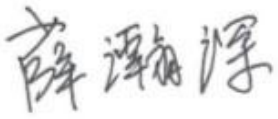
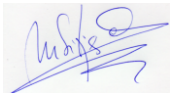
Verification and certification report form for CDM project activities

(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	CECIC Zhangbei Dayangzhuang Wind Farm Project
Reference number of the project activity	1855
Version number of the verification and certification report	02.0
Completion date of the verification and certification report	10/07/2015
Monitoring period number and duration of this monitoring period	The 7th Monitoring Period: 01/01/2013 - 31/05/2015 (first and last days included)
Version number of monitoring report to which this report applies	02
Crediting period of the project activity corresponding to this monitoring period	The 1st crediting period: 27/10/2008 - 26/10/2015
Project participant(s)	The project owner: CECIC Wind Power (Zhangbei) Yunwei Co. Ltd. The buyer: Vitol SA
Host Party	P. R. China
Sectoral scope(s), selected methodology(ies), and where applicable, selected standardized baseline(s)	Energy industries (renewable - / non-renewable sources) ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 07, 14/12/2007
Estimated GHG emission reductions or net anthropogenic GHG removals for this monitoring period in the registered PDD	250,532 tCO_2e
Certified GHG emission reductions or net anthropogenic GHG removals for this monitoring period	257,781 tCO_2e
Name of DOE	Applus certification LGAI Technological Center, S.A. (Applus)
Name, position and signature of the approver of the verification and	Assessment Team Leader: Hanshen (Denny) Xue

certification report	 DOE Representative: Miquel Sitjes Cabanas (CDM Technical Manager)  B.U. Systems Certification Area Manager: Juan Sendín Caballero 

SECTION A. Executive summary

LGAI Technological Center, S.A. (hereafter referred to as Applus+ LGAI) has been contracted by CECIC Wind Power (Zhangbei) Yunwei Co. Ltd. to perform the 7th periodical verification of CECIC Zhangbei Dayangzhuang Wind Farm Project - China (UNFCCC Ref. No. 1855) applying the methodology ACM0002 version 07. The management of CECIC Wind Power (Zhangbei) Yunwei Co. Ltd. is responsible for the preparation of the GHG emissions data and the reported GHG emission reductions.

A desk review and a site visit have been conducted to verify the data submitted in the monitoring report. Applus+ LGAI confirms the following has been reviewed:

(a) The registered updated PDD, including the monitoring plan and the corresponding validation report of renewal of crediting period;
(b) Monitoring reports of previous monitoring periods and corresponding verification reports;
(c) Monitoring report of this monitoring period;
(d) The applied monitoring methodology;
(e) Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board;
(f) All information and references relevant to the project activity's resulting in emission reductions.

CECIC Zhangbei Dayangzhuang Wind Farm Project is a newly-built wind power plant. The purpose of the project is to generate electricity by using wind resources to alleviate electricity shortage in North China. The project activity will achieve greenhouse gas (GHG) emission reductions by avoiding GHG emissions from the electricity generation of fossil fuel-fired power plants in North China Power Grid (NCPG) which is dominant of fuel-fired power plants. The total installed capacity of the project is 49.5 MW involves the installation and operation of 66 wind turbines with unit capacity of 750 kW. The project started construction on 28/01/2008. The fully commissioning date of the project activity was 28/06/2008.

Applus+ LGAI confirms that the project is implemented in accordance with the validated and registered PDD. The monitoring plan complies with the applied methodology ACM0002 version 07 and the monitoring has been carried out in accordance with the monitoring plan. The monitoring system is in place and the emission reductions are calculated without material misstatements. Our opinion relates to the projects GHG emissions and the resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring and its associated documents. Based on the information reviewed and evaluated Applus+ LGAI confirms that the implementation of the project has resulted in 257,781 tCO_2e emission reductions during period 01/01/2013 - 31/05/2015.

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Verification findings
1.	Team Leader	EI	Xue	Hanshen	Applus+ Shanghai	x	x	x	x

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

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Sitjes	Miquel	Applus+ LGAI
2	Approver	IR	Sendín	Juan	Applus+ LGAI

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.	N.A.			

C.2. Consideration of materiality in conducting the verification

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SECTION D. Means of verification

D.1. Desk review

The Monitoring Report version 01 dated 01/06/2015 submitted by the PP was made publicly available on the UNFCCC website before the verification activities started. The published MR was assessed based on all the relevant documents. The aim of the assessment in the desk review was to:

- verify the completeness of the data and the information presented in the MR;
- check the compliance of the MR with respect to the monitoring plan depicted in the registered updated PDD and verify that the applied methodology was carried out. Particular attention to the frequency of measurements, the quality of the metering equipment including calibration requirements, and the quality assurance and quality control procedures was paid;
- evaluate the data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

A complete list of documents reviewed is available in Appendix 3 of this report.

D.2. On-site inspection

Duration of on-site inspection: 04/07/2015 to 05/07/2015				
No.	**Activity performed on-site**	**Site location**	**Date**	**Team member**
1.	- confirm the implementation and operation of the project; - review the data flow for generating, aggregating and reporting the monitoring parameters; - confirm the correct implementation of procedures for operations and data collection; - cross-check the information provided in the MR documentation with other sources; - review the calculations and assumptions used to obtain the GHG data and ER; - check the monitoring equipment against the requirements of the PDD and the approved methodology, including calibrations, maintenance, etc.; - indentify if the quality control and quality assurance procedures are in place to prevent or correct errors or omissions in the reported parameters.	Southwest of Zhangbei County, Zhangjiakou City, Hebei Province in the People's Republic of China	04/07/2015 to 05/07/2015	Hanshen (Denny) Xue

D.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Wu	Xilian	CECIC Wind Power (Zhangbei) Yunwei Co. Ltd.	04/07/2015 to 05/07/2015	Operation of the project activity; Implementation of the monitor plan of the project activity; Data collection and data achievement; Calibration of meters and equipment maintenance	Hanshen (Denny) Xue
2	Huang	Weixin	CECIC Wind Power (Zhangbei) Yunwei Co. Ltd.	04/07/2015 to 05/07/2015		Hanshen (Denny) Xue
3	Zhang	Kexin	CECIC Wind Power (Zhangbei) Yunwei Co. Ltd.	04/07/2015 to 05/07/2015		Hanshen (Denny) Xue
4	Zheng	Zhaoning	Goldchina Consultancy International Co., Ltd.	04/07/2015 to 05/07/2015	Data collection and ER calculation	Hanshen (Denny) Xue
5	Xu	Hongmei	Goldchina Consultancy International Co., Ltd.	04/07/2015 to 05/07/2015		Hanshen (Denny) Xue

D.4. Sampling approach

Not applicable..

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	0	0	0
Compliance of the project implementation with the registered PDD	0	0	0
Post-registration changes	0	0	0
Compliance of the monitoring plan with the monitoring methodology including applicable tool and standardized baseline	0	0	0
Compliance of monitoring activities with the registered monitoring plan	0	0	0
Compliance with the calibration frequency requirements for measuring instruments	1	0	0
Assessment of data and calculation of emission reductions or net removals	0	0	0
Others (please specify)	0	0	0
Total	1	0	0

SECTION E. Verification findings

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

Means of verification	The verification team verified the applied monitoring form against the latest version of “CDM-MR-FORM”.
Findings	The “CDM-MR-FORM” version 05.1 was applied. The verification team has verified the format against the template and confirmed that the correct format of MR form is used.
Conclusion	The monitoring report is in line with the “CDM-MR-FORM” version 05.1 and instructions therein.

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

This is the 7th periodical verification. There are no remaining issues and FARs from the validation report and previous verification reports.

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

Means of verification	The verification team has, by means of an on-site inspection, assessed that all physical features (technology, project equipment, and monitoring and metering equipment) of the registered CDM project activity are in place and that the project participants have operated the project activity as per the registered PDD and the updated PDD of renewal of crediting period.
Findings	The project was registered on 27/10/2008 with the reference number 1855 which is available on the UNFCCC website (https://cdm.unfccc.int/Projects/DB/BVQI1211950998.53/view). This monitoring period falls into the 1st crediting period. The 1st crediting period is from 27/10/2008 to 26/10/2015. The project activity is implemented in accordance with the approved consolidated baseline and monitoring methodology ACM0002 version 07. - The Project is grid connected renewable power generation project activity; - The Project is green-field electricity generation project; - The project activity does not involve in any non-renewable components, a capacity addition, co-generation and retrofit or modification to an existing facility; - The project activity does not involve in switching from fossil fuels to renewable energy sources at the site where no renewable power plant was operated prior to the implementation of the project activity; - The geographic and system boundary includes the North China Power Grid (NCPG) to which the project is supplying the electricity, the grid is clearly identifiable and the information on the characteristics of the grid is available. The project covers the period 01/01/2013 - 31/05/2015 during the 1st crediting period. The project started construction on 28/01/2008. The fully commissioning date of the project activity was 28/06/2008. The verification team has performed a site visit to verify the actual implementation of the project against the description in the registered PDD. In this monitoring period, the project involved implementation and operation of all the 66 turbines. The start date of this monitoring period is the day after the end date of the 6th monitoring period and the end date of this monitoring period is within the 1st crediting period. The capacity of the installed capacity is the same as per the registered PDD. The total installed capacity of the project is 49.5 MW with 66 sets of 750 kW WTGs. The verification team has also verified the technical parameters of the main equipment. The turbines' model is WD49/750kW which is in line with the actual situation and the technical parameters specified in the registered PDD. Through the document review and site visit, the verification team confirmed that the actual implementation of the project is in accordance with the registered PDD. The generated electricity is properly delivered to the North China Power Grid as confirmed by site visit and checking Power Purchase Agreement (PPA). As described in the MR, the monitoring of electricity is performed with several Electronic Watt-hour Meters, which is maintained by CECIC Wind Power (Zhangbei) Yunwei Co. Ltd. The net electricity supplied to the grid by the project is hourly monitored and Hebei Power Grid Company reads the meter on a monthly basis. The location of the monitoring meters has been visited by the verification team during site visit. The installation of the monitoring meters is in compliance with the description in the registered updated PDD. The CDM management manual was verified by the verification team, and the

	monitoring and management system was found in place. The staffs of the project activity have received training on monitoring, management & CDM knowledge, the training records were also verified by the verification team. The monitoring report contains a comparison of the actual emission reductions claimed in the monitoring period with the estimation in the registered PDD. The actual emission reductions during this monitoring period are 2.9% higher than the values estimated in the registered updated PDD for the monitoring period 01/01/2013 - 31/05/2015 which is considered in the normal range. During the site visit, no changes have been observed or identified which may impact the additionality as there was no change in the effective output capacity, no addition of component nor extension of technology, no addition nor removal of project sites of the project activity, no change of values of the actual operational parameter relevant to determination of emission reductions which are within the control of the PP; no change has been observed or identified that may impact the scale of the project activity or applicability of baseline and monitoring methodology. It's confirmed that there are no special events in the monitoring period. As a result, the verification team confirms that none of the data affects the additionality, scale or applicability of the project.
Conclusion	The verification team confirms that the implementation and operation of the registered CDM project activity has been conducted in accordance with the description contained in the registered PDD. There is no deviation or the proposed or actual changes in the implementation or operation of the registered CDM project activity during this monitoring period.

E.4. Post-registration changes

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

Not applicable.

E.4.2. Corrections

Not applicable.

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

Not applicable.

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

Not applicable.

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

Not applicable.

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

Not applicable.

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

Not applicable.

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

Means of verification	The verification team has verified the monitoring plan in the registered updated PDD with the approved methodology ACM0002, version 07 to confirm the compliance.
Findings	The monitoring plan in the registered PDD is in accordance with the approved methodology ACM0002, version 07, applied by the proposed CDM project activity. No correction or permanent change to the monitoring plan has been requested to the CDM Executive Board.
Conclusion	The monitoring plan in the registered PDD is in accordance with the approved methodology ACM0002, version 07.

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	The verification team has verified the defaulted figures which are not monitored in crediting period via comparing with the registered updated PDD.
Findings	Parameter "Emission factor of NCPG in the monitoring period" ($EF_{grid,CM,y}$) is the only parameter that is fixed at renewal of crediting period. The value of the parameter is 1.0753 tCO_2e which was calculated according to the procedure outlined in B.6 of the registered PDD for the 1st crediting period.
Conclusion	The verification team confirmed that the figures are consistent with its sources.

E.6.2. Data and parameters monitored

Means of verification	The verification team has verified the following via the site inspection and documents review: - Whether the registered monitoring plan has been properly implemented and followed by the project participants; - Whether all parameters stated in the registered monitoring plan and relevant Board decisions have been monitored and updated as applicable, including: i) Project emission parameters; ii) Baseline emission parameters; iii) Leakage parameters; iv) Management and operational system: the responsibilities and authorities for monitoring and reporting are in accordance with the responsibilities and authorities stated in the registered monitoring plan; - Whether the equipment used for monitoring is controlled and calibrated in accordance with the registered monitoring plan, the applied methodology, Board guidance, local/national standards, or as per the manufacturer's specification; - Whether the monitoring results are consistently recorded as per approved frequency; - Whether the quality assurance and quality control procedures have been applied in accordance with the registered monitoring plan.
Findings	The monitoring has been carried out in accordance with the monitoring plan in registered updated PDD. All parameters were monitored and determined as per the monitoring plan which is listed in below table:

Meth/tool	PDD	MR	Compliance?
EG_y	-	EG_y	Yes, although not mentioned in the MP of PDD but necessary for the ER calculation.
-	EG_{export}	EG_{export}	Yes, although not mentioned

			in the Methodology but necessary for the ER calculation.
	EG_{import}	EG_{import}	Yes, although not mentioned in the Methodology but necessary for the ER calculation.
-	-	E_I	Yes, although not mentioned in the MP of PDD and Methodology but necessary for the ER calculation.
-	-	E_{II}	Yes, although not mentioned in the MP of PDD and Methodology but necessary for the ER calculation.
-	-	EG_{total}	Yes, although not mentioned in the MP of PDD and Methodology but necessary for the ER calculation.

Data / Parameter:	EG_y
Data unit:	MWh
Description:	The net electricity supplied to the grid by the project
Purpose of the data:	Calculation of baseline emissions
Parameter value:	239,731.446
Source of data used:	Calculated by EG_{export} minus EG_{import}
Information flow:	N.A as calculated by EG_{export} minus EG_{import}
Monitoring method, frequency and equipments:	N.A as calculated by EG_{export} minus EG_{import}
Calibration:	N.A as calculated by EG_{export} minus EG_{import}
QA/QC procedure:	Data record will be archived for a period of 2 years after the crediting period to which the records pertain.

Means of verification:	N.A as calculated by EG_{export} minus EG_{import}
Cross-check:	N.A as calculated by EG_{export} minus EG_{import}

Data / Parameter:	EG_{export}
Data unit:	MWh
Description:	Quantity of annual electricity exported to the grid by the proposed project
Purpose of the data:	Calculation of baseline emissions
Parameter value:	242,237.862
Source of data used:	Calculated by E_I, E_{II} and EG_{total} as below: $EG_{export} = EG_{total} * E_I / (E_I + E_{II})$
Information flow:	N.A as calculated by E_I, E_{II} and EG_{total}
Monitoring method, frequency and equipments:	N.A as calculated by E_I, E_{II} and EG_{total}
Calibration:	N.A as calculated by E_I, E_{II} and EG_{total}
QA/QC procedure:	Data record will be archived for a period of 2 years after the crediting period to which the records pertain.
Means of verification:	N.A as calculated by E_I, E_{II} and EG_{total}
Cross-check:	N.A as calculated by E_I, E_{II} and EG_{total}

Data / Parameter:	EG_{import}
Data unit:	MWh
Description:	Quantity of annual electricity imported from the grid by the proposed project
Purpose of the data:	Calculation of baseline emissions
Parameter value:	2,506.416
Source of data used:	Meter Reading Record (MRRs) issued by the project owner and Electricity Transaction Notes (ETNs) issued by power grid company covering monitoring period
Information flow:	The data of main meter (M) (bidirectional) was measured continuously, recorded monthly and archived electronically. At 24:00 hr of last day of each month, the staff from project owner and power grid company will record main meter's readings and form Meter Reading Records (MMRs). The staff from power grid company then transcribes the data into Electricity Transaction Notes (ETNs), then after the confirmation of the project owner for the ETNs, the project owner will issue the invoice. The data for MRRs and ETNs have been sent to the CDM consulting company for reporting of GHG emission reduction. The conservative one would be used for ER calculation.
Monitoring method,	The parameter was measured continuously and recorded monthly by main meter (M) installed at 220kV substation of

frequency and equipments:	power grid during the monitoring period verified by site visit. See below for the information of the gateway meter verified by site visit and checking calibration certificates:

Type	Serial Number	Accuracy
DSSD331	20040700 7Z0071	0.2s

Calibration:	The calibration information are below:

Calibration date	Valid until
23/10/2012	22/10/2013
14/10/2013	13/10/2014
25/06/2014	24/06/2015

The calibration was conducted by an accredited third party which is North China Electricity Power Research Institute (NCEPRI) was accredited valid from 13/06/2012 to 12/06/2016

QA/QC procedure:	Data record will be archived for a period of 2 years after the crediting period to which the records pertain.
Means of verification:	Data of the parameter was verified by checking MRRs. All data is in line with MRRs; Information flow was verified by checking MRRs and ETNs, and all information are consistent; Monitoring method was verified by site visit, checking calibration certificates, all monitoring method meets the description in the PDD; Calibration was verified by checking calibration certificate and Accreditation certificate, all calibration of monitoring equipment meets the requirement indicated in the PDD.
Cross-check:	MRRs based on raw data is crosschecked by ETNs.

Data / Parameter:	E_I
Data unit:	MWh
Description:	Electricity exported to the grid by the project (CECIC Zhangbei Dayangzhuang Wind Farm Project)
Purpose of the data:	Calculation of baseline emissions
Parameter value:	243,280.400
Source of data used:	Meter Reading Record (MRRs) issued by the project owner and Electricity Transaction Notes (ETNs) issued by power grid company covering monitoring period
Information flow:	The data of E_I meter (bidirectional) was measured continuously, recorded monthly and archived electronically. At 24:00 hr of last day of each month, the staff from project owner and power grid company will record E_I meter's readings and form Meter Reading Records (MMRs). The staff from power grid company then transcribes the data into Electricity Transaction Notes (ETNs), then after the confirmation of the project owner for the ETNs, the project owner will issue the invoice. The data for MRRs and ETNs have been sent to the CDM consulting company for reporting of GHG emission reduction. The conservative one would be used for ER calculation.

Monitoring method, frequency and equipments:	The parameter was measured continuously and recorded monthly by E_I meter installed at 110 kV on project site substation (E_I) during the monitoring period verified by site visit. See below for the information of the gateway meter verified by site visit and checking calibration certificates:

Type	Serial Number	Accuracy
DTSD847-F4 (Original)	30087147	0.5s
DTZ178 (New)	130684955727	0.2s

The original meter (Serial No. 30087147) has been replaced by the new meter (Serial No. 130684955727) at 12:30 of 25/08/2013 confirmed by checking MRRs), also as the accuracy of the new meter improved comparing with the original meter, Applus+ LGAI confirmed there is no impact due to the change of the meter.

Calibration:	The calibration information are below:

Meter	Calibration Date	Valid Date
Original	31/10/2012	30/10/2013
New	17/07/2013	16/07/2014
	25/06/2014	24/06/2015

The calibration was conducted by an accredited third party which is Zhangjiakou Power Company Electric Measurement Centre was accredited valid from 14/02/2012 to 13/02/2015

QA/QC procedure:	Data record will be archived for a period of 2 years after the crediting period to which the records pertain.
Means of verification:	Data of the parameter was verified by checking MRRs. All data is in line with MRRs; Information flow was verified by checking MRRs and ETNs, and all information are consistent; Monitoring method was verified by site visit, checking calibration certificates, all monitoring method meets the description in the PDD; Calibration was verified by checking calibration certificate and Accreditation certificate, all calibration of monitoring equipment meets the requirement indicated in the PDD.
Cross-check:	MRRs based on raw data is crosschecked by ETN.

Data / Parameter:	E_{II}
Data unit:	MWh
Description:	Electricity exported to the grid by the other project (Gaojialiang project)
Purpose of the data:	Calculation of baseline emissions
Parameter value:	213,919.200
Source of data used:	Meter Reading Record (MRRs) issued by the project owner and Electricity Transaction Notes (ETNs) issued by power grid company covering monitoring period
Information flow:	The data of E_{II} meter (bidirectional) was measured

	continuously, recorded monthly and archived electronically. At 24:00 hr of last day of each month, the staff from project owner and power grid company will record E_{II} meter's readings and form Meter Reading Records (MMRs). The staff from power grid company then transcribes the data into Electricity Transaction Notes (ETNs), then after the confirmation of the project owner for the ETNs, the project owner will issue the invoice. The data for MRRs and ETNs have been sent to the CDM consulting company for reporting of GHG emission reduction. The conservative one would be used for ER calculation.
Monitoring method, frequency and equipments:	The parameter was measured continuously and recorded monthly by E_{II} meter installed at 110 kV on project site substation (E_{II}) during the monitoring period verified by site visit. See below for the information of the gateway meter verified by site visit and checking calibration certificates: Type / Serial Number / Accuracy DTSD847-F4 (Original) / 30087146 / 0.5s DTZ178 (New) / 130684955738 / 0.2s The original meter (Serial No. 30087146) has been replaced by the new meter (Serial No. 130684955738) at 12:30 of 25/08/2013 confirmed by checking MRRs, also as the accuracy of the new meter improved comparing with the original meter, Applus+ LGAI confirmed there is no impact due to the change of the meter.
Calibration:	The calibration information are below: Meter / Calibration Date / Valid Date Original / 31/10/2012 / 30/10/2013 New / 17/07/2013 / 16/07/2014 25/06/2014 / 24/06/2015 The calibration was conducted by an accredited third party which is Zhangjiakou Power Company Electric Measurement Centre was accredited valid from 14/02/2012 to 13/02/2015
QA/QC procedure:	Data record will be archived for a period of 2 years after the crediting period to which the records pertain.
Means of verification:	Data of the parameter was verified by checking MRRs. All data is in line with MRRs; Information flow was verified by checking MRRs and ETNs, and all information are consistent; Monitoring method was verified by site visit, checking calibration certificates, all monitoring method meets the description in the PDD; Calibration was verified by checking calibration certificate and Accreditation certificate, all calibration of monitoring equipment meets the requirement indicated in the PDD.
Cross-check:	MRRs based on raw data is crosschecked by ETNs.

Data / Parameter:	EG_{total}

<table>
<tr><td>Data unit:</td><td>MWh</td></tr>
<tr><td>Description:</td><td>Electricity exported to the grid by the project and the other project which share the same main meter with the project</td></tr>
<tr><td>Purpose of the data:</td><td>Calculation of baseline emissions</td></tr>
<tr><td>Parameter value:</td><td>455,245.958</td></tr>
<tr><td>Source of data used:</td><td>Meter Reading Record (MRRs) issued by the project owner and Electricity Transaction Notes (ETNs) issued by power grid company covering monitoring period</td></tr>
<tr><td>Information flow:</td><td>The data of main meter (M) (bidirectional) was measured continuously, recorded monthly and archived electronically. At 24:00 hr of last day of each month, the staff from project owner and power grid company will record main meter’s readings and form Meter Reading Records (MMRs). The staff from power grid company then transcribes the data into Electricity Transaction Notes (ETNs), then after the confirmation of the project owner for the ETNs, the project owner will issue the invoice.
The data for MRRs and ETNs have been sent to the CDM consulting company for reporting of GHG emission reduction. The conservative one would be used for ER calculation.</td></tr>
<tr><td>Monitoring method, frequency and equipments:</td><td>The parameter was measured continuously and recorded monthly by main meter (M) installed at 220kV substation of power grid during the monitoring period verified by site visit. See below for the information of the gateway meter verified by site visit and checking calibration certificates:
<table>
<tr><td>Type</td><td>Serial Number</td><td>Accuracy</td></tr>
<tr><td>DSSD331</td><td>200407007Z0071</td><td>0.2s</td></tr>
</table></td></tr>
<tr><td>Calibration:</td><td>The calibration information are below:
<table>
<tr><td>Calibration date</td><td>Valid until</td></tr>
<tr><td>23/10/2012</td><td>22/10/2013</td></tr>
<tr><td>14/10/2013</td><td>13/10/2014</td></tr>
<tr><td>25/06/2014</td><td>24/06/2015</td></tr>
</table>
The calibration was conducted by an accredited third party which is North China Electricity Power Research Institute (NCEPRI) was accredited valid from 13/06/2012 to 12/06/2016</td></tr>
<tr><td>QA/QC procedure:</td><td>Data record will be archived for a period of 2 years after the crediting period to which the records pertain.</td></tr>
<tr><td>Means of verification:</td><td>Data of the parameter was verified by checking MRRs. All data is in line with MRRs;
Information flow was verified by checking MRRs and ETNs, and all information are consistent;
Monitoring method was verified by site visit, checking calibration certificates, all monitoring method meets the description in the PDD;
Calibration was verified by checking calibration certificate and Accreditation certificate, all calibration of monitoring equipment meets the requirement indicated in the PDD.</td></tr>
<tr><td>Cross-check:</td><td>MRRs based on raw data is crosschecked by ETNs.</td></tr>
</table>

Conclusion	The verification team confirmed that: - The registered monitoring plan has been properly implemented and followed by the project participants; - All parameters stated in the registered monitoring plan and relevant Board decisions have been monitored; - The equipment used for monitoring is controlled and calibrated in accordance with the registered monitoring plan and the applicable national standard; - The monitoring results are consistently recorded as per approved frequency; - The quality assurance and quality control procedures have been applied in accordance with the registered monitoring plan.

E.6.3. Implementation of sampling plan

Means of verification	Not applicable.
Findings	Not applicable.
Conclusion	Not applicable.

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

Means of verification	The verification team verified the calibration records of the monitoring equipment and the qualification of the calibrator to confirm the compliance of the calibration.
Findings	3 monitoring meters are used in the monitoring period, The calibration information of the 3 meters (including the original one and new one) has been presented in the E.6.2. As required by the registered updated PDD, the meters are examined, tested, debugged and calibrated at least once a year by Zhangjiakou Power Company Electric Measurement Centre or North China Electricity Power Research Institute (NCEPRI). During this monitoring period, the meters are calibrated at least once a year and the validity period of each calibration is 1 year, which is in line with monitoring plan. The verification team confirmed that the 1st calibration is before this monitoring period and the latest calibration validity period covers the last day of this monitoring period. Thereby, it is confirmed that the calibration interval is consistent with the monitoring plan. The validity period for the calibrations covered the whole monitoring period. Zhangjiakou Power Company Electric Measurement Centre was accredited by China National Accreditation Service for Conformity Assessment for testing and calibration of electricity meter. The effective period of the accreditation covers 14/02/2012 to 13/02/2015. North China Electricity Power Research Institute (NCEPRI) was accredited by China National Accreditation Service for Conformity Assessment for testing and calibration of electricity meter. The effective period of the accreditation covers 13/06/2012 to 12/06/2016.
Conclusion	The verification team confirmed that the calibration is conducted at the frequency as specified by the registered monitoring plan. The calibration is confirmed to the effective via verifying the calibration record and qualification of the calibrator.

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	The data recorded in the Monthly Reading Reports (MRRs) have been verified by the verification team. The recorded data have also been crosschecked with Electricity Transaction Notes (ETNs). Defaulted value used for baseline GHG emissions calculation has been verified against the data source. The calculation process as well as all assumptions used in the calculation of the baseline GHG emissions has been verified against the methodology and the registered updated PDD. The verification team also re-produced the calculation to confirm the correctness of the baseline GHG emissions calculation.
Findings	The calculation tool, i.e. the ER Calculation spreadsheet clearly and transparently

	describes the calculation of baseline GHG emissions. As a result of verification of the baseline GHG emissions calculation process, the verification team confirmed that all the parameters required for the determination of the emission reductions have been included in the Monitoring Report and ER calculation spreadsheet and are consistent with the applied methodology ACM0002 version 07 and the monitoring plan contained in the registered updated PDD. The parameters are complete in this monitoring period. After verifying the reported figures with the raw data sources, it's confirmed that the values of the parameters from the raw data sources are consistent with those quoted in the ER calculation spreadsheet and the Monitoring Report. The verification process for the same has been clearly described in section E.6.2 of the report. The reported data of the monitored parameters have been crosschecked against other evidences than from the raw data records to confirm the appropriateness of the values. The verification team re-produced the calculation process in the ER calculation spreadsheet and confirmed that the methods and formulae used to obtain the baseline emissions are appropriate. The calculation has been done in accordance with the methods and formulae described in the registered monitoring plan and applicable methodology. Total emission reductions during the monitoring period have been rounded down to an integer. The verification team confirms that the assumptions, emission factors and default values (ex-ante values) from PDD used in the emission reductions calculation during the monitoring period have been correctly justified. All the emission factors and default values are explicitly mentioned in the final MR.
Conclusion	The verification team concluded that: - A complete set of data for calculating the baseline GHG emissions are available during this monitoring period; - Reported electricity data for calculating baseline GHG emissions have ben cross-checked against electricity sales invoices; - Appropriate methods and formulae for calculating baseline GHG emissions have been followed; - Assumptions, emission factors and default values that were applied in the calculations have been justified;

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

Means of verification	The calculation process of the project GHG emissions has been verified against the methodology and the registered updated PDD.
Findings	The project emission (PE_y) is zero as the project activity is a wind farm power generation project without any fossil fuel consumption. Thus no project emissions are envisaged from the project activity.
Conclusion	The project GHG emissions during this monitoring period are 0.

E.8.3. Calculation of leakage GHG emissions

Means of verification	The calculation process of the leakage GHG emissions has been verified against the methodology and the registered updated PDD.
Findings	According to the Methodology ACM0002, there will be no leakage caused by the Project activity. Thus leakage is 0.
Conclusion	The leakage GHG emissions during this monitoring period are 0.

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

Means of verification	The calculation process of the GHG emission reductions has been verified against the methodology and the registered updated PDD.
Findings	The GHG emission reductions equal to the baseline GHG emissions minus the project GHG emissions and the leakage GHG emissions.
Conclusion	The verification team confirmed that the GHG emission reductions during this

	monitoring period have been correctly calculated and reported.

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 verification team verified the comparison process of actual GHG emission reductions with the estimates in registered updated PDD.
Findings	The estimated emission reduction in the 1st crediting period is 103,796 tCO_2e per year. The period of 01/01/2013 - 31/05/2015 includes 881 days. So the estimated emission reduction is: 103,796 tCO_2e / 365 * 881 = 250,532 tCO_2e.
Conclusion	The verification team confirmed that the calculation of the estimated value during this monitoring period in the registered updated PDD is correct. The actual values achieved during this monitoring period are 2.9% higher than the estimates in the registered PDD which is in normal range.

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

Means of verification	The verification team verified the explanation in the MR of the difference from the estimated value in the registered updated PDD.
Findings	The actual emission reductions are 2.9% higher than the values estimated in the registered PDD which should be considered in the normal range.
Conclusion	The actual emission reductions are 2.9% higher than the values estimated in the registered PDD, which has been explained in the MR. The verification team confirmed the explanation is 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 verification team confirmed the calculation of actual GHG emission reductions in the MR during the first commitment period and the period from 01/01/2013 onwards.
Findings	Whole GHG emission reductions of this monitoring period are from 01/01/2013 onwards.
Conclusion	Whole GHG emission reductions of this monitoring period are from 01/01/2013 onwards. Therefore, in the MR the presentation of GHG emission reductions from 01/01/2013 onwards are correct.

SECTION F. Internal quality control

As a final step of verification, the final documentation including the verification report has to undergo an internal quality control by the Technical Reviewer. Each report has to be finally approved either by the DOE's Technical Manager or the Deputy. In case one of these two persons is part of the verification team, the approval can only be given by the person who is not a part of the verification team. If the documents have been satisfactorily approved, the Request for Issuance is submitted to the CDM-EB along with the relevant documents.

SECTION G. Verification opinion

Applus+ LGAI has been engaged by CECIC Wind Power (Zhangbei) Yunwei Co. Ltd. to perform the seventh periodical verification of the CECIC Zhangbei Dayangzhuang Wind Farm Project (UNFCCC Ref. No. 1855).

The management of CECIC Wind Power (Zhangbei) Yunwei Co. Ltd. is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project's Monitoring Plan in the registered PDD version 1.3 completed on 25/10/2008 and the applied methodology ACM0002 Version 07.

Our verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakesh accord, as well as those defined by the CDM Executive Board. Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. The verification can confirm that:

- *the project is operated as planned and described in the project design document approved by the EB;*

- *the monitoring plan is as per the applied methodology;*
- *the monitoring in Monitoring Report is as per the PDD and the monitoring plan approved by the EB;*
- *the development and maintenance of records and reporting procedures are in accordance with the registered monitoring plan;*
- *the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately;*
- *the monitoring system is in place and generates GHG emission reductions data;*
- *the GHG emission reductions are calculated without material misstatements.*

In our opinion, the GHG emission reductions for CECIC Zhangbei Dayangzhuang Wind Farm Project for the monitoring period 01/01/2013 to 31/05/2015 as reported in Monitoring Report, prepared on the basis of the project's Monitoring Plan are fairly stated.

SECTION H. Certification statement

Based on the information we have seen and evaluated, we confirm the following statement:

Reporting period:	From 01/01/2013 - 31/05/2015
Verified emissions in the above reporting period:	
Leakage emissions	0 tCO_2 equivalents
Project emissions	0 tCO_2 equivalents
Baseline emissions	257,781 tCO_2 equivalents
Emission reductions	257,781 tCO_2 equivalents
Actual values achieved up to 31 December 2012	0 tCO_2 equivalents
Actual values achieved from 1 January 2013 onwards	257,781 tCO_2 equivalents

Appendix 1. Abbreviations

Abbreviations	Full texts
ACM	Approved Consolidated Methodology
AM	Approved Methodology
AMS	Approved Methodology Small Scale
Applus+ LGAI	LGAI Technological Center, S.A. (Applus)
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CER	Certified Emission Reduction
CM	Combined Margin
CMP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
EIA	Environmental Impact Assessment
ER	Emission Reduction
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG	Greenhouse Gas(es)
IPCC	Intergovernmental Panel on Climate Change
IRL	Information Reference List
IRR	Internal Rate of Return
KP	Kyoto Protocol
MP	Monitoring Plan
MR	Monitoring Report
NCPG	North China Power Grid
NGO	Non-Governmental Organization
OM	Operational Margin
PDD	Project Design Document
PP	Project Participant
UNFCCC	United Nations Framework Convention for Climate Change
VVS	Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers

Hanshen (Denny) Xue (Master Degree in Environmental Engineering, Bachelor Degree in Thermal Engineering) is a lead auditor appointed by Applus+ LGAI for the GHG project assessment. He is based on Shanghai. He has 1.5 years of work experiences in CDM project development. Before he joined Applus+ LGAI, he has been worked for Shanghai Chuanji Investment and Management which is a CDM consultancy company as a project manager for CDM project development.

Miquel SITJES CABANAS (B. Sc. degree in Chemistry 1975, Universidad de Barcelona – Spain). He has 15 years of experience in a Spanish chemical group company specialized in the manufacturing of raw chemical products, where he worked as the Manager of Quality Control, Production Manager and Environmental Manager. He also worked in the Spanish pharmaceutical industry for 7 years as Quality, Manufacturing and Environmental Manager. He has been working in the Applus+ LGAI Technological Centre

since 1999: he started working there as an auditor (quality, environment, CDM, VCS, greenhouse gas verification and others) and since 2006 he has been the Systems Certification Technical Manager.

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	Project owner	Monitoring Report, version 01	01/06/2015	Project participants
2	Project owner	Monitoring Report, version 02	07/07/2015	Project participants
3	Project owner	ER calculation spreadsheet		Project participants
4	Project owner	Registered PDD Version 1.3	25/10/2008	Project participants
5	Bureau Veritas Certification Holding SAS	Validation Report Version 02	21/05/2008	Others
6	TÜV SÜD South Asia	Verification Report Version 03	28/03/2013	Others
7	Project owner	Nameplate of equipments		Project participants
8	UNFCCC	Information on UNFCCC:	http://cdm.unfccc.int/Projects/DB/BVQI1211950998.53/view	Others
9	Chinese NDRC	Chinese Regional Grid Baseline Emission Factors 2007	09/08/2007	Others
10	Hebei Power Grid Company	Electricity Transaction Notes	Covering the monitoring period	Project participants
11	Project owner	Meter Reading Record (MRRs) for M, E_I and E_{II} meters	Covering the monitoring period	Project participants
12	North China Electricity Power Research Institute (NCEPRI) or Zhangjiakou Power Company Electric Measurement Centre	Calibration certificate for M, E_I and E_{II} meters	Covering the monitoring period	Project participants
13	North China Electricity Power Research Institute (NCEPRI)	Accreditation Certificate for North China Electricity Power Research Institute (NCEPRI)	From 13/06/2012 to 12/06/2016	Project participants
14	Zhangjiakou Power Company Electric Measurement Centre	Accreditation Certificate for Zhangjiakou Power Company Electric Measurement Centre	From 14/02/2012 to 13/02/2015	Project participants
15	Project owner	CDM management manual		Project participan

				ts
16	Project owner	Training Record		Project participants
17	Project owner	Operation Log		Project participants
18	Project owner	Power Purchasing Agreement		Project participants

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

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

FAR ID	xx	**Section no.**	E.2	**Date:** DD/MM/YYYY
Description of FAR				
Project participant response				**Date:** DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				**Date:** DD/MM/YYYY

Table 2. CL from this verification

CL ID	01	**Section no.**	E.7	**Date:** 07/07/2015
Description of CL				
Please provide the model of the electricity meters used for monitoring.				
Project participant response				**Date:** 07/07/2015
The information of model of the electricity meters used for monitoring was added to the MR. E_I: The meter reading the record of electricity exported to the grid by CECIC Zhangbei Dayangzhuang Wind Farm Project before 25/08/2013 Model (E_I): DTSD847-F4 E_{II}: The meter reading the record of electricity exported to the grid by CECIC Zhangbei Gaojialiang Wind farm Project before 25/08/2013 Model (E_{II}): DTSD847-F4 E_I: The meter reading the record of electricity exported to the grid by CECIC Zhangbei Dayangzhuang Wind Farm Project after 25/08/2013 Model (E_I): DTZ178 E_{II}: The meter reading the record of electricity exported to the grid by CECIC Zhangbei Gaojialiang Wind farm Project after 25/08/2013 Model (E_{II}): DTZ178 E: The meter reading the record of electricity exported to the grid by CECIC Zhangbei Dayangzhuang Wind Farm Project and CECIC Zhangbei Gaojialiang Wind farm Project Model (M): DSSD331				
Documentation provided by project participant				
The calibration reports were provided.				
DOE assessment				**Date:** 07/07/2015
After checking calibration report and site visit, it is confirmed that correct information of the meters used for monitoring has been included in the MR.				

Table 3. CAR from this verification

CAR ID	xx	**Section no.**		**Date:** DD/MM/YYYY
Description of CAR				

Project participant response	Date: DD/MM/YYYY
Documentation provided by project participant	
DOE assessment	**Date:** DD/MM/YYYY

Table 4. FAR from this verification

FAR ID	xx	Section No.		Date: DD/MM/YYYY
Description of FAR				
Project participant response				**Date:** DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				**Date:** DD/MM/YYYY