Verification and certification report form for CDM project activities

(Version 01.0)

Complete this form in accordance with the "Attachment: Instructions for filling out the verification and certification report form for CDM project activities" at the end of this form.

VERICATION AND CERTIFICATION REPORT	
Title of the project activity	Inner Mongolia China Water Group Huade Niujiafangzi Wind Farm 49.5MW Project
Reference number of the project activity	5992
Version number of the verification and certification report	Version 01.0
Completion date of the verification and certification report	10/11/2015
Monitoring period number and duration of this monitoring period	Second monitoring period 01/03/2014-20/08/2015
Version number of monitoring report to which this report applies	Version 2.0
Crediting period of the project activity corresponding to this monitoring period	Type: Renewable Start data: 11/04/2012 Length: 10 years
Project participant(s)	China Water Group Huade Wind Power Co., Ltd (Project owner) Eco Asset Inc. (buyer) Amsterdam Capital Trading B.V. (buyer)
Host Party	People's Republic of China
Sectoral scope(s), selected methodology(ies), and where applicable, selected standardized baseline(s)	Sectoral scope 1: Energy industries (renewable-/non-renewable sources) Selected methodology : ACM0002 (version 12.1.0)
Estimated GHG emission reductions or net anthropogenic GHG removals for this monitoring period in the registered PDD	141,736tCO_2e
Certified GHG emission reductions or net anthropogenic GHG removals for this monitoring period	129,003tCO_2e
Name of DOE	Shenzhen CTI International Certification Co., Ltd (CTI)
Name, position and signature of the approver of the verification and certification report	Zhou Lu, General Manager

SECTION A. Executive summary

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Shenzhen CTI International Certification Co., Ltd (CTI) has performed the verification of the emission reductions reported for the "Inner Mongolia China Water Group Huade Niujiafangzi Wind Farm 49.5MW Project" in China (UNFCCC Ref. No. 5992) for the period 01/03/2014-20/08/2015. The project is a 49.5 MW wind power farm and locates at Changshun Town, Huade County, Ulanqab City, Inner Mongolia Autonomous Region of China. The centre geographical coordinates of the wind farm are east longitude 113.8868° and north latitude 41.7890°. The project activity was registered as a CDM project on 11/04/2012 and the fixed crediting period starts on 11/04/2012. The selected monitoring period 01/03/2014-20/08/2015 is the 2nd monitoring period of the project, which is within the fixed crediting period 11/04/2012-10/04/2022. 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, the electricity generated by the project activity was supplied to the North China Power Grid (hereafter referred to as "NCPG"), and the project is estimated to deliver 96,159 tonnes CO_2 emission reduction annually.

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 team identified two CARs in this monitoring period, and no CL or FAR was raised. The CARs were satisfactorily addressed by the project participants in the revised monitoring report (refer to Appendix 4 for further details). All changes made to the monitoring report (version 2.0 dated 05/11/2015) are as a result of the verification findings.

In CTI's opinion, the GHG emission reductions reported for the project in the monitoring report (version 2.0 dated 05/11/2015) 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 Project Design Document (version 2.0 dated 28/07/2014).

CTI confirmed 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 Niujiafangzi Wind Farm 49.5MW Project during the period 01/03/2014-20/08/2015 amount to 129,003tCO_2e.

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team member

No.	Role	Type of resource	Last name	First name	Affiliation	Involvement in			
						Desk review	On-site inspection	Interview(s)	Verification findings
1.	Team Leader	IR	Li	Ziqi	N/A	√	√	√	√
2	Verifier	IR	Wang	Guolian	N/A	√	√	√	√

B.2. Technical reviewer and approver of the verification and certification report

No.	Role	Type of resource	Last name	First name	Affiliation
1.	Technical reviewer	IR	Lin	Shunrong	N/A
2.	Approver	IR	Zhou	Lu	N/A

SECTION C. Application of materiality

C.1. Consideration of materiality in planning the verification

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	Human error in the quantification of emissions (which may be more likely to occur if personnel are unfamiliar with, or not well trained regarding, emissions processes or data recording);	Low	The project owner has established the CDM monitoring and management manual and appointed the CDM technical staffs, CDM accountant staffs and CDM manager which were trained to responsible for power meters reading and recording, auditing of these metered data. The installation and calibration of monitoring meters was also stipulated in the manual. The CDM monitoring and management manual has also established	Depending on the monitoring period being verified, conduct increased sampling during the months when there is a greater likelihood of errors and issues with data quality control due to project participants' leave schedules.
2.	Undue reliance on a poorly designed information system, which may have few effective quality controls; for example, the use of spreadsheets without adequate controls related to data	Low		Depending on the monitoring period being verified, conduct increased sampling during the months when there is a greater likelihood of errors and issues with data quality control due to project participants' leave schedules.

	changes/updates, version tracking, traceability, security, etc.		the QA/QC procedure to ensure the veracity and validity of the monitoring procedure and monitoring records. So the risk level is low.	
3.	Manual adjustment of otherwise automatically recorded activity levels; for example, manual input may be required if a flare meter becomes overloaded.	Low		Depending on how data is generated, processed, and reported, place greater emphasis on verifying data captured and processed manually and/or in spreadsheets versus those that are generated from an automated system.

C.2. Consideration of materiality in conducting the verification

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(1) As per the "Application of materiality in verifications (Version 02.0)" which enters into force on 01/04/2015, the project is a large-scale CDM project activity achieving total emission reductions of <300,000 tons of CO_2e per year; as such, a 2 per cent materiality threshold is applied.

(2) The parameters used for determining the project's baseline emissions are the monitoring of $ES_{total, export, y}$, which according to the monitoring plan are recorded at 24:00 of the 20th of each month and the data was collected to the monthly reading records. By cross-checking all the monthly reading records against ETNs, CTI confirms that all values of parameters are corrected.

(3) No errors are identified in the additional data set, and the DOE proceeds with the remaining elements of the verification as defined in its verification plan.

SECTION D. Means of verification

D.1. Desk review

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The monitoring report was published on UNFCCC website on 25/09/2015. In addition to the monitoring report (version 1.0 dated 24/09/2015 and updated version 2.0 dated 05/11/2015) /1/, CTI reviewed:

- The PDD for the project activity /22//24/, including the monitoring plan and the corresponding validation report /23//25/;
- Previous verification reports /26/
- Baseline and monitoring methodology ACM0002 (version 12.1.0) applied by the project /30/;
- Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board /27/ -/29//31//32//33/; and
- Other information and references relevant to the project activity /2/-/21/.

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.

D.2. On-site inspection

Duration of on-site inspection: 20/10/2015				
No.	**Activity performed on-site**	**Site location**	**Date**	**Team member**
1.	An assessment of the implementation and operation of the registered project activity is as per the PDD for the project activity	The project plant and the transformer station	20/10/2015	Li Ziqi, Wang Guolian
2.	A review of information flows for generating, aggregating and reporting the monitoring parameters	The office of the project.	20/10/2015	Li Ziqi, Wang Guolian
3.	Determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the PDD	The office of the project.	20/10/2015	Li Ziqi, Wang Guolian
4.	A cross-check between information provided in the monitoring report and data from other sources such as plant logbooks and electricity sale receipts	The project plant and the office of the project.	20/10/2015	Li Ziqi, Wang Guolian
5.	A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PDD and the selected methodology	The project plant, the transformer station and the office of the project.	20/10/2015	Li Ziqi, Wang Guolian
6.	A review of calculations and assumptions made in determining the GHG data and emission reductions	The office of the project.	20/10/2015	Li Ziqi, Wang Guolian
7.	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 project plant, the transformer station and the office of the project.	20/10/2015	Li Ziqi, Wang Guolian

D.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Zhao	Qian	Eco-Tec Asia (UK) Ltd	20/10/2015	- Project design and implementation - Monitoring Plan - Monitoring data and Monitoring Report - GHG Calculations	Li Ziqi, Wang Guolian
2	Zhang	Peng	China Water Group Huade Wind Power Co., Ltd	20/10/2015	- Project design and implementation - Technical equipment, including calibration and operation - Monitoring Plan and management procedures - Monitoring data - Data uncertainty and residual risks (QA/QC)	Li Ziqi, Wang Guolian

D.4. Sampling approach

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D.5. Clarification requests, corrective action requests and forward action requests raised

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
Compliance of the monitoring report with the monitoring report form			
Compliance of the project implementation with the registered PDD			
Post-registration changes			
Compliance of the monitoring plan with the monitoring methodology including applicable tool and standardized baseline			
Compliance of monitoring activities with the registered monitoring plan			
Compliance with the calibration frequency requirements for measuring instruments		1	
Assessment of data and calculation of emission reductions or net removals		1	
Others (please specify)			
Total		2	

SECTION E. Verification findings

E.1. Compliance of the monitoring report with the monitoring report form

Means of verification	Document review the monitoring report (version 1.0 dated 24/09/2015) against the monitoring report form.
Findings	By checking the MR (version 1.0 dated 24/09/2015), CTI confirmed that the CDM-

	MR-FORM version 05.1 has been applied correctly and the implementation status of the project activity during the monitoring period was described in section B.1 of the MR
Conclusion	The project participant has updated the MR and the implementation status of the project activity during the monitoring period was described in section B.1 of the MR

E.2. Remaining forward action requests from validation and/or previous verification

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By checking the validation report /23//25/ and previous verification reports /26/ of the project listed in EB website, CTI confirmed that no remaining forward action requests were identified from the validation and previous verifications

E.3. Compliance of the project implementation with the registered project design document

Means of verification	CTI conducted the document review and performed on-site assessment with project participants to: - An assessment of the implementation and operation of the registered project activity is as per the PDD for the project activity - A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PDD and the selected methodology
Findings	The project is a 49.5 MW wind power farm and locates 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. 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 /21/ during on-site visit to be consistent with description indicated in the revised PDD /24/. The project was put into full operation on 01/03/2013 /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 NCPG, which can be confirmed by the Power purchase agreement (PPA) signed between China Water Group Huade Wind Power Co., Ltd and Inner Mongolia Power (Group) Co., Ltd /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 /8/, CTI can

	confirm that no serious malfunction happened and the plant was under a normal operation as expected in this monitoring period.
Conclusion	CTI confirms that the project implementation is in accordance with the project description contained in revised PDD (version 2.0 of 28/07/2014) /24/. 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.

E.4. Post-registration changes

E.4.1. Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline

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N/A

E.4.2. Corrections

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During this verification, it is confirmed there are not any corrections identified in this monitoring period.

In previous verification, the monitoring plan has been revised and approved by EB on 21/11/2014

E.4.3. Changes to the start date of the crediting period

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N/A

E.4.4. Inclusion of a monitoring plan to a registered project activity

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N/A

E.4.5. Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline

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During this verification, it is confirmed there are not any permanent changes identified in this monitoring period.

In previous verification, the monitoring plan has been revised and approved by EB on 21/11/2014

E.4.6. Changes to the project design of a registered project activity

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N/A.

E.4.7. Types of changes specific to afforestation and reforestation project activities

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N/A

E.5. Compliance of monitoring plan with the monitoring methodology including applicable tool and standardized baseline

Means of verification	CTI conducted the document review and performed on-site assessment with the compliance check of the monitoring plan with the applied methodology including applicable tools

Findings	All parameters stated in the monitoring plan are in compliance with the applied methodology, i.e. ACM0002 (version 12.1.0), and monitored and reported appropriately. 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. On-site training for the CDM related procedures including monitoring, recording and reporting was verified to be in place /6/ and their implementation was confirmed by interview with the key operators and observing the operation.
Conclusion	CTI confirmed that the monitoring plan is in accordance with the approved methodology applied by the project activity, i.e. ACM0002 (version 12.1.0) /30/.

E.6. Compliance of monitoring activities with the registered monitoring plan

E.6.1. Data and parameters fixed ex ante or at renewal of crediting period

Means of verification	"Data and parameters fixed ex ante" in the MR are checked against the revised PDD/24/
Findings	The parameter $EF_{grid, CM, y}$ is emission factor of the grid, which was determined ex-ante at the validation stage and will not be updated during the fixed crediting period 11/04/2012-10/04/2022.
Conclusion	CTI verified and confirmed that the emission factor used in the monitoring report is in compliance with the revised PDD.

E.6.2. Data and parameters monitored

Means of verification	CTI conducted document review and performed on-site assessment with project participants to: - A review of information flows for generating, aggregating and reporting the monitoring parameters; - 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; - 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.
Findings	The monitoring has been carried out in accordance with the monitoring plan. CTI confirms that all parameters stated in the monitoring plan are monitored and reported appropriately. 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 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:

	(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	$M_{6.1}$	$M_{6.2}$	$M_{6.3}$	-
Phase VII: Erligetu	$M_{7.1}$	$M_{7.2}$	$M_{7.3}$	-
Phase VIII: Cheliwusu	$M_{8.1}$	$M_{8.2}$	$M_{8.3}$	-
Changshun 220 kV Booster Station Main Transformer #1	$M_{_A}$			
Changshun 220 kV Booster Station Main Transformer #2	$M_{_B}$			
Changshun 220 kV Booster Station Main Tranformer #3	$M_{_C}$			
Niujiafang 220 kV Booster Station Main Transformer #1	$M_{_D}$			
Niujiafang 220 kV Booster Station Main Transformer #2	$M_{_E}$			

If the errors of all the two gateway meters $M_{_g1}$ and $M_{_g2}$ and the two evaluation meters $M_{_e1}$ and $M_{_e2}$, or any of the meters $M_{j.i}$ ($j \neq 5, 6$; $j=1, 2, 3, 4, 7, 8$; $i=1, 2, 3, 4$ for Phase I project and $i=1, 2, 3$ for other seven projects) exceed the national or trade standard allowance levels or the meters function improperly, the quantity of net electricity supplied to NCPG by the Project will be calculated based on the readings ($ES_{p, export, y}$ and $ES_{p, import, y}$) from the meter at the 220kV sides of the main transformers connecting to the Project at the wind farm on-site booster station, with consideration of historical transmission line losses. The verification team confirmed that within this monitoring period the gateway meters $M_{_g1}$ and $M_{_g2}$ operated well and their readings were used to calculate the emission reductions. Hence, the readings from meters $M_{_A}$ to $M_{_E}$ were not used in the emission reductions calculation.

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. All the monitoring facilities and system have been verified by CTI during on-site visit. The values of $EG_{facility, y}$ was calculated as the following equation:

	$$EG_{facility,y} = ES_{total,export,y} \times \frac{\sum_{i=1}^{3} ES_{V,\ i,\ export,\ y}}{\sum_{i=1}^{4} ES_{I,\ i,\ export,\ y} + \sum_{j=II}^{VIII}\sum_{i=1}^{3} ES_{j,\ i,\ export,\ y}} - ES_{total,import,y} \times \frac{\sum_{i=1}^{3} ES_{V,\ i,\ import,\ y}}{\sum_{i=1}^{4} ES_{I,\ i,\ import,\ y} + \sum_{j=II}^{VIII}\sum_{i=1}^{3} ES_{j,\ i,\ import,\ y}}$$ On the 20th of every month, the Grid Company together with the project owner recorded the meters' readings ($M_{_g1}$, $M_{_g2}$, $M_{_e1}$ and $M_{_e2}$) 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 can cover the monitoring period from 01/03/2014-20/08/2015, and checked by the verification team. Supporting references and data required to determine the net electricity delivered to the grid is found to be complete and transparent.
Conclusion	Monitoring of data and parameters related to the GHG emission reductions in the project activity has been carried out in accordance with the monitoring plan.

E.6.3. Implementation of sampling plan

Means of verification	N/A
Findings	N/A
Conclusion	N/A

E.7. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	The documents review was carried out. Particular attention was paid to the frequency of measurements, the quality of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PDD and the selected methodology and corresponding tool(s), and the quality assurance and quality control procedures.
Findings	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 equipment' accuracy and in good conditions. The relevant information of meters' calibration is listed as below:

Item	**Main meter $M_{_g1}$**	**Backup meter $M_{_g2}$**	**Main** evaluation **meter $M_{_e1}$**	**Backup** evaluation **meter $M_{_e2}$**
Type	LANDIS	LANDIS	LANDIS	LANDIS
SN	95411060	95411068	96057671	95411066
Accuracy class	0.2S			
Calibration frequency	Annual			

Calibration date	05/02/2014 22/06/2014 07/02/2015	05/02/2014 21/06/2014 05/02/2015
Valid period	04/02/2015 21/06/2015 06/02/2016	04/02/2015 20/06/2015 04/02/2016
Calibration entity	Inner Mongolia Electric Power Research Institute Electric Metering Testing Center	

Item	**$M_{1.1}$**	**$M_{1.2}$**	**$M_{1.3}$**	**$M_{1.4}$**
Type	DTSD341	DTSD341	DTSD341	DTSD341
SN	09060094860005	09060094860004	09060094860010	09060094860011
Accuracy class	0.5S			
Calibration frequency	Annual			
Calibration date	07/07/2013 24/03/2014 15/03/2015			
Valid period	06/07/2014 23/03/2015 14/03/2016			
Calibration entity	Inner Mongolia Ke Gao Electric Technology Testing Co., Ltd. （07/07/2013 and 24/03/2014） Huade electric power company （15/03/2015）			

Item	**$M_{2.1}$**	**$M_{2.2}$**	**$M_{2.3}$**	**$M_{3.1}$**
Type	DTSD341	DTSD341	DTSD341	DTSD341
SN	1008040209000013	1008040209000009	1008040209000014	1008040209000008
Accuracy class	0.5S			
Calibration frequency	Annual			
Calibration date	07/07/2013 24/03/2014 15/03/2015			
Valid period	06/07/2014 23/03/2015 14/03/2016			
Calibration entity	Inner Mongolia Ke Gao Electric Technology Testing Co., Ltd. （07/07/2013 and 24/03/2014） Huade electric power company （15/03/2015）			

Item	**$M_{3.2}$**	**$M_{3.3}$**	**$M_{4.1}$**	**$M_{4.2}$**	**$M_{4.3}$**
Type	DTSD341	DTSD341	DTSD341	DTSD341	DTSD341
SN	1008040209000002	1008040209000012	1008040209000004	1008040209000003	1008040209000001
Accuracy class	0.5S				
Calibration frequency	Annual				
Calibration date	07/07/2013 24/03/2014 15/03/2015				
Valid period	06/07/2014 23/03/2015				

	14/03/2016
Calibration entity	Inner Mongolia Ke Gao Electric Technology Testing Co., Ltd. （07/07/2013 and 24/03/2014） Huade electric power company （15/03/2015）

Item	**$M_{5.1}$**	**$M_{5.2}$**	**$M_{5.3}$**	**$M_{6.1}$**
Type	DTSD719	DTSD719	DTSD719	DTSD719
SN	420052504110 8348712	42005250411 08348711	42005250411 08348706	4200525041108 348709
Accuracy class	0.5S			
Calibration frequency	Annual			
Calibration date	07/07/2013 23/03/2014 15/03/2015			
Valid period	06/07/2014 22/03/2015 14/03/2016			
Calibration entity	Inner Mongolia Ke Gao Electric Technology Testing Co., Ltd. （07/07/2013 and 23/03/2014） Huade electric power company （15/03/2015）			

Item	**$M_{6.2}$**	**$M_{6.3}$**	**$M_{7.1}$**	**$M_{7.2}$**
Type	DTSD719	DTSD719	DTSD719	DTSD719
SN	420052504110 8348713	42005250411 08348718	42005250411 08348704	4200525041108 348720
Accuracy class	0.5S			
Calibration frequency	Annual			
Calibration date	07/07/2013 23/03/2014 15/03/2015			
Valid period	06/07/2014 22/03/2015 14/03/2016			
Calibration entity	Inner Mongolia Ke Gao Electric Technology Testing Co., Ltd. （07/07/2013 and 23/03/2014） Huade electric power company （15/03/2015）			

Item	**$M_{7.3}$**	**$M_{8.1}$**	**$M_{8.2}$**	**$M_{8.3}$**
Type	DTSD719	DTSD719	DTSD719	DTSD719
SN	420052504110 8348707	420052504110 8348715	42005250411 08348705	4200525041108 348721
Accuracy class	0.5S			
Calibration frequency	Annual			
Calibration date	07/07/2013 23/03/2014 15/03/2015			
Valid period	06/07/2014 22/03/2015 14/03/2016			
Calibration entity	Inner Mongolia Ke Gao Electric Technology Testing Co., Ltd. （07/07/2013 and 23/03/2014） Huade electric power company （15/03/2015）			

Item	$M_{_A}$	$M_{_B}$	$M_{_C}$	$M_{_D}$	$M_{_E}$
Type	DTSD718	DTSD341	DTSD341	DTSD718	DTSD718
SN	4200415041108347261	1008040184000 1	10080401840002	4200415041108347258	4200415041108347260
Accuracy class	0.2S				
Calibration frequency	Annual				
Calibration date	01/04/2013 24/03/2014 15/03/2015			01/04/2013 23/03/2014 15/03/2015	
Valid period	31/03/2014 23/03/2015 14/03/2016			31/03/2014 2203/2015 14/03/2016	
Calibration entity	Inner Mongolia Ke Gao Electric Technology Testing Co. Ltd (01/04/2013 and 24/03/2014) Huade electric power company (15/03/2015)			Inner Mongolia Ke Gao Electric Technology Testing Co. Ltd (01/04/2013 and 23/03/2014) Huade electric power company (15/03/2015)	

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) $M_{_g1}$ (and $M_{_g2}$ 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)”

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.

By checking calibration reports of the meters, CTI found the calibration date and calibration entity of the meter M1.1、M1.2….M8.3 and described in the MR Version 01 are incorrect. The **CAR 1** is raised.

The verification team checked the updated MR, and confirmed that the values of

	$EG_{G1\ to\ P}$ has been revised. So, **CAR 1** is closed.
Conclusion	The project participant updated the MR by the correct calibration date and calibration entity. **CAR 1 is closed**. The meters have been installed and calibrated in accordance with the monitoring plan. The meters' accuracy and calibration interval are in line with the requirement of the revised PDD, and the calibrations of meters are verified to be valid for the whole reporting period.

E.8. Assessment of data and calculation of emission reductions or net removals

E.8.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification: Cross-checking the baseline GHG emissions calculation in the MR against that in the ER spreadsheet and the revised PDD.

Findings:

According to the applied methodology ACM0002 (version 12.1.0), the baseline GHG emissions (BE_y) are calculated from net electricity supplied to the grid by the proposed project ($EG_{facility,y}$) multiplied by the baseline emission factor ($EF_{grid,\ CM,\ y}$);

As verified in section E.6.1, the baseline emission factor ($EF_{grid,\ CM,\ y}$) is confirmed to be 0.9309 tCO_2e/MWh.

Net electricity supplied to the grid by the proposed project ($EG_{facility,y}$) is calculated as the following equation:

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

Data in the monthly reading records were used to report /9/, through a cross check with the ETNs /11/, the most conservative values were applied to 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*: CHANGSHUN (ref. No. 2093)	PHASE *II*: SANDAOGOU (ref. No. 5781)	PHASE *III*: HEPING (ref. No. 5900)	PHASE *IV*: NIUJIACUN (ref. No. 5883)	PHASE *V*: NIUJIAFANGZI (ref. No. 5992)	PHASE *VI*: SITAIFANGZI (ref. No. 5990)	PHASE *VII*: ERLIGETU (ref. No. 5904)	PHASE *VIII*: CHELIWUSU (ref. No. 5909)	Sub-total
		$ES_{I,\ export,y}$	$ES_{II,\ export,y}$	$ES_{III,\ export,y}$	$ES_{IV,\ export,y}$	$ES_{V,\ export,y}$	$ES_{VI,\ export,y}$	$ES_{VII,\ export,y}$	$ES_{VIII,\ export,y}$	
From	To	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh
01/03/2014	20/03/2014	8666.56	8990.52	9901.92	9705.36	9029.16	8456	8181.6	8254.96	71186.08
21/03/2014	20/04/2014	7338.52	9837.52	10460.24	10060.12	8846.32	8796.48	8225.28	8220.8	71785.28
21/04/2014	20/05/2014	9048.48	10368.68	10711.4	11039.28	9999.08	9932.16	9487.52	8888.88	79475.48
21/05/2014	20/06/2014	9262.96	12239.08	11646.88	11626.16	10850.28	10853.08	10792.32	9459.24	86730
21/06/2014	20/07/2014	4902.24	7776.72	7157.08	7155.68	5942.44	6068.16	5526.36	5232.92	49761.6

21/07/2014	20/08/2014	4290.72	6554.24	6228.32	6836.2	5929.28	5939.92	5354.16	4772.32	45905.16
21/08/2014	20/09/2014	4255.16	6297.2	6244.84	6422.92	5258.68	9248.4	12986.68	12341.84	63055.72
21/09/2014	20/10/2014	6855.52	8975.68	8515.08	8414.56	7662.76	7637.56	7278.6	6439.44	61779.2
21/10/2014	20/11/2014	9313.92	9058.84	9232.44	9232.44	8438.64	8022.84	7719.6	9157.4	70176.12
21/11/2014	20/12/2014	13416.48	9514.96	6797.84	6822.48	13096.44	12382.16	12104.12	13157.76	87292.24
21/12/2014	20/01/2015	11052.16	10251.36	6812.96	4273.08	10226.72	9261.84	9602.88	9836.12	71317.12
21/01/2015	20/02/2015	7951.72	6647.48	7543.48	8173.48	6705.16	6590.08	6522.32	5956.44	56090.16
21/02/2015	20/03/2015	9424.24	7256.48	11675.16	11704	10354.12	10410.68	10365.88	8473.08	79663.64
21/03/2015	20/04/2015	8196.16	8898.4	9450.00	9821	8907.36	8421.56	8767.92	6941.76	69404.16
21/04/2015	20/05/2015	7287.28	9078.72	9493.96	9851.8	9043.16	9110.36	9024.4	6942.32	69832
21/05/2015	20/06/2015	3866.52	5741.68	5677.00	5484.92	4684.96	4627.84	9512.44	11703.16	51298.52
21/06/2015	20/07/2015	3712.24	5019.28	5411.00	5225.08	4587.24	8539.16	4518.64	3881.36	40894
21/07/2015	20/08/2015	8666.56	8990.52	9901.92	9705.36	9029.16	8456	8181.6	8254.96	71186.08
Total		136663.52	149507.68	150034.08	150187.52	146163.36	151026.40	152874.68	145589.64	1182046.88

Summary of electricity exported to the grid:

Period		$ES_{total, export, y}$ (M_{g1})	ETN	Adopted value = min (M_{g1}, ETN)
From	To	MWh	MWh	MWh
01/03/2014	20/03/2014	72722.04	71186.85	71186.85
21/03/2014	20/04/2014	73276.11	71783.56	71783.56
21/04/2014	20/05/2014	81148.97	79370.53	79370.53
21/05/2014	20/06/2014	88523.99	86729.48	86729.48
21/06/2014	20/07/2014	50453.37	49761.91	49761.91
21/07/2014	20/08/2014	46310.27	45905.36	45905.36
21/08/2014	20/09/2014	43900.11	63055.39	43900.11
21/09/2014	20/10/2014	63239.88	61518.04	61518.04
21/10/2014	20/11/2014	71972.41	70176.05	70176.05
21/11/2014	20/12/2014	110385.02	87292.54	87292.54
21/12/2014	20/01/2015	86461.86	71317.27	71317.27
21/01/2015	20/02/2015	57047.22	56089.55	56089.55
21/02/2015	20/03/2015	57482.95	56400.36	56400.36
21/03/2015	20/04/2015	86274.37	79663.86	79663.86
21/04/2015	20/05/2015	70938.68	69404.1	69404.10
21/05/2015	20/06/2015	72264.32	69831.72	69831.72
21/06/2015	20/07/2015	39679.75	38194	38194.00
21/07/2015	20/08/2015	38169.93	36772.57	36772.57

Total	-	-	**1145297.86**

Summary of electricity imported to the grid:

Period		PHASE *I*: CHANGSHUN (ref. No. 2093)	PHASE *II*: SANDAOGOU (ref. No. 5781)	PHASE *III*: HEPING (ref. No. 5900)	PHASE *IV*: NIUJIACUN (ref. No. 5883)	PHASE *V*: NIUJIAFANGZI (ref. No. 5992)	PHASE *VI*: SITAIFANGZI (ref. No. 5990)	PHASE *VII*: ERLIGETU (ref. No. 5904)	PHASE *VIII*: CHELIWUSU (ref. No. 5909)	Sub-total
		$ES_{I,export,y}$	$ES_{II,export,y}$	$ES_{III,export,y}$	$ES_{IV,export,y}$	$ES_{V,export,y}$	$ES_{VI,export,y}$	$ES_{VII,export,y}$	$ES_{VIII,export,y}$	
From	To	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh
01/03/2014	20/03/2014	184.24	504.00	249.48	273.28	250.04	251.72	190.68	207.48	2110.92
21/03/2014	20/04/2014	185.64	407.96	352.24	275.24	251.72	253.96	192.08	209.16	2128.00
21/04/2014	20/05/2014	212.24	480.76	402.52	314.72	287.84	290.08	219.52	239.12	2446.80
21/05/2014	20/06/2014	217.28	497.28	411.72	322.00	294.56	196.56	224.56	244.72	2408.68
21/06/2014	20/07/2014	94.36	258.72	179.20	140.00	127.96	129.08	97.72	106.40	1133.44
21/07/2014	20/08/2014	94.36	258.16	178.92	140.00	128.24	129.08	97.72	106.40	1132.88
21/08/2014	20/09/2014	100.52	274.68	190.40	148.96	136.08	137.20	103.88	112.84	1204.56
21/09/2014	20/10/2014	185.92	509.04	353.08	275.80	252.42	254.52	192.36	209.72	2232.86
21/10/2014	20/11/2014	194.32	531.16	368.15	287.84	263.34	265.16	201.04	218.68	2329.69
21/11/2014	20/12/2014	333.76	912.80	632.85	494.76	452.76	356.16	345.24	376.04	3904.37
21/12/2014	20/01/2015	231.84	634.20	439.60	343.84	314.44	316.68	239.68	260.96	2781.24
21/01/2015	20/02/2015	119.56	327.32	227.08	177.43	162.12	163.52	123.76	134.96	1435.75
21/02/2015	20/03/2015	130.48	357.00	247.52	193.57	176.96	178.64	134.96	147.00	1566.13
21/03/2015	20/04/2015	288.12	787.92	546.28	427.00	390.60	393.40	297.92	324.24	3455.48
21/04/2015	20/05/2015	177.24	485.52	336.28	263.20	240.80	242.48	183.68	199.92	2129.12
21/05/2015	20/06/2015	234.36	640.64	444.36	347.20	317.52	220.36	242.20	263.76	2710.40
21/06/2015	20/07/2015	129.08	353.64	245.28	191.80	175.56	176.68	133.82	145.60	1551.46
21/07/2015	20/08/2015	121.80	332.64	230.44	180.04	164.92	166.32	125.74	136.92	1458.82
Total		3235.12	8553.44	6035.40	4796.68	4387.88	4121.60	3346.56	3643.92	38120.60

Summary of electricity imported to the grid:

Period		$ES_{total,import,y}$ ($M_{_g1}$)	ETN	Adopted value = max ($M_{_g1}$, ETN)
From	To	MWh	MWh	MWh
01/03/2014	20/03/2014	2118.12	2118.12	2118.12
21/03/2014	20/04/2014	2134.26	2134.26	2134.26
21/04/2014	20/05/2014	2439.98	2439.98	2439.98
21/05/2014	20/06/2014	2494.85	2494.85	2494.85
21/06/2014	20/07/2014	1086.08	1086.08	1086.08
21/07/2014	20/08/2014	1085.40	1085.40	1085.40
21/08/2014	20/09/2014	1154.14	1154.14	1154.14
21/09/2014	20/10/2014	2138.55	2138.55	2138.55

21/10/2014	20/11/2014	2231.70	2231.70	2231.70
21/11/2014	20/12/2014	3835.77	3835.77	3835.77
21/12/2014	20/01/2015	2664.75	2664.75	2664.75
21/01/2015	20/02/2015	1375.10	1375.10	1375.10
21/02/2015	20/03/2015	1500.33	1500.33	1500.33
21/03/2015	20/04/2015	3310.27	3310.27	3310.27
21/04/2015	20/05/2015	2039.42	2039.42	2039.42
21/05/2015	20/06/2015	2692.43	2692.43	2692.43
21/06/2015	20/07/2015	1485.75	1485.75	1485.75
21/07/2015	20/08/2015	1397.36	1397.36	1397.36
Total		-		37184.26

Note: As regulated by the grid company, the grid company and the Project owner recorded these data on the 20th 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.

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

Period		Phase II: Sandaogou (Ref. No.5781) $EG_{facility, y}$
From	To	MWh
01/03/2014	20/03/2014	8,778.36
21/03/2014	20/04/2014	8,593.65
21/04/2014	20/05/2014	9,698.84
21/05/2014	20/06/2014	10,545.12
21/06/2014	20/07/2014	5,819.86
21/07/2014	20/08/2014	5,806.44
21/08/2014	20/09/2014	3,530.77
21/09/2014	20/10/2014	7,388.61
21/10/2014	20/11/2014	8,186.37
21/11/2014	20/12/2014	12,651.68
21/12/2014	20/01/2015	9,925.47
21/01/2015	20/02/2015	6,549.82
21/02/2015	20/03/2015	6,432.03
21/03/2015	20/04/2015	9,979.96
21/04/2015	20/05/2015	8,676.70
21/05/2015	20/06/2015	8,727.71

21/06/2015	20/07/2015	3,320.03	
21/07/2015	20/08/2015	3,966.95	
Total		**138,578**	

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

$BE_y = EG_{facility,y} \times EF_{grid,CM,y}$ =138,578MWh×0.9309 tCO_{2e}/MWh= 129,003tCO_{2e}

By checking the original records from meters and crosschecking against the ETNs, CTI found the values of the total electricity exported to the grid by all the 8 projects ($ES_{total,export,y}$) described in the MR are incorrect. The **CAR 2** is raised.

The verification team checked the updated MR, and confirmed that the values of $ES_{total,export,y}$ has been revised. So, **CAR 2** is closed.

Conclusion	The project participant updated the MR by the correct values of $ES_{total,export,y}$. **CAR 2** is closed. The verification team has confirmed that the calculation of the baseline emissions is correct.

E.8.2. Calculation of project GHG emissions or actual net GHG removals by sinks

Means of verification	Cross-checking the project GHG emissions calculation in the MR against that in the ER spreadsheet and the revised PDD.
Findings	Project GHG emissions in the MR, ER spreadsheet is zero, which is in line with that in the revised PDD.
Conclusion	The verification team has confirmed that the calculation of the project emissions is correct.

E.8.3. Calculation of leakage GHG emissions

Means of verification	According to the applied methodology ACM0002 (version 12.1.0), the leakage of the project is not considered.
Findings	According to the applied methodology ACM0002 (version 12.1.0), the leakage of the project is not considered.
Conclusion	According to the applied methodology ACM0002 (version 12.1.0), the leakage of the project is not considered.

E.8.4. Summary of calculation of GHG emission reductions or net anthropogenic GHG removals by sinks

Means of verification	Cross-checking the data applied for ER calculation with all the relevant documents as listed in Appendix 3, and the ER calculation in the MR against that in the ER spreadsheet and the revised PDD.
Findings	According to the applied methodology ACM0002 (version 12.1.0), the emission reductions are determined as the difference between the baseline emissions, project emissions and leakage: $ER_y = BE_y - PE_y - L_y$ As verified in section E.8.3, the PE_y and L_y are 0, Thus, the emission reductions for the project are accounted as follows:

	$ER_y = BE_y = 129,003 = 129,003tCO_{2e}$
Conclusion	The verification team has confirmed that the calculation of the emission reductions is correct.

E.8.5. Comparison of actual GHG emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

Means of verification	The section E.5 of MR (Version 2.0) is cross-checked against the revised PDD.
Findings	The emission reductions claimed are 129,003 tCO_2e in this monitoring period (i.e. 538 days) and the yearly expected emission reductions 96,159 tCO_2e (365 days) in the revised PDD (corresponding to 141,736tCO_2e for this monitoring period). The actual emission reductions reported are 8.98% lower than the expected value
Conclusion	CTI verified the input data for calculating emission reductions and the calculating process, and confirmed the result were complete and transparent.

E.8.6. Remarks on difference from estimated value in registered PDD

Means of verification	The section E.6 of MR (Version 2.0) is cross-checked against the revised PDD.
Findings	The reported emission reductions in this monitoring period are 8.98% lower than the expected.
Conclusion	Considering the wind resource fluctuation, CTI is able to confirm that the actual power supply and also emission reductions reported in this monitoring period are reasonable and appropriate.

E.8.7. Actual GHG emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

Means of verification	The section E.4 of MR (Version 2.0) is cross-checked against the revised PDD.
Findings	As verified in section E.8.4, the emission reductions achieved during the first commitment period and the period from 01/01/2013 onwards are broken-down and verified by the verification team as

Item	Actual values achieved up to 31/12/2012	Actual values achieved from 01/01/2013 onwards (01/03/2014 to 20/08/2015)
ER_y (tCO_2)	N/A	129,003

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

SECTION F. Internal quality control

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This final verification report including the initial findings underwent a technical review before being submitted to PP and requesting issuance of CERs of the project activity according to CTI internal procedure. The technical reviewers were not part of the verification team, and the technical review was independently of the verification team.

SECTION G. Verification opinion

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In CTI's opinion, the GHG emission reductions reported for the project in the monitoring report (version 2.0 dated 05/11/2015) 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 Project Design Document (version 2.0 dated 28/07/2014).

CTI confirmed 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 Niujiafangzi Wind Farm 49.5MW Project during the period 01/03/2014-20/08/2015 amount as follows:

Baseline emissions: 129,003 tCO_2e

Project emissions: 0 tCO_2e

Leakage: 0 tCO_2e

Emission reductions: 129,003 tCO2e

SECTION H. 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 Niujiafangzi Wind Farm 49.5MW Project" in China for the period 01/03/2014-20/08/2015.

The verification is based on the baseline and monitoring methodology ACM0002 (version 12.1.0), the validated and revised PDD (version 2.0 dated 28/07/2014) and the monitoring report (version 2.0 dated 05/11/2015). 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 participants; 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 confirmed 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 that the emission reductions from the "Inner Mongolia China Water Group Huade Niujiafangzi Wind Farm 49.5MW Project" in China during the period 01/03/2014-20/08/2015 amount to 129,003 tCO_2e.

Li Ziqi

Mr. Li Ziqi
Team Leader
10/11/2015

Shunrong Lin

Mr. Lin Shunrong
Technical Reviewer
10/11/2015

Appendix 1. Abbreviations

Abbreviations	Full texts
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction(s)
CL	Clarification request
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
NCPG	North China Power Grid
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)
GWP	Global Warming Potential
MR	Monitoring Report
PDD	Project Design Document
PPA	Power Purchase Agreement
PS	Project Standard
tCO_2e	Tonnes of CO_2 equivalents
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Clean Development Mechanism Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers

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	01/01/2015	01/01/2015	01/01/2015	01/01/2015	01/01/2015	01/01/2015

Qualification in the scope and technical area		
Technical area	Technical area	Technical area
SS 1: Energy industries (renewable/non-renewable sources)	TA 1.2: Renewables	01/01/2015

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 Wu Lin

Technical competent manager
Shenzhen, 01/01/2015

Ms. Wang Guolian

Born on 03/01/1978

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	01/01/2015	01/01/2015	01/01/2015	01/01/2015	01/01/2015	01/01/2015

Qualification in the scope and technical area		
Scope	Technical area	Date
SS 1: Energy industries (renewable/non-renewable sources)	TA 1.2: Renewables	01/01/2015

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 Wu Lin
Technical competent manager
Shenzhen, 01/01/2015

Ms. Lin Shunrong

Born on 19/11/1977

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	01/01/2015	01/01/2015	01/01/2015	01/01/2015	01/01/2015	-

Qualification in the scope and technical area		
Scope	Technical area	Date
SS 1: Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources	01/01/2015

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 Wu Lin

Technical competent manager

Shenzhen, 01/05/2015

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
/1/	Eco-Tec Asia (UK) Ltd	Monitoring Report for Inner Mongolia China Water Group Huade Niujiafangzi Wind Farm 49.5MW Project	Version 1.0 dated 24/09/2015 and version 2.0 dated 05/11/2015	Project participant
/2/	Eco-Tec Asia (UK) Ltd	Emission reduction calculation spreadsheet for Inner Mongolia China Water Group Huade Niujiafangzi Wind Farm 49.5MW Project	Version 1.0 dated 24/09/2015 and version 2.0 dated 05/11/2015	Project participant
/3/	China Water Group Huade Wind Power Co., Ltd	Business licence for China Water Group Huade Wind Power Co., Ltd		Project participant
/4/	China Water Group Huade Wind Power Co., Ltd and Inner Mongolia Power (Group) Co., Ltd	Power purchase agreement for Inner Mongolia China Water Group Huade Niujiafangzi Wind Farm 49.5MW Project		Project participant
/5/	China Water Group Huade Wind Power Co., Ltd	CDM Monitoring Manual	03/2012	Project participant
/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 Niujiafangzi Wind Farm 49.5MW Project		Project participant
/7/	Ulanqab City Environmental Protection Bureau	Notification of check and acceptance on project environmental protection during project completion		Project participant
/8/	China Water Group Huade Wind Power Co., Ltd	Planning and records of training for on-site staff	18/02/2012	Project participant
/9/	China Water Group Huade Wind Power Co., Ltd	Operation log sheets	01/03/2014-20/08/2015	Project participant
/10/	China Water Group Huade Wind Power Co., Ltd	Monthly reading records	01/03/2014-20/08/2015	Project participant
/11/	China Water Group Huade Wind Power Co., Ltd	Diagram of power connection system		Project participant
/12/	Inner Mongolia Power (Group) Co., Ltd	Monthly electricity transaction notes	01/03/2014-20/08/2015	Project participant
/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 Niujiafangzi Wind Farm 49.5MW Project	01/03/2013	Project participant
/14/	Inner Mongolia Autonomous Region Administration of Quality and Technology	Accreditation certificate of Inner Mongolia Electric Power Research Institute Electric Metering Testing Centre	Issued on 02/01/2014, valid to 01/01/2018	Project participant

	Supervision	Accreditation certificate of Inner Mongolia Ke Gao Electric Technology Testing Co., Ltd	Issued on 04/05/2012, valid to 03/05/2015	
		Accreditation certificate of Huade electric power company	Issued on 31/10/2010, valid to 30/10/2015	
/15/	Inner Mongolia Electric Power Research Institute Electric Metering Testing Centre	Calibration certificates for meter $M_{_g1}$ and $M_{_g2}$	Issued on 05/02/2014, 22/06/2014 and 07/02/2015	Project participant
		Calibration certificates for $M_{_e1}$ and $M_{_e2}$	Issued on 05/02/2014, 21/06/2014 and 05/02/2015	
/16/	Inner Mongolia Ke Gao Electric Technology Testing Co., Ltd	Calibration certificates for meter $M_{1.1}$, $M_{1.2}$, $M_{1.3}$, $M_{1.4}$, $M_{2.1}$, $M_{2.2}$, $M_{2.3}$, $M_{3.1}$, $M_{3.2}$, $M_{3.3}$, $M_{4.1}$, $M_{4.2}$ and $M_{4.3}$	Issued on 07/07/2013 and 24/03/2014	Project participant
		Calibration certificates for meter $M_{_A}$, $M_{_B}$ and $M_{_C}$	Issued on 01/04/2013 and 24/03/2014	
		Calibration certificates for meter $M_{5.1}$, $M_{5.2}$, $M_{5.3}$, $M_{6.1}$, $M_{6.2}$, $M_{6.3}$, $M_{7.1}$, $M_{7.2}$, $M_{7.3}$, $M_{8.1}$, $M_{8.2}$ and $M_{8.3}$	Issued on 07/07/2013 and 23/03/2014	
		Calibration certificates for meter $M_{_D}$ and $M_{_E}$	Issued on 01/04/2013 and 23/03/2014	
/17/	Huade electric power company	Calibration certificates for meter $M_{1.1}$, $M_{1.2}$, $M_{1.3}$, $M_{1.4}$, $M_{2.1}$, $M_{2.2}$, $M_{2.3}$, $M_{3.1}$, $M_{3.2}$, $M_{3.3}$, $M_{4.1}$, $M_{4.2}$, $M_{4.3}$, $M_{5.1}$, $M_{5.2}$, $M_{5.3}$, $M_{6.1}$, $M_{6.2}$, $M_{6.3}$, $M_{7.1}$, $M_{7.2}$, $M_{7.3}$, $M_{8.1}$, $M_{8.2}$, $M_{8.3}$, $M_{_A}$, $M_{_B}$, $M_{_C}$, $M_{_D}$ and $M_{_E}$	Issued on 15/03/2015	Project participant
/18/	Quality and Technical Inspection Bureau of the People's Republic of China	AC power meter field calibration specifications (JJG1055-1997)		Others
/19/	Quality and Technical Inspection Bureau of the People's Republic of China	Verification Regulation of Electrical Energy Meters with Electronics (JJG596-1999)		Others
/20/	State Economic and Trade Commission	Technical administrative code of electric energy metering (DL/T 448-2000)		Others
/21/	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 Niujiacun Wind Farm 49.5MW Project	20/03/2010	Project participant
/22/	Eco-Tec Asia (UK) Ltd	CDM-PDD for project activity	Version 1.4 dated 27/03/2012	Project participant
/23/	TÜV Rheinland (China) Ltd	Validation report for project activity	Version 06 dated 27/03/2012	Others
/24/	Eco-Tec Asia (UK) Ltd	Revised Project Design Document for project activity	Version 2.0 dated 28/07/2014	Project participant
/25/	CTI	Validation opinion for the post registration change	19/08/2014	Others
/26/	CTI	1st verification report for project activity	Version 01 dated 28/08/2014	Others
/27/	EB	Clean Development Mechanism Validation and Verification Standard	Version 9.0	EB
/28/	EB	Clean Development	Version 9.0	EB

		Mechanism Project Standard		
/29/	EB	Clean Development Mechanism Project Cycle Procedure	Version 9.0	EB
/30/	EB	Consolidated baseline methodology for grid-connected electricity generation from renewable sources- ACM0002	version 12.1.0	EB
/31/	EB	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	13/09/2012	EB
/32/	EB	Guideline-Completing the monitoring report form	Version 05.1	EB
/33/	EB	Guideline- Completing the verification and certification report form for CDM project activities	Version 01.0	EB

Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. Remaining FAR from validation and/or previous verification

FAR ID	NA	**Section no.**	NA	**Date:** NA
Description of FAR				
NA				
Project participant response				**Date:** NA
NA				
Documentation provided by project participant				
NA				
DOE assessment				**Date:** NA
NA				

Table 2. CL from this verification

CL ID	NA	**Section no.**	NA	**Date:** NA
Description of CL				
NA				
Project participant response				**Date:** NA
NA				
Documentation provided by project participant				
NA				
DOE assessment				**Date:** NA
NA				

Table 3. CAR from this verification

CAR ID	1	**Section no.**	E.1	**Date:** 29/10/2015
Description of CAR				
By checking calibration reports of the meters, CTI found the calibration date and calibration entity of the meter M1.1、M1.2…M8.3 and described in the MR Version 01 are incorrect. Thus, a corrective action is requested				
Project participant response				**Date:** 04/11/2015
The calibration date and entity of the meters is revised.				
Documentation provided by project participant				
MR (version 2.0 dated 05/11/2015)				
DOE assessment				**Date:** 05/11/2015
The correction has been addressed in the updated MR and verified by CTI. CAR 1 is closed				

CAR ID	2	**Section no.**	E.8.1	**Date:** 29/10/2015
Description of CAR				
By checking the original records from meters and crosschecking against the ETNs, CTI found the values of the total electricity exported to the grid by all the 8 projects ($ES_{total, export ,y}$) described in the MR are incorrect. Thus, a corrective action is requested				
Project participant response				**Date:** 04/11/2015
The values of total electricity exported to the grid by all the 8 projects are revised based on the original records.				
Documentation provided by project participant				
MR (version 2.0 dated 05/11/2015)				
DOE assessment				**Date:** 05/11/2015
The correction has been addressed in the updated MR and verified by CTI. CAR 2 is closed				

Table 4. FAR from this verification

FAR ID	NA	**Section No.**	NA	**Date:** NA
Description of FAR				

NA	
Project participant response	**Date:** NA
NA	
Documentation provided by project participant	
NA	
DOE assessment	**Date:** NA
NA	

Document information

Version	*Date*	*Description*
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Decision Class: Regulatory
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