sub> and M<sub>8.3</sub>, issued on 10 July 2012 and 7 July 2013;  
Calibration certificates for meters M<sub>A</sub>, M<sub>B</sub>, M<sub>C</sub>, M<sub>D</sub> and M<sub>E</sub>, issued on 1 April 2013.
- /18/ Quality and Technical Inspection Bureau of the People's Republic of China: AC power meter field calibration specifications (JJG1055-1997);  
State Economic and Trade Commission: Technical Administrative Code of Electric Energy Metering (DL/T448-2000);  
Quality and Technical Inspection Bureau of the People's Republic of China: Verification regulation of electrical energy meters with electronics (JJG596 - 1999).
- /19/ China Water Group Huade Wind Power Co., Ltd and Xinjiang Goldwind Technology Co., Ltd.: Wind turbines purchase agreement for Inner Mongolia China Water Group Huade Niujiafangzi Wind Farm 49.5MW Project, dated 30 May 2010.
- /20/ Eco-Tec Asia (UK) Ltd: CDM-PDD for project activity Inner Mongolia China Water Group Huade Niujiafangzi Wind Farm 49.5MW Project, Version 1.4 dated 27 March 2012.
- /21/ TÜV Rheinland (China) Ltd: Validation report for project activity Inner Mongolia China Water Group Huade Niujiafangzi Wind Farm 49.5MW Project, Version 06 dated 27 March 2012.
- /22/ Eco-Tec Asia (UK) Ltd: Revised Project Design Document for project activity Inner Mongolia China Water Group Huade Niujiafangzi Wind Farm 49.5MW Project, version 2.0 dated 28 July 2014; the revised Project Design Document is submitted together with the assessment of the post registration changes for acceptance by the CDM EB as part of the request for issuance for this monitoring period.
- /23/ CTI: Validation opinion for the post registration change, dated 19 August 2014.
- /24/ Inner Mongolia Power Dispatching and Communicating Centre: The explanation about the name change of Niujiafang wind farm.
- /25/ Inner Mongolia Power Dispatching and Communicating Centre: The explanation about the information of M<sub>A</sub>.

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

- /26/ CDM Executive Board: CDM Validation and Verification Standard, version 7.0.
- /27/ CDM Executive Board: CDM Project Standard, version 7.0.
- /28/ CDM Executive Board: CDM Project Cycle Procedure, version 7.0.
- /29/ CDM Executive Board: Consolidated baseline methodology for grid-connected electricity generation from renewable sources, ACM0002, version 12.1.0.
- /30/ CDM Executive Board: Standard for application of the global warming potential to clean development mechanism project activities and programmes of activities for the second commitment period of the Kyoto Protocol, Annex 3 of EB69, 13 September 2012.
- /31/ CDM Executive Board: CDM monitoring report form, version 4.0.

**Persons interviewed**

- /32/ Eco-Tec Asia (UK) Ltd:  
Ms. Zhao Qian, CDM manager;
- /33/ China Water Group Huade Wind Power Co., Ltd:  
Mr. Zhang Peng, Project manager
- /34/ Inner Mongolia Power (Group) Co., Ltd  
Mr. Wang Hua, 220kV Xingguang substation staff.

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## **APPENDIX A**

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### **CDM VERIFICATION PROTOCOL**

**Table 1: Verification requirements**

Checklist question	Ref.	MoV*	Verification findings	Draft Concl.	Final Concl.
<b>1. General checklist</b>					
1.1 Is the MR template valid?	/31/	DR	Yes. The version of MR template has been valid.	OK	OK
1.2 Have all open issues identified in the validation report and/or previous verification report been resolved by the project participant?	/21/	DR	This monitoring period 11 April 2012 to 28 February 2014 is the first verification of the project. No remaining issues were identified in the validation report.	OK	OK
<b>2. Verification Compliance</b>					
2.1 Has the implementation and operation of the project activity has been conducted in accordance with the description contained in the registered PDD?	/20/	DR /I	In the page 9 and page 40 of the registered PDD, it clearly stated that the meters M <sub>D</sub> and M <sub>E</sub> are location at Niujiatangzi 220 kV Booster Station. However, during on site visit, CTI found the name of the Booster Station is Niujiatang. The clarifications are sought on such inconsistency.	CL1	OK
2.2 Has any deviation or the proposed or actual changes in the implementation or operation of the project activity? Does the change comply with the requirements of the Project Standard?	/20/ /27/	DR /I	Refer to section 2.1 above.	CL1	OK
2.3 If the project activity is implemented on a number of different locations, has the Monitoring report provided the verifiable starting dates for each site?	/20/	DR /I	The project is a 49.5 MW wind power farm, only located at one site, i.e., Changshun Town, Huade County, Ulanqab City, Inner Mongolia Autonomous Region of China.	OK	OK

\* MoV = Means of Verification, DR = Document Review, I = Interview, www = internet search.

3. Monitoring methodology					
3.1	Is the monitoring plan established in accordance with the monitoring methodology?	/20/ /29/	DR /I	CTI is able to confirm that the monitoring plan in the registered PDD (Version 1. dated 27 March 2012) is in accordance with the approved methodology applied by the project activity, i.e. ACM0002 (version 12.1.0).	OK  OK
3.2	In case the implemented monitoring plan defers from the monitoring methodology, has any requests for revision to or deviation from the monitoring methodology been officially communicated to the CDM EB?	/20/ /27/	DR /I	There were no post registration changes to the monitoring methodology identified by CTI to this verification.	OK  OK
3.2.1	Have the above changes to the monitoring methodology been approved by the CDM EB?	/20/ /27/	DR /I	There were no post registration changes to the monitoring methodology identified by CTI during this verification.	OK  OK
4. Monitoring plan					
4.1	Is monitoring established in full compliance with the monitoring plan, contained in the registered PDD (or new monitoring plan approved by the CDM EB)?	/20/	DR /I	<p>In the page 43 of the registered PDD, it clearly stated that “The grid company and the Project owner will record the amount of the net electricity delivered to the NCPG from the meters on the last day of every month”. However, by checking the PPA and crosschecking against the ETNs, CTI found that the grid company and the Project owner recorded the amount of the electricity exported to the grid and the electricity imported from the grid on the 20<sup>th</sup> of every month. The clarification is sought on such inconsistency.</p> <p>In the page 9 of the registered PDD, it clearly stated that the meter M<sub>A</sub> is the uni-</p>	<del>CL-2</del>  OK

			directional meter, and the accuracy is 0.5S. However, during the site visit, CTI found the meter M <sub>A</sub> is the bi-directional meter, and the accuracy is 0.2S.	CL-3	
4.2 Are all emission parameters monitored and updated in accordance with monitoring plan, monitoring methodology and relevant CDM EB decisions?	/20/ /29/	DR /I	All parameters required to be monitored by the monitoring plan as per the monitoring methodology ACM0002 (version 12.1.0) and the management system were assessed. .	OK	OK
4.2.1 Was the monitoring equipment for emission parameters controlled and monitoring results recorded as per approved frequency?	/20/ /29/	DR /I	The monitoring equipment for emission parameters continuously monitored and monitoring results monthly recorded which are in line with the approved frequency.	OK	OK
4.2.2 Was the monitoring equipment for emission parameters calibrated in accordance with QA&QC procedures described in the registered monitoring plan?	/15/ /16/	DR /I	During on-site visit, CTI confirmed that the metering equipment have been installed according to the registered PDD. However, the calibration information of all meters was not found in the MR. Thus, a corrective action is requested.	CAR-1	OK
4.2.3 If during verification of a certain monitoring period, the calibration has been delayed and the calibration has been implemented after the monitoring period in consideration (i.e. the results of delayed calibration are available), how to calculate emission reductions in a conservative approach?	/15/ /16/	DR /I	The calibration frequency of meters is annual, which is in line with the information in the PDD as “The electricity meters will be calibrated and checked annually for accuracy in accordance with the <i>Technical Administrative Code of Electric Energy Metering (DL/T448-2000)</i> , <i>Verification regulation of electrical energy meters with electronics (JJG596 - 1999)</i> and the <i>AC power meter field calibration specifications (JJG1055-1997)</i> ”.	OK	OK
4.2.4 In cases where the results of the delayed calibration are not available, or the calibration has not been	/15/ /16/	DR /I	The calibration frequency of meters is annual, which is in line with the	OK	OK



conducted at the time of verification, how to calculate emission reductions in a conservative approach?			information in the PDD as “The electricity meters will be calibrated and checked annually for accuracy in accordance with the <i>Technical Administrative Code of Electric Energy Metering (DL/T448-2000)</i> , <i>Verification regulation of electrical energy meters with electronics (JJG596 - 1999)</i> and the <i>AC power meter field calibration specifications (JJG1055-1997)</i> ”.		
4.2.5 In cases, it is not possible for the project participants to conduct the calibration at a frequency specified by either the applied methodology, guidance provided by the Board, and/or the registered monitoring plan due to reasons beyond the control of project participants, how to calculate emission reductions in a conservative approach?	/15/ /16/	DR /I	The calibration frequency of meters is annual, which is in line with the information in the PDD as “The electricity meters will be calibrated and checked annually for accuracy in accordance with the <i>Technical Administrative Code of Electric Energy Metering (DL/T448-2000)</i> , <i>Verification regulation of electrical energy meters with electronics (JJG596 - 1999)</i> and the <i>AC power meter field calibration specifications (JJG1055-1997)</i> ”.	OK	OK
4.2.6 In cases where neither the monitoring methodology nor the monitoring plan specify any requirements for calibration frequency for measuring equipments, how to identify the calibration frequency?	/15/ /16/ /20/	DR /I	The calibration frequency of meters is annual, which is in line with the information in the PDD as “The electricity meters will be calibrated and checked annually for accuracy in accordance with the <i>Technical Administrative Code of Electric Energy Metering (DL/T448-2000)</i> , <i>Verification regulation of electrical energy meters with electronics (JJG596 - 1999)</i> and the <i>AC power meter field calibration specifications (JJG1055-1997)</i> ”.	OK	OK
4.3 Were all monitoring parameters available and verifiable through the whole monitoring period?	/15/ /16/	DR /I	All monitoring parameters are available and verifiable through the whole	OK	OK

			monitoring period except the electricity imported from the grid ( $ES_{j,i, import,y}$ ). The temporary deviation from the registered monitoring plan was assessed, and the conservative method was taken to calculate the emission reductions.		
4.4 Was management and operation system established and operated in accordance with the monitoring plan?	/9/ /32/	DR /I	All necessary documentations are collected, referenced and aggregated. The quality assurance and quality control procedures have been addressed in the CDM project management and monitoring manual, including the organization structure with the responsibilities, personnel competencies, monitoring procedures and monitoring management. All monitoring devices have been calibrated and maintained periodically to ensure the accuracy of measurement. By interview with the staff and check records during on-site visit, it can be confirmed that the monitoring management system is in place.	OK	OK
4.5 Was is it possible to verify that involved management and operation personal is fully aware of the responsibilities and perform all operations according to the registered monitoring plan and internally developed manuals?	/5/ /9/ /32/	DR /I	China Water Group Huade Wind Power Co., Ltd is responsible for operation and routine maintenance of power plant under the CDM activity. The quality assurance and quality control procedures have been addressed in the CDM project management and monitoring manual, including the organization structure with the responsibilities, personnel competencies, monitoring procedures and monitoring management. By interview	OK	OK

			with the staff and check records during on-site visit, it can be confirmed that the monitoring management system is implemented following the CDM project management and monitoring manual.			
5. Parameters						
5.1	<p>Monitored parameter</p> <p>Title: <math>EG_{\text{facility}, y}</math></p> <p>Indication: Net electricity generation supplied by the Project to the grid</p> <p>Title: <math>ES_{\text{total}, \text{import}, y}</math></p> <p>Indication: Total electricity imported from the grid by all the 8 projects (including the Project)</p> <p>Title: <math>ES_{\text{total}, \text{export}, y}</math></p> <p>Indication: Total electricity exported to the grid by all the 8 projects (including the Project)</p> <p>Title: <math>ES_{p, \text{import}, y}</math></p> <p>Indication: The amount of electricity imported from the grid to the wind farm connected to the transformer p (p=A, B, C, D, E)</p> <p>Title: <math>ES_{p, \text{export}, y}</math></p> <p>Indication: The amount of electricity exported to the grid from the wind farm connected to the transformer p (p=A, B, C, D, E)</p> <p>Title: <math>ES_{j, i, \text{import}, y}</math></p> <p>Indication: Electricity imported from the grid to the Phase j project (j=I, II, III, IV, V, VI, VII,</p>	<p>/2/ /10/ /11/ /12/</p>	DR /I	<p>34 metering equipments will be installed at the project site and grid company. The verification team has on-site checked the location of the meters against the diagram of power connection system and found them to be consistent, and also installed in accordance with the revised PDD. The net electricity generation supplied by the Project to the grid <math>EG_{\text{facility}, y}</math> is calculated with the formula&lt;1&gt;:</p> <p>.</p> <p>Data in the monthly reading records were used to the report, through a cross check with the ETNs, and the conservative values from electricity export and import were applied to calculate the net electricity supplied to the grid by the project. The data reported in the monitoring report and ERs calculation spreadsheet has been verified by the verification team. Supporting references and data required to determine the net electricity supplied to the grid by the project is found to be complete and transparent.</p>	OK	OK

<p>VIII) part i (i=1, 2, 3, 4 for Phase I project, i=1, 2, 3 for the other 7 projects)</p> <p>Title: <math>ES_{j,i,export,y}</math></p> <p>Indication: Electricity exported to the grid by the Phase j project (j=I, II, III, IV, V, VI, VII, VIII) part i (i=1, 2, 3, 4 for Phase I project, i=1, 2, 3 for the other 7 projects)</p>					
<p>5.2 <b>Default parameter</b></p> <p>Title: <math>EF_{grid,CM,y}</math></p> <p>Indication: Grid emission factor</p>	/20/	DR /I	<p><math>EF_{grid,CM,y}</math> is emission factor of the grid, which was calculated <i>ex-ante</i> and will not be updated during the fixed crediting period. <math>EF_{grid,CM,y}</math> of the project in the PDD is 0.9309 tCO<sub>2</sub>/MWh.</p>	OK	OK
<p><b>6. Calculations</b></p>					
<p>6.1 Have all the calculations related to the baseline emissions been carried according to the formula and methods described in the registered PDD and applied methodology?</p>	<p>/2/ /10/ /12/ /20/</p>	DR /I	<p>The emission reductions <math>ER_y</math> by the project activity during the crediting period are accounted as:</p> $ER_y = BE_y = EG_{facility,y} \times EF_{grid,CM,y}$ <p><math>EF_{grid,CM,y}</math> is emission factor of the grid, which was calculated <i>ex-ante</i> and will not be updated during the fixed crediting period. <math>EF_{grid,CM,y}</math> of the project in the PDD is 0.9309 tCO<sub>2</sub>/MWh.</p> <p>By checking the original records from meters and crosschecking against the ETNs, CTI found the following quantities described in the MR are incorrect, and the dates of monitoring meters must be covered whole monitoring period:</p> <ul style="list-style-type: none"> <li>- The quantities of the total electricity exported in March 2013 and February 2014;</li> </ul>	CAR-2	OK

			- The quantities of the total electricity imported in March 2013, September 2013 and February 2014.		
6.2 Have all the calculations related to the project emissions been carried according to the formula and methods described in the registered PDD and applied methodology?	/20/	DR	Project emissions do not need to be accounted for this project as per the applied methodology.	OK	OK
6.3 Have all the calculations related to the leakage emissions been carried according to the formula and methods described in the registered PDD and applied methodology?	/20/	DR	Leakage does not need to be accounted for this project as per the applied methodology.	OK	OK

**Table 2 Resolution of corrective action requests and clarification requests**

CAR/CL requests by verification team	Summary of project participant response	Verification team conclusion
<p>CAR 1:</p> <p>During on-site visit, CTI confirmed that the metering equipments have been installed according to the registered PDD. However, the calibration information of all meters was not found in the MR. Thus, a corrective action is requested.</p>	<p>The calibration information of all meters involved in the registered monitoring plan has been added into the MR.</p>	<p>OK</p> <p>The calibration information of the meters has been verified by verification team and added in the updated MR.</p> <p>CAR 1 is closed.</p>
<p>CAR 2:</p> <p>By checking the original records from meters and crosschecking against the ETNs, CTI found the following quantities described in the MR are incorrect, and the dates of monitoring meters must be covered whole monitoring period:</p> <ul style="list-style-type: none"> <li>- The quantities of the total electricity exported in March 2013 and February 2014;</li> <li>- The quantities of the total electricity imported in March 2013, September 2013 and February 2014.</li> </ul>	<p>The MR has been revised accordingly.</p>	<p>OK.</p> <p>The corrections have been addressed in the updated MR and verified by CTI.</p> <p>CAR 2 is closed.</p>

<p>CL1:</p> <p>In the page 9 and page 40 of the registered PDD, it clearly stated that the meters M<sub>D</sub> and M<sub>E</sub> are location at Niujiatangzi 220 kV Booster Station. However, during on site visit, CTI found the name of the Booster Station is Niujiatang. The clarifications are sought on such inconsistency.</p>	<p>By the time the registered PDD was submitted, the referred booster station for phase V~VIII projects (i.e. Niujiatangzi, Sitaifangzi, Erligetu and Cheliwusu) was still under construction, the registered PDD stated the booster station's name as "Niujiatangzi" based on the Project owner's estimation because the booster station was located at Niujiatangzi village. And the former MR took this name from the registered PDD. However, this name has been set as "Niujiatang" in the power dispatching management system by the grid company when signing the Grid Connection Agreement with Inner Mongolia Power Dispatching and Communicating Center, in order to differentiate it from the Phase V project (Niujiatangzi project). The MR and the registered PDD should and has been revised accordingly. Please refer to the submitted evidence "CL 1_explanation of booster station name".</p>	<p>By checking the Grid Connection Dispatch Agreement and interview the staff of Power Grid Company during the site visit, CTI found the booster station is named "Niujiatang booster station". The explanation issued by Inner Mongolia Power Dispatching and Communicating Centre noted that the name of the booster station is "Niujiatang booster station" based on differentiate it from the Phase V project (Niujiatangzi project) /24/, and was nominated by local grid company. CTI confirmed that such change is out of control of project participants and happened prior to the project implementation. The assessment of the correction is submitted together with the revised PDD for acceptance by the CDM EB as part of the request for issuance for this monitoring period.</p> <p>Therefore, CL 1 is closed.</p>
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<p>CL 2:</p> <p>In the page 43 of the registered PDD, it clearly stated that “The grid company and the Project owner will record the amount of the net electricity delivered to the NCPG from the meters on the last day of every month”. However, by checking the PPA and crosschecking against the ETNs, CTI found that the grid company and the Project owner recorded the amount of the net electricity supplied to the NCPG from the meters on the 20<sup>th</sup> of every month. The clarification is sought on such inconsistency.</p>	<p>By the time the registered PDD was submitted, the PPA of the Project has not been signed yet. The PDD stated the last day of every month as the day to record electricity amount as estimation based on the former practice. However, this date has been set as 20<sup>th</sup> of every month when the PPA was signed. The PDD should and has been revised accordingly.</p>	<p>By checking the validation report and PPA, and interviewing with project participants, CTI confirmed that the settlement time of the meters was estimated in the validated stage by the project participants in the registered PDD as the last day of every month to record electricity amount based on the former practice, and was finally determined by the grid company appointed in the PPA as 20<sup>th</sup> of every month. The change is not within the control of project participants.</p> <p>The assessment of the change is submitted together with the revised PDD for acceptance by the CDM EB as part of the request for issuance for this monitoring period.</p> <p>CTI was able to confirm that the settlement time change for the project would not affect the emission reduction calculation of project activity and does not require prior approval as per paragraph 1 of Appendix 1 of Project Standard. The revised monitoring plan is in line with the applied methodology ACM0002 (version 12.1.0),</p> <p>Therefore, CL 2 is closed.</p>
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CL 3: In the page 9 of the registered PDD, it clearly stated that the meter M <sub>A</sub> is the uni-directional meter, and the accuracy is 0.5S. However, during the site visit, CTI found the meter M <sub>A</sub> is the bi-directional meter, and the accuracy is 0.2S. The clarification is sought on such inconsistency.	The meter M <sub>A</sub> has been updated to a bi-directional 0.2S meter before this monitoring period. The reason is that the Phase I project and Changshun Booster station where M <sub>A</sub> installed started construction in September 2008, when the Phase 2~Phase 8 projects had not been planned yet. A 0.5S uni-directional M <sub>A</sub> was installed then by the project owner for their on-site measurement for Phase 1 project only. However, when the Phase 2~Phase 8 projects started construction, their respective M <sub>B</sub> ~ M <sub>E</sub> were planned to use 0.2S bi-directional meters to meet higher measurement requirements. And so there has been a replacement of meter M <sub>A</sub> , changing from a 0.5S uni-directional meter to the current 0.2S bi-directional meter to be consistent with the Phase 2~Phase 8 projects since 27/11/2010, before the registration date and crediting period of the Project. The registered PDD took the old meter information; it should and has been revised to the current information.	By checking the PPA and the evidence for the information of M <sub>A</sub> has been confirmed by Inner Mongolia Power Dispatching and Communicating Centre /25/, and interviewing with project participants, CTI confirmed that the meter M <sub>A</sub> is a bi-directional meter and the accuracy is 0.2S base on the unified planning by Inner Mongolia Power Dispatching and Communicating Centre. The meter M <sub>A</sub> has been replaced before the registration date and crediting period of the Project, the accuracy of the meter M <sub>A</sub> is 0.2S, which is higher than the requirements in the registered PDD and the change would not negative affect the emission reduction calculation of project activity. The change is not within the control of project participants and the assessment of the change is submitted together with the revised PDD for acceptance by the CDM EB as part of the request for issuance for this monitoring period.  CL 3 is closed.
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**Table 3 Forward action requests from this verification**

FAR ID	Forward action request	Summary of project participant response	Verification team conclusion
NA	NA	NA	NA

## **APPENDIX B**

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### **POST REGISTRATION CHANGES**

Type of post registration change	Description of post registration change*	Is prior approval by CDM EB required**?	In case prior approval by CDM EB is required, when was post registration change approved?
Corrections	In the page 9 and page 40 of the registered PDD, it clearly stated that the meters M <sub>D</sub> and M <sub>E</sub> are location at Niujiatangzi 220 kV Booster Station. However, during on site visit, CTI found the name of the Booster Station is Niujiatang. The error has been corrected in the revised PDD. Detail description refers to the validation opinion on the PRC.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<i>Not applicable</i>
Temporary deviations from the registered monitoring plan and/or monitoring methodology	In the page 39 of the registered PDD, it clearly stated that the EG <sub>facility,y</sub> can be calculated the Formula <1>. During this monitoring period, all parameters in Formula <1> have been monitored and recorded except for ES <sub>j,i,import,y</sub> . The incompleteness and loss of monitoring data for 8 projects from these meters in some months during this monitoring period were reported by the project participants. The project participants were thus temporarily unable to monitor the ES <sub>j,i,import,y</sub> in accordance with the registered monitoring plan in the duration of 11 April 2012 to 28 February 2014. To be conservative, the total amount of electricity imported from the grid to all 8 projects was applied as the electricity imported from the grid for the proposed project in this monitoring period. Detail description refers to the validation opinion on the PRC.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<i>Not applicable</i>
Permanent changes from the registered monitoring plan or applied methodology	In the page 42 of the registered PDD, it clearly stated that “The grid company and the Project owner will record the amount of the net electricity delivered to the NCPG from the meters on the last day of every month”. However, by checking the PPA and crosschecking against the ETNs, CTI found that the grid company and the Project owner recorded these data on the 20 <sup>th</sup> of every month.  In the page 9 of the registered PDD, it clearly stated that the meter M <sub>A</sub> is the uni-directional meter, and the accuracy is	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<i>Not applicable</i>

	0.5S. However, during the site visit, CTI found the meter M <sub>A</sub> is the bi-directional meter, and the accuracy is 0.2S. The changes have been corrected in the revised PDD. Detail description refers to the validation opinion on the PRC.		
Changes to the start date of the crediting period	<i>Not applicable</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<i>Not applicable</i>
Changes to the project or programme design of a registered project activity or PoA	<i>Not applicable</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<i>Not applicable</i>
Changes specific to afforestation or reforestation project activities	<i>Not applicable</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<i>Not applicable</i>

\* For further details refer to the “Post-registration changes request form” (F-CDM-PRC) and CTI’s assessment opinion on the changes;

\*\* Refer to Appendix 1 to the CDM Project Standard.

## **APPENDIX C**

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### **CERTIFICATE OF COMPETENCE**

## CERTIFICATE OF APPOINTMENT

**Mr. Li Ziqi**

Born on 31/10/1984

Satisfies the requirements of the Certification Body of CTI and is hereby appointed as:

Qualification as						
Status	GHG Auditor	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date	05/05/2013	01/11/2013	01/11/2013	01/11/2013	-	-

Qualification in the scope and technical area		
Scope	Technical area	Date
SS 1: Energy industries (renewable/nonrenewable sources)	TA 1.2: Energy generation from renewable energy sources	05/05/2013

This appointment is valid for 3 years from its date of approval below and is bound by internal requirements of management system of the Certification Body of CTI.

Approved by:

Lin Wu

Technical competent manager

Shenzhen, 01/11/2013

## CERTIFICATE OF APPOINTMENT

**Mr. Zhang Lei**

Born on 03/12/1981

Satisfies the requirements of the Certification Body of CTI and is hereby appointed as:

Qualification as						
Status	GHG Auditor	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date	05/05/2013	05/05/2013	05/05/2013	05/05/2013	05/05/2013	05/05/2013

Qualification in the scope and technical area		
Scope	Technical area	Date
SS 1: Energy industries (renewable/nonrenewable sources)	TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar	01/03/2014
	TA 1.2: Energy generation from renewable energy sources	05/05/2013
SS 4: Manufacturing industries	TA 4.1: Cement TA 4.3: Iron and steel TA 4.4: Refinery	05/05/2013
SS 13: Waste handling and disposal	TA 13.1: Waste handling and disposal	05/05/2013
	TA 13.2: Animal waste management	05/05/2013

This appointment is valid for 3 years from its date of approval below and is bound by internal requirements of management system of the Certification Body of CTI.

Approved by:

Lin Wu

Technical competent manager

Shenzhen, 01/03/20144

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