MONITORING REPORT FORM
Version 01 - in effect as of: 28/09/2010

CONTENTS

MONITORING REPORT
Version 01.1 on 01/12/2010[1]

Guyuan Wuhuaping 49.5 MW Wind Power Project
Reference number: 3356
The first monitoring period (from 01/12/2009 to 30/06/2010)

SECTION A. General description of the project activity

A.1. Brief description of the project activity:

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Guyuan Wuhuaping 49.5 MW Wind Power Project (hereinafter referred to as the Project) is located within Pingdingbu Town, Guyuan County, Zhangjiakou City, Hebei Province, P.R.China. It is invested, constructed and operated by Construction Investment Yanshan (Guyuan) Wind Energy Co., Ltd.

The total installed capacity of the Project is 49.5 MW equipped with 33 sets of wind turbines with a unit installed capacity of 1,500 kW. Electricity generated by the Project is delivered to North China Grid via a 110 kV transmission line. The Project as a renewable energy source generates emission reductions by avoiding CO_2 emissions from the same amount of electricity generation from North China Grid, which is mainly composed of traditional thermal power plants.

Construction of the Project was started on 10/05/2009[2] and the Project was commissioned on 30/10/2009.

This Monitoring Report focuses on the emission reductions generated by the Project from 01/12/2009 to 30/06/2010. The actual emission reductions of the Project are 86,949 tCO_2e in this monitoring period.

A.2. Project Participants

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Name of Party involved (*) ((host) indicates a host Party)	Private and/or public entity(ies) project participants (*) (as applicable)	Kindly indicate if the Party involved wishes to be considered as project participant (Yes/No)
P.R.China (host)	Construction Investment Yanshan (Guyuan) Wind Energy Co., Ltd. (the Project Owner)	Yes

A.3. Location of the project activity:

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The Project is located within Pingdingbu Town, Guyuan County, Zhangjiakou City, Hebei Province, P.R.China. The center of the Project has geographical coordinates with east longitude of 115°45′08″ and north latitude of 41°36′36″.

A.4. Technical description of the project

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Wind power generation is the conversion of wind energy into electricity. In the wind farm, individual turbines are interconnected with a power collection system and communication network. At a substation,

[1] The date format in this report is DD/MM/YYYY.
[2] The date is obtained from *Starting Construction Order* of the Project issued on 10/05/2009.

the voltage is boosted with a transformer for connection to the high voltage electric power transmission system.[3]

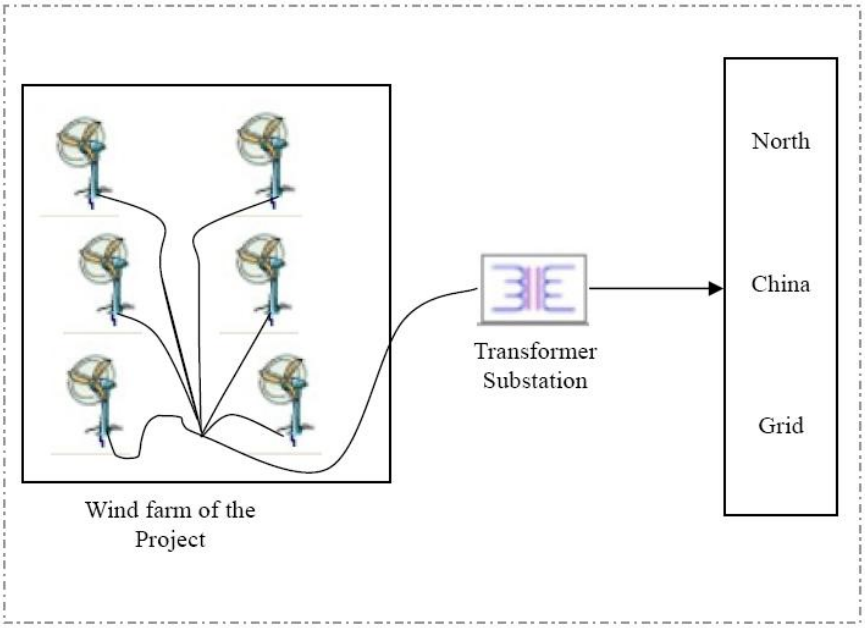

Figure 1. Schematic diagram of wind power generation in the Project

The total installed capacity of the Project is 49.5 MW equipped with 33 sets of wind turbines with a unit installed capacity of 1,500 kW. Electricity generated by the Project is delivered to North China Grid via a 110 kV transmission line.

Key technical parameters of turbines in the Project are shown in Table 1.

Table 1. Key technical parameters of turbines in the Project

Equipment	Quantity	Type	Technical parameters	Source
Turbine	33 sets	GE1.5sle	Rated power: 1,500 kW Quantity of blades: 3 Height of the hub: 80 m Lifetime: 20 yrs	*Turbine Purchase Agreement* of the Project
			Power factor of generator: ± 0.95 Annual operating hours: 2,368 h	The Feasibility Study Report (hereinafter referred to as the FSR) of the Project

A.5. Title, reference and version of the baseline and monitoring methodology applied to the project activity:

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Approved consolidated baseline and monitoring methodology ACM0002 (version 10): *Consolidated baseline methodology for grid-connected electricity generation from renewable sources* and monitoring methodology.

Tool to calculate the emission factor for an electricity system (version 02).

Tool for the demonstration and assessment of additionality (version 05.2).

For more information regarding the methodology please refer to

[3] For more information regarding wind power generation, please refer to http://en.wikipedia.org/wiki/Wind_power.

http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html.

A.6. Monitoring period of the project activity and related information:

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This VCS monitoring period of the Project is from 01/12/2009 to 30/06/2010.

The Project was registered as a CDM project on 03/07/2010. As per *Further Guidance for Projects that are Registered in Two GHG Programs* published on 19/03/2008, "Projects registered under other VCS Program approved GHG Programs (such as the CDM) are eligible to create Voluntary Carbon Units (VCUs) for the emissions reductions or removals not registered under that GHG Program. The VCUs can be registered back to the project start date provisions in VCS 2007 Clause 5.2.1. This is, 28 March 2006 or two years prior to the completion of the project validation whatever is later."

The final CDM validation report for the Project was issued by Bureau Veritas Certification on 04/02/2010. The starting date of this VCS monitoring period (i.e. 01/12/2009) is after both 28/03/2006 and 04/02/2008 (two years prior to the completion of the project validation). Therefore, requirements provided in *Further Guidance for Projects that are Registered in Two GHG Programs* are fulfilled by the Project.

A.7. Name of responsible person(s)/entity(ies):

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James Shan JIANG
Additional Consulting and Engineering
Tel: +86-13911049424
Email: James@Additional.cn

SECTION B. Implementation of the project activity

B.1. Implementation status of the project activity

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The Project is a greenfield grid-connected wind power project. The total installed capacity of the Project is 49.5 MW equipped with 33 sets of wind turbines with a unit installed capacity of 1,500 kW. Electricity generated by the Project is delivered to North China Grid via a 110 kV transmission line. Please refer to Table 1 for key technical parameters of turbines in the Project.

Construction of the Project was started on 10/05/2009[4]. And the Project was commissioned on 30/10/2009.

From 30/10/2009 till now, key equipments of the Project have worked in line with the registered CDM-PDD (version 03) approved by CDM EB. During this monitoring period, no overhaul was undertaken for the Project and there was no downtime or exchange of equipment.

No special event or situation, which may impact the applicability of the methodology, occurred in this monitoring period.

B.2. Revision of the monitoring plan

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There is no revision of the monitoring plan of the Project.

B.3. Request for deviation applied to this monitoring period

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There is no deviation applied to this monitoring period.

B.4. Notification or request of approval of changes

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There is no notification or request of approval of changes from the Project as described in the registered CDM-PDD (version 03).

[4] The date is obtained from *Starting Construction Order* of the Project issued on 10/05/2009.

SECTION C. Description of the monitoring system

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In line with the methodology ACM0002 (version 10) and the registered CDM-PDD (version 03), it is required to monitor the following parameters:

Parameter	Description
$EG_{PJtoGRID,y}$	The electricity delivered by the Project to the grid in year y
$EG_{GRIDtoPJ,y}$	The electricity imported by the Project from the grid in year y
$EG_{PJ,y}$	The quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the Project in year y

Monitoring point of the Project

The monitoring point of the Project is shown in Figure 2.

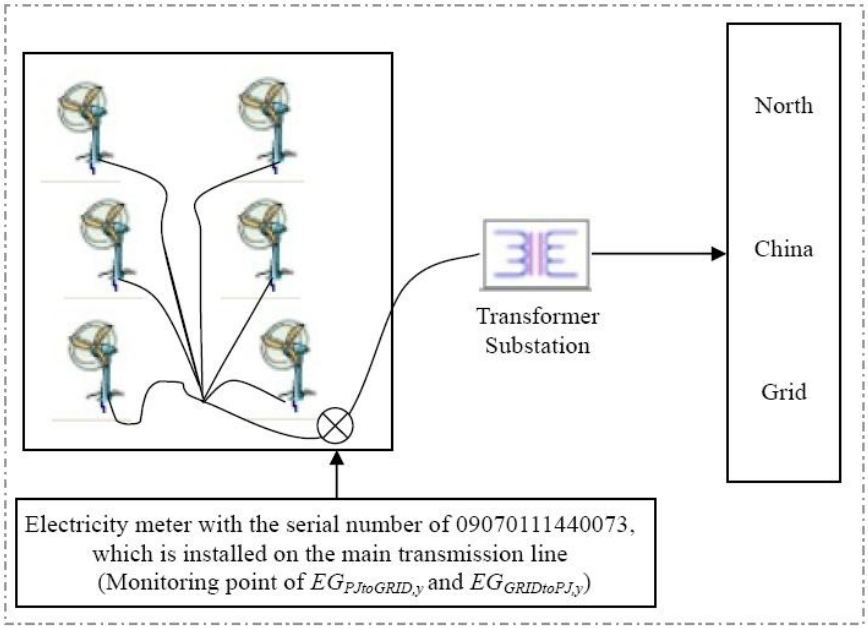

Figure 2. Monitoring point of the Project

Information on the monitoring equipment used in the Project is summarized in Table 2.

Table 2. Monitoring equipment used in the Project

Parameter	Monitoring point	Serial number	Accuracy class
$EG_{PJtoGRID,y}$	Electricity meter installed on the main transmission line of the Project	09070111440073	0.2s
$EG_{GRIDtoPJ,y}$	Electricity meter installed on the main transmission line of the Project	09070111440073	0.2s
$EG_{PJ,y}$	N/A	N/A	N/A

Data generation, recording and calculation

The electricity delivered by the Project to the grid in year y:

The electricity delivered by the Project to the grid in year y ($EG_{PJtoGRID,y}$) was continuously measured by the bi-directional electricity meter installed on the main transmission line of the Project.

Readings of the electricity meter were recorded every day in the Daily Reading Records by designated personnel at the wind farm of the Project. Designated personnel of the Project Owner monthly

summarized and recorded readings of the electricity meter in Monthly Production Report of the Project to verify the data.

For the electricity delivered by the Project to the grid ($EG_{PJtoGRID,y}$), Electricity Transaction Notes (hereinafter referred to as ETNs) were monthly issued by the grid company to the Project Owner. Based on the data on ETNs, the Project Owner issued sales receipts to the grid company subsequently on a monthly basis. ETNs issued by the grid company are used as sales receipts for crosscheck.

The electricity imported by the Project from the grid in year y:

The electricity imported by the Project from the grid in year y ($EG_{GRIDtoPJ,y}$) was continuously measured by the bi-directional electricity meter installed on the main transmission line of the Project.

Readings of the electricity meter were recorded every day in the Daily Reading Records by designated personnel at the wind farm of the Project. Designated personnel of the Project Owner monthly summarized and recorded readings of the electricity meter in Monthly Production Report of the Project to verify the data.

For the electricity imported by the Project from the grid ($EG_{GRIDtoPJ,y}$), sales receipts were issued by the grid company to the Project Owner on a monthly basis. Sales receipts issued by the grid company are used for crosscheck.

The quantity of net electricity generation:

The quantity of net electricity generation that was produced and fed into the grid as a result of the implementation of the Project in year y ($EG_{PJ,y}$) was calculated monthly with on-site monitored data of $EG_{PJtoGRID,y}$ and $EG_{GRIDtoPJ,y}$ using the formula $EG_{PJ,y}=EG_{PJtoGRID,y}-EG_{GRIDtoPJ,y}$.

Organizational structure, roles and responsibilities of personnel

The operation and management structure and the responsibilities of the principals are as follows.

The chief responsible person for the Project is Zhao Yongchao, Project Manager of CDM Office. Responsibilities for the monitoring activities are listed in Table 3.

Table 3. Responsibilities for Monitoring Activities

Activity	Responsible person
- Reading and recording of electricity meters - Collection and archiving of reading records of electricity meters - Collection and archiving of electricity sales receipts	Liu Jian, Yang Zhongjie, Yao Bin
- Calibration and maintenance of electricity meters - Collection and archiving of calibration certificates of electricity meters	Liu Jian, Han Jianying, Zhang Xiangdong
- Operation and maintenance of the Project	Liu Jian, Yang Zhongjie, Yao Bin
- Training of staff - Collection and archiving of training records	Liu Jian, Yao Bin

Emergency procedures

If abnormal operation happens, on-site operators should immediately report to Emergency Office. Emergency Office takes the responsibility to handle the erroneous measurement as follows:

- If the reason for erroneous measurement is the malfunction of the meter(s), use the data automatically obtained and saved by the computer system as backup.

- If the erroneous measurement is caused by employees in charge of recording, use the data automatically obtained and saved by the computer system as backup. At the same time, training courses will be re-arranged for relevant employees to ensure the correct implementation of the monitoring plan, so as to prevent error.

SECTION D. Data and parameters

D.1. Data and parameters determined at registration and not monitored during the monitoring period, including default values and factors

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Data / Parameter:	$CAP_{j,y}$
Data unit:	MW
Description:	Total installed capacity of province j of North China Grid in year y
Source of data used:	*China Electric Power Yearbook* from 2005 to 2007
Value(s) :	See Annex 3 of the registered CDM-PDD (version 03) for details.
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	The data are used for calculation of baseline emissions.
Additional comment:	-

Data / Parameter:	$GEN_{j,y}$
Data unit:	MWh
Description:	Total power generation of province j of North China Grid in year y
Source of data used:	*China Electric Power Yearbook* from 2005 to 2007
Value(s) :	See Annex 3 of the registered CDM-PDD (version 03) for details.
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	The data are used for calculation of baseline emissions.
Additional comment:	-

Data / Parameter:	$r_{j,y}$
Data unit:	-
Description:	Auxiliary electricity consumption rate of province j of North China Grid in year y
Source of data used:	*China Electric Power Yearbook* from 2005 to 2007
Value(s) :	See Annex 3 of the registered CDM-PDD (version 03) for details.
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	The data are used for calculation of baseline emissions.
Additional comment:	-

Data / Parameter:	$F_{i,j,y}$
Data unit:	t or m^3
Description:	Consumption of fuel i of province j of North China Grid in year y
Source of data used:	*China Energy Statistical Yearbook* from 2005 to 2007
Value(s) :	See Annex 3 of the registered CDM-PDD (version 03) for details.
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	The data are used for calculation of baseline emissions.
Additional comment:	-

Data / Parameter:	$NCV_{i,y}$
Data unit:	TJ per mass or volume unit of fuel i in year y
Description:	Net calorific value of fuel i
Source of data used:	P287 of *China Energy Statistical Yearbook* 2007 edition
Value(s) :	See Annex 3 of the registered CDM-PDD (version 03) for details.
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	The data are used for calculation of baseline emissions.
Additional comment:	-

Data / Parameter:	$EF_{CO2,i,y}$
Data unit:	tC/TJ
Description:	CO_2 emission factor per unit of energy of the fuel i in year y
Source of data used:	*2006 IPCC Guideline for National Greenhouse Gas Inventories*
Value(s) :	See Annex 3 of the registered CDM-PDD (version 03) for details.
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	The data are used for calculation of baseline emissions.
Additional comment:	-

Data / Parameter:	$FC_{adv,coal}$
Data unit:	gCe/kWh
Description:	Weighted average of the fuel consumption for power generation of top 30 sets of 600 MW coal fired power generation units built in 2006 (taken as efficiency level of the best technology commercially available in China)
Source of data used:	*China's Regional Grid Baseline Emission Factors* (renewed on 30/12/2008)
Value(s) :	329.94
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	The data are used for calculation of baseline emissions.
Additional comment:	-

Data / Parameter:	$FC_{adv,oil/gas}$
Data unit:	gCe/kWh
Description:	Weighted average of the fuel consumption for power generation of 200 MW oil/gas fired combined cycle power generation units (taken as efficiency level of the best technology commercially available in China)
Source of data used:	*China's Regional Grid Baseline Emission Factors* (renewed on 30/12/2008)
Value(s) :	252
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	The data are used for calculation of baseline emissions.
Additional comment:	-

D.2. Data and parameters monitored

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Data / Parameter:	$EG_{PJ,y}$
Data unit:	MWh
Description:	The quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the Project in year y
Measured /Calculated /Default:	Calculated
Source of data:	The quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the Project in year y ($EG_{PJ,y}$) is calculated monthly with on-site monitored data of $EG_{PJtoGRID,y}$ and $EG_{GRIDtoPJ,y}$.
Value(s) of monitored parameter:	82,428.486
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	The data are used for calculation of baseline emissions.
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	-
Measuring/ Reading/ Recording frequency:	The quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the Project in year y ($EG_{PJ,y}$) is calculated monthly with on-site monitored data of $EG_{PJtoGRID,y}$ and $EG_{GRIDtoPJ,y}$.
Calculation method (if applicable):	Calculated as $EG_{PJtoGRID,y}$-$EG_{GRIDtoPJ,y}$.
QA/QC procedures applied:	Receipt(s) is used for crosscheck.

<table>
<tr><td>Data / Parameter:</td><td>$EG_{PJtoGRID,y}$</td></tr>
<tr><td>Data unit:</td><td>MWh</td></tr>
<tr><td>Description:</td><td>The electricity delivered by the Project to the grid in year y</td></tr>
<tr><td>Measured /Calculated /Default:</td><td>Measured</td></tr>
<tr><td>Source of data:</td><td>The electricity delivered by the Project to the grid in year y ($EG_{PJtoGRID,y}$) is determined as the conservative value between Monthly Production Reports and electricity sales receipts.</td></tr>
<tr><td>Value(s) of monitored parameter:</td><td>82,551.246</td></tr>
<tr><td>Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)</td><td>The data are used for calculation of baseline emissions.</td></tr>
<tr><td>Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)</td><td><table>
<tr><td>Monitoring equipment</td><td>Electricity meter installed on the main transmission line of the Project</td></tr>
<tr><td>Type</td><td>Electricity meter</td></tr>
<tr><td>Accuracy class</td><td>0.2s</td></tr>
<tr><td>Serial number</td><td>09070111440073</td></tr>
<tr><td>Calibration frequency</td><td>Once a year</td></tr>
<tr><td>Date of last calibration</td><td>15/09/2009</td></tr>
<tr><td>Validity</td><td>One year</td></tr>
</table></td></tr>
<tr><td>Measuring/ Reading/ Recording frequency:</td><td>The electricity delivered by the Project to the grid in year y ($EG_{PJtoGRID,y}$) is continuously measured by the bi-directional electricity meter installed on the main transmission line of the Project and monthly recorded.</td></tr>
<tr><td>Calculation method (if applicable):</td><td>-</td></tr>
<tr><td>QA/QC procedures applied:</td><td>Receipt(s) is used for crosscheck.</td></tr>
</table>

<table>
<tr><td>Data / Parameter:</td><td>$EG_{GRIDtoPJ,y}$</td></tr>
<tr><td>Data unit:</td><td>MWh</td></tr>
<tr><td>Description:</td><td>The electricity imported by the Project from the grid in year y</td></tr>
<tr><td>Measured /Calculated /Default:</td><td>Measured</td></tr>
<tr><td>Source of data:</td><td>The electricity imported by the Project from the grid in year y ($EG_{GRIDtoPJ,y}$) is determined as the conservative value between Monthly Production Reports and electricity sales receipts.</td></tr>
<tr><td>Value(s) of monitored parameter:</td><td>122.76</td></tr>
<tr><td>Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)</td><td>The data are used for calculation of baseline emissions.</td></tr>
<tr><td>Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)</td><td><table>
<tr><td>Monitoring equipment</td><td>Electricity meter installed on the main transmission line of the Project</td></tr>
<tr><td>Type</td><td>Electricity meter</td></tr>
<tr><td>Accuracy class</td><td>0.2s</td></tr>
<tr><td>Serial number</td><td>09070111440073</td></tr>
<tr><td>Calibration frequency</td><td>Once a year</td></tr>
<tr><td>Date of last calibration</td><td>15/09/2009</td></tr>
<tr><td>Validity</td><td>One year</td></tr>
</table></td></tr>
<tr><td>Measuring/ Reading/ Recording frequency:</td><td>The electricity imported by the Project from the grid in year y ($EG_{GRIDtoPJ,y}$) is continuously measured by the bi-directional electricity meter installed on the main transmission line of the Project and monthly recorded.</td></tr>
<tr><td>Calculation method (if applicable):</td><td>-</td></tr>
<tr><td>QA/QC procedures applied:</td><td>Receipt(s) is used for crosscheck.</td></tr>
</table>

SECTION E. Emission reductions calculation

E.1. Baseline emissions calculation

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As per the registered CDM-PDD (version 03), the baseline emissions of the Project include only CO_2 emissions from electricity generation in North China Grid that the Project is connected to. The baseline emissions are calculated as follows:

$BE_y=EG_{PJ,y}\times EF_{grid,CM,y}$ (1)

Where:

BE_y is the baseline emissions in year y (tCO_2e);

$EG_{PJ,y}$ is the quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the project activity in year y (MWh);

$EF_{grid,CM,y}$ is the combined margin CO_2 emission factor for grid connected power generation in year y calculated using *Tool to calculate the emission factor for an electricity system* (tCO_2e/MWh).

Net electricity generation supplied by the Project ($EG_{PJ,y}$)

As per the registered CDM-PDD (version 03), the Project is the installation of a new grid-connected renewable power plant at a site where no renewable power plant was operated prior to the implementation of the Project, so:

$EG_{PJ,y}=EG_{facility,y}$ (2)

$EG_{PJ,y}=EG_{PJtoGRID,y}-EG_{GRIDtoPJ,y}$ (3)

Where:

$EG_{PJ,y}$ is the quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the project activity in year y (MWh);

$EG_{facility,y}$ is the quantity of net electricity generation supplied by the Project to the grid in year y (MWh);

$EG_{PJtoGRID,y}$ is the electricity supplied by the Project to the grid in year y (MWh);

$EG_{GRIDtoPJ,y}$ is the electricity imported by the Project from the grid in year y (MWh).

Please refer to Table 4 and Table 5 for details.

Table 4. Electricity supplied by the Project to the grid (Unit: MWh)

Period	Electricity data from meter readings	Electricity data from sales receipts	Conservative value for ER calculation
	A	B	C=min(A,B)
01/12/2009 ~ 31/12/2009	13,887.720	13,836.805	13,836.805
Subtotal of the electricity supplied by the Project in 2009			**13,836.805**
01/01/2010 ~ 31/01/2010	12,080.640	12,028.895	12,028.895
01/02/2010 ~ 28/02/2010	9,287.520	9,226.254	9,226.254
01/03/2010 ~ 31/03/2010	13,717.440	13,678.267	13,678.267
01/04/2010 ~ 30/04/2010	14,596.560	14,531.232	14,531.232
01/05/2010 ~ 31/05/2010	12,695.760	12,635.288	12,635.288
01/06/2010 ~ 30/06/2010	6,646.200	6,614.505	6,614.505
Subtotal of the electricity supplied by the Project in 2010			**68,714.441**
Total electricity supplied by the Project in this monitoring period			**82,551.246**

As shown in Table 4, the electricity supplied by the Project to the grid in 2009 is 13,836.805 MWh and the electricity supplied by the Project to the grid in 2010 is 68,714.441 MWh. The total amount of the electricity supplied by the Project to the grid in this monitoring period ($EG_{PJtoGRID,y}$) is 82,551.246 MWh.

Table 5. Electricity imported by the Project from the grid (Unit: MWh)

Period	Electricity data from meter readings	Electricity data from sales receipts	Conservative value for ER calculation
	D	E	F=max(D,E)
01/12/2009 ~ 31/12/2009	10.560	6.034	10.560
Subtotal of the electricity imported by the Project in 2009			**10.560**
01/01/2010 ~ 31/01/2010	31.680	26.730	31.680
01/02/2010 ~ 28/02/2010	25.080	20.621	25.080
01/03/2010 ~ 31/03/2010	10.560	7.680	10.560
01/04/2010 ~ 30/04/2010	7.920	6.092	7.920
01/05/2010 ~ 31/05/2010	10.560	8.448	10.560
01/06/2010 ~ 30/06/2010	26.400	23.294	26.400
Subtotal of the electricity imported by the Project in 2010			**112.200**
Total electricity imported by the Project in this monitoring period			**122.760**

As shown in Table 5, the electricity imported by the Project from the grid in 2009 is 10.560 MWh and the electricity imported by the Project from the grid in 2010 is 112.200 MWh. The total amount of the electricity imported by the Project from the grid in this monitoring period ($EG_{GRIDtoPJ,y}$) is 122.760 MWh.

Moreover, after the construction period, there remained a 10 kV backup line at the Project Site. The 10 kV backup line was kept connected with the grid in case of emergency. In this monitoring period, no emergency situation occurred so no electricity was imported via the 10 kV backup line. Please refer to Table 6 for details.

Table 6. Electricity imported via the 10 kV backup line (Unit: MWh)

Period	Electricity data from meter readings	Electricity data from sales receipts	Conservative value for ER calculation
	G	H	I=max(G,H)
01/12/2009 ~ 31/12/2009	0	0	0
Subtotal of the electricity imported via the 10 kV backup line in 2009			**0**
01/01/2010 ~ 31/01/2010	0	0	0
01/02/2010 ~ 28/02/2010	0	0	0
01/03/2010 ~ 31/03/2010	0	0	0
01/04/2010 ~ 30/04/2010	0	0	0
01/05/2010 ~ 31/05/2010	0	0	0
01/06/2010 ~ 30/06/2010	0	0	0
Subtotal of the electricity imported via the 10 kV backup line in 2010			**0**
Total electricity imported via the 10 kV backup line in this monitoring period			**0**

To be conservative, if there was electricity imported via the 10 kV backup line, the electricity imported via the 10 kV backup line ($EG_{BackupLine}$) would be subtracted from the net electricity generation of the Project ($EG_{PJ,y}$). However, as shown in Table 6, no electricity was imported via the 10 kV backup line in this monitoring period. Therefore, the net electricity generation used for calculation of emission reductions can be calculated as
$EG_{PJ,y}$-$EG_{BackupLine}$=$EG_{PJ,y}$-0=$EG_{PJ,y}$.

Based on Table 4, Table 5 and Table 6, the total amount of the net electricity generation of the Project ($EG_{PJ,y}$) in this monitoring period is 82,428.486 MWh. Please refer to Table 7 for details.

Table 7. Net electricity generation of the Project (Unit: MWh)

Period	Electricity supplied by the Project to the grid	Electricity imported by the Project from the grid	Electricity imported via the 10 kV backup line	Net electricity generation of the Project
01/12/2009 ~ 31/12/2009	13,836.805	10.560	0	13,826.245
01/01/2010 ~ 30/06/2010	68,714.441	112.200	0	68,602.241
Total amount of net electricity generation in this monitoring period				**82,428.486**

For detailed calculation of the net electricity generation of the Project ($EG_{PJ,y}$), please refer to the emission reduction calculation spreadsheet.

Combined margin CO_2 emission factor ($EF_{grid,CM,y}$)

In the registered CDM-PDD (version 03), the combined margin emission factor ($EF_{grid,CM,y}$) is calculated as the weighted average of the operating margin emission factor ($EF_{grid,OM,y}$) and the build margin emission factor ($EF_{grid,BM,y}$).

- **Calculation of the operating margin emission factor ($EF_{grid,OM,y}$)**

As per *Tool to calculate the emission factor for an electricity system* (version 02), referring to *China's Regional Grid Baseline Emission Factors* (renewed on 30/12/2008), the method (a) simple OM is employed for calculation of the operating margin emission factor(s) ($EF_{grid,OM,y}$) of the Project.

In the registered CDM-PDD (version 03), Option B (based on the total net electricity generation of all power plants serving the system and the fuel types and total fuel consumption of the electricity system) is adopted to calculate the simple operating margin emission factor ($EF_{grid,OMsimple,y}$). The formula of $EF_{grid,OMsimple,y}$ calculation is

$$EF_{grid,OMsimple,y} = \frac{\sum_i FC_{i,y} \times NCV_{i,y} \times EF_{CO2,i,y}}{EG_y} \quad (4)$$

$$EG_y = \sum_j GEN_{j,y} \times (1 - r_{j,y}) \quad (4\text{-a})$$

Where:
$EF_{grid,OMsimple,y}$ is the simple operating margin emission factor in year y (tCO_2e/MWh);
$FC_{i,y}$ is the amount of fuel i consumed in North China Grid in year y (mass or volume unit);
$NCV_{i,y}$ is the net calorific value (energy content) of fuel i in year y (GJ/mass or volume unit);
$EF_{CO2,i,y}$ is the CO_2 emission factor of fuel i in year y (tCO_2e/GJ);
EG_y is the net electricity generated and delivered to the grid by all power sources serving the system, not including low-cost/must-run power plants/units, in year y (MWh);
i are all fuel types combusted in power sources in North China Grid in year y;
y is the relevant year as per the data vintage chosen in Step 3;
$GEN_{j,y}$ is total power generation of province j of North China Grid in year y;
$r_{j,y}$ is auxiliary electricity consumption rate of province j of North China Grid in year y.

In line with the registered CDM-PDD (version 03), the operating margin emission factor ($EF_{grid,OM,y}$) of North China Grid is 1.1169 tCO_2e/MWh.

- **Calculation of the build margin emission factor ($EF_{grid,BM,y}$)**

In the registered CDM-PDD (version 03), the build margin emission factor ($EF_{grid,BM,y}$) is calculated according to *Tool to calculate the emission factor for an electricity system* (version 02) using equation (5):

$$EF_{grid,BM,y} = \frac{\sum_{m} EG_{m,y} \times EF_{EL,m,y}}{\sum_{m} EG_{m,y}} \quad (5)$$

Where:
$EF_{grid,BM,y}$ is the build margin emission factor in year y (tCO_2/MWh);
$EF_{EL,m,y}$ is the CO_2 emission factor of power unit m in year y (tCO_2e/MWh);
$EG_{m,y}$ is the net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh);
m is the power units included in the build margin;
y is the most recent historical year for which power generation data are available.

$EF_{EL,m,y}$ is calculated according to Option A2 of Step 4(a) (Simple OM) in *Tool to calculate the emission factor for an electricity system* (version 02).

As the data of installed capacity can not be separated into coal fired, oil fired and gas fired currently, the build margin emission factor is calculated by the following steps and formulae:

Step a. Calculate the power generation emissions of solid fuel, liquid fuel and gas fuel and each share in the total emissions based on *Energy Balance Table* of the most recent year.

$$\lambda_{Coal,y} = \frac{\sum_{i \in COAL, j} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}{\sum_{i,j} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}} \quad (6)$$

$$\lambda_{Oil,y} = \frac{\sum_{i \in OIL, j} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}{\sum_{i,j} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}} \quad (7)$$

$$\lambda_{Gas,y} = \frac{\sum_{i \in GAS, j} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}{\sum_{i,j} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}} \quad (8)$$

Where:
$F_{i,j,y}$ is the amount of fuel i (in a mass or volume unit) consumed by province j in year(s) y;
$NCV_{i,y}$ is the net calorific value (energy content) of fuel i in year y (GJ/mass or volume unit);
$EF_{CO2,i,y}$ is the CO_2 emission factor of fuel i in year y (tCO_2e/GJ).
COAL, OIL and GAS are footnote group for solid fuels, liquid fuels and gas fuels.

Step b. Calculate the emission factor for thermal power of the grid based on the result of Step a and the efficiency level of the best technology commercially available in China.

$$EF_{Thermal,y} = \lambda_{Coal,y} \times EF_{Coal,Adv,y} + \lambda_{Oil,y} \times EF_{Oil,Adv,y} + \lambda_{Gas,y} \times EF_{Gas,Adv,y} \quad (9)$$

$$EF_{Coal,Adv,y} = FC_{adv,coal} \times NCV_{coal,y} \times EF_{CO2,coal,y} \quad (9\text{-a})$$

$$EF_{oil,Adv,y} = FC_{adv,oil} \times NCV_{oil,y} \times EF_{CO2,oil,y} \quad (9\text{-b})$$

$$EF_{gas,Adv,y} = FC_{adv,gas} \times NCV_{gas,y} \times EF_{CO2,gas,y} \quad (9\text{-c})$$

Where $EF_{coal,Adv,y}$, $EF_{oil,Adv,y}$ and $EF_{gas,Adv,y}$ are emission factor proxies of efficiency level of the best coal fired, oil fired and gas fired power generation technology commercially available in China.

Step c. Calculate the build margin emission factor of the grid based on the result of Step b and the share of thermal power of recent 20% capacity additions.

$$EF_{grid,BM,y} = \frac{CAP_{Thermal,y}}{CAP_{Total,y}} \times EF_{Thermal,y} \quad (10)$$

$$CAP_{total,y} = \sum_j CAP_{j,y} \quad (10\text{-a})$$

Where:
$CAP_{Total,y}$ is total capacity additions that are close to and exceed 20% of existing capacity;
$CAP_{Thermal,y}$ is capacity additions of thermal power;
$CAP_{j,y}$ is total installed capacity of province j of North China Grid in year y.

In line with the registered CDM-PDD (version 03), the build margin emission factor ($EF_{grid,BM,y}$) of North China Grid is 0.8687 tCO_2e/MWh.

- **Calculation of the combined margin emission factor ($EF_{grid,CM,y}$)**

Based on *Tool to calculate the emission factor for an electricity system* (version 02), the combined margin emission factor ($EF_{grid,CM,y}$) is calculated as the weighted average of the operating margin emission factor ($EF_{grid,OM,y}$) and the build margin emission factor ($EF_{grid,BM,y}$), as

$$EF_{grid,CM,y} = EF_{grid,OM,y} \times \omega_{OM} + EF_{grid,BM,y} \times \omega_{BM} \quad (11)$$

According to *Tool to calculate the emission factor for an electricity system* (version 02), the weight w_{OM} is 0.75 and the weight w_{BM} is 0.25 for wind power projects.

In line with the registered CDM-PDD (version 03) of the Project, the combined margin CO_2 emission factor ($EF_{grid,CM,y}$) is ex ante calculated and fixed as
$EF_{grid,CM,y}$ =0.75×1.1169+0.25×0.8687=1.05485 tCO_2e/MWh.

Baseline emissions of the Project (BE_y)

According to formula (1), the total baseline emissions in this monitoring period are calculated as
$BE_y=EG_{PJ,y}\times EF_{grid,CM,y}$=82,428.486×1.05485=86,949 tCO_2e.

Please refer to Table 8 for details.

Table 8. Calculation of baseline emissions of the Project

Period	Net electricity generation (MWh)	Baseline emission factor (tCO_2e/MWh)	Baseline emissions (tCO_2e)
01/12/2009 ~ 31/12/2009	13,826.245	1.05485	14,584
01/01/2010 ~ 30/06/2010	68,602.241	1.05485	72,365
Total baseline emissions in this monitoring period			**86,949**

E.2. Project emissions calculation

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As per the registered CDM-PDD (version 03), the Project is a wind power project and project emissions are not considered.

E.3. Leakage calculation

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As per the registered CDM-PDD (version 03), the leakage of the Project is not considered.

E.4. Emission reductions calculation / table

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In line with the registered CDM-PDD (version 03) of the Project, the emission reductions are calculated as:

$$ER_y=BE_y-PE_y \quad (12)$$

Please refer to Table 9 and Table 10 for respective calculation of the emission reductions of the Project in 2009 and 2010.

Table 9. Emission reductions of the Project from 01/12/2009 to 31/12/2009

Item	Data	Unit
Baseline emissions in 2009	14,584	tCO_2e
Project emissions in 2009	0	tCO_2e
Emission reductions in 2009	14,584	tCO_2e

Table 10. Emission reductions of the Project from 01/01/2010 to 30/06/2010

Item	Data	Unit
Baseline emissions in 2010	72,365	tCO_2e
Project emissions in 2010	0	tCO_2e
Emission reductions in 2010	72,365	tCO_2e

Calculation of the total emission reductions of the Project in this monitoring period is summarized in Table 11.

Table 11. Total emission reductions of the Project from 01/12/2009 to 30/06/2010

Item	Data	Unit
Total baseline emissions	86,949	tCO_2e
Total project emissions	0	tCO_2e
Total emission reductions	86,949	tCO_2e

As shown in Table 9, Table 10 and Table 11, the total emission reductions of the Project in this monitoring period is 86,949 tCO_2e, including the emission reductions in 2009 of 14,584 tCO_2e and the emission reductions in 2010 of 72,365 tCO_2e.

E.5. Comparison of actual emission reductions with estimates in the CDM-PDD

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Table 12. Comparison of actual emission reductions with the estimates in the registered CDM-PDD (version 03)

Item	Values applied in ex-ante calculation of the registered CDM-PDD	Actual values reached during the monitoring period
Emission reductions (tCO_2e)	71,816[5]	86,949

As per Table 12, the actual emission reductions achieved by the Project from 01/12/2009 to 30/06/2010 are 21.07%[6] higher than the estimates in the registered CDM-PDD (version 03).

E.6. Remarks on difference from estimated value in the CDM-PDD

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[5] The estimated value of annual emission reductions in the registered CDM-PDD (version 03) is 123,645 tCO_2e. This monitoring period is from 01/12/2009 to 30/06/2010, covering 212 days. Therefore, the estimated value of emission reductions corresponding to this monitoring period (212 days) is calculated as 123,645/365×212=71,816 tCO_2e.

[6] Calculated as (86,949-71,816)/71,816=21.07%.

As described in Section E.5, the actual emission reductions achieved by the Project in this monitoring period are 21.07% higher than the estimates in the registered CDM-PDD (version 03). This difference is mainly caused by the high wind speed during this monitoring period.

This monitoring period is from 01/12/2009 to 30/06/2010. Since this monitoring period is less than one year, it is unreasonable to compare the actual emission reductions during this monitoring period with the estimated annual emission reductions in the registered CDM-PDD (version 03).

However, further clarification still provided as follows.

As per the FSR of the Project, the wind speed at the Project Site is higher during winters and springs and lower during summers and autumns. According to the FSR, the monthly average wind speed at 70 m height based on historical wind speed data is shown in Table 13 and Figure 3.

Table 13. Historical monthly average wind speed

Month	1	2	3	4	5	6	7	8	9	10	11	12
Monthly average wind speed (m/s)	5.9	8.0	8.5	8.1	9.2	7.4	6.7	5.7	6.3	7.7	8.3	7.4

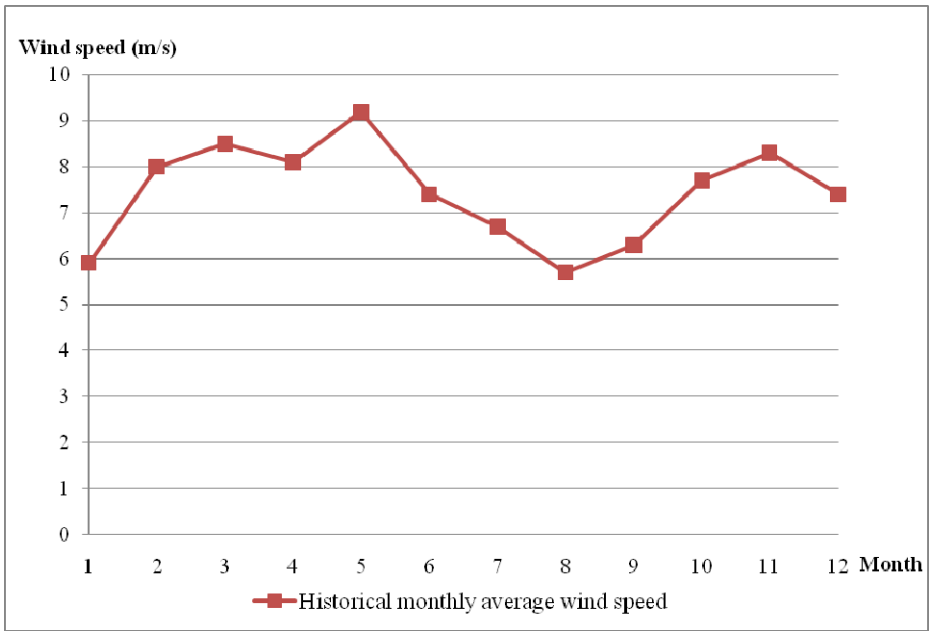

Figure 3. The fluctuation of historical monthly average wind speed

Based on Table 13 and Figure 3, it can be concluded that the wind speed at the Project Site is higher during winters and springs and lower during summers and autumns. This conclusion is consistent with the wind measurement result in the FSR.

Moreover, according to the actual wind speed data, the monthly average wind speed between 01/12/2009 and 30/06/2010 is shown in Table 14.

Table 14. Actual monthly average wind speed

Month	2009-12	2010-01	2010-02	2010-03	2010-04	2010-05	2010-06
Monthly average wind speed (m/s)	7.69	7.65	6.05	8.09	8.12	8.05	6.01

Comparison between the historical monthly average wind speed and the actual monthly average wind speed is shown in Figure 4.

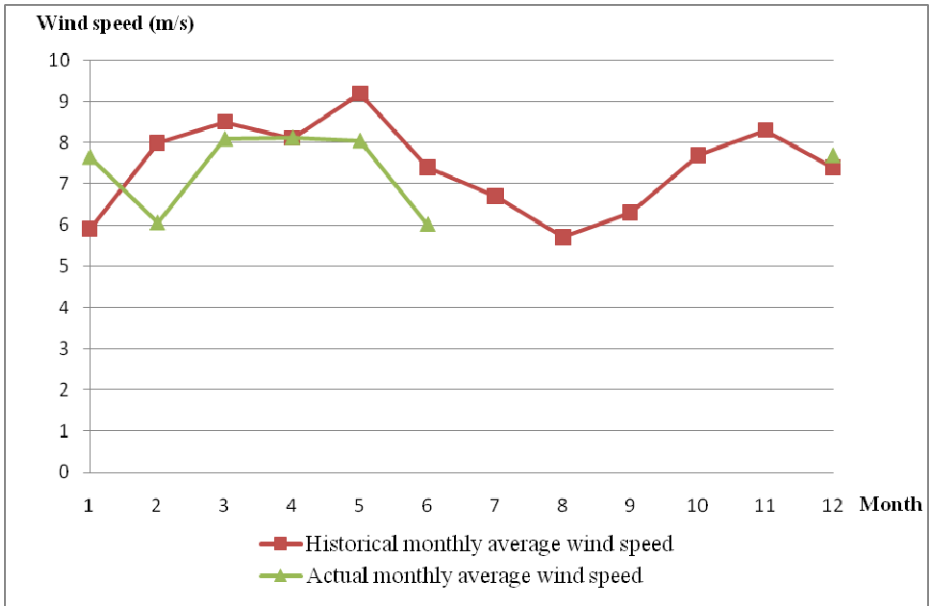

Figure 4. Comparison between the historical monthly average wind speed and the actual monthly average wind speed

As shown in Figure 4, the fluctuation trend of the actual monthly average wind speed is consistent with that of the historical monthly average wind speed provided in the FSR. Therefore, it can be demonstrated that the wind speed at the Project Site is higher during winters and springs and lower during summers and autumns.

Therefore, since this monitoring period is from 01/12/2009 to 30/06/2010 (covering the winter of 2009 and the spring of 2010), it is reasonable that the amount of emission reductions in this monitoring period is higher than the estimated value in the in the registered CDM-PDD (version 03).

SECTION F. Clarification of clauses 1.12, 1.13, 1.14, 8.1 and 8.2 of the VCS PD template

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The Project was registered as a CDM project on 03/07/2010 (reference number: 3356). As per *Further Guidance for Projects that are Registered in Two GHG Programs* published on 19/03/2008:

"Projects registered under other VCS Program approved GHG Programs (such as the CDM) are eligible to create Voluntary Carbon Units (VCUs) for the emissions reductions or removals not registered under that GHG Program.

…

For example, when a project has been validated under the CDM, a further validation shall be completed of clauses 1.12, 1.13, 1.14, 8.1 and 8.2 of the VCS Project Description template (http://v-c-s.org/docs/VCS%20PD.doc). This validation can be completed when the Project Proponent undergoes a VCS Program verification of achieved emissions reductions or removals."

Therefore only clauses 1.12, 1.13, 1.14, 8.1 and 8.2 of the VCS Project Description template are filled as below.

1.12 Demonstration to confirm that the project was not implemented to create GHG emissions primarily for the purpose of its subsequent removal or destruction.

As described in the registered CDM-PDD (version 03), "the Project is a grid-connected renewable power generation project activity that installs a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity." As a wind power project, the Project generates emission reductions by avoiding CO_2 emissions from the same amount of electricity generation from North China Grid, which is mainly composed of traditional thermal power plants.

Therefore, the Project was not implemented to create GHG emissions primarily for the purpose of its subsequent removal or destruction.

1.13 Demonstration that the project has not created another form of environmental credit (for example renewable energy certificates).

The Project was registered as a CDM project on 03/07/2010. As per CDM rules, emission reduction credits generated by the Project prior to 03/07/2010 can not be claimed as CERs. The Project Owner expects to claim these emission reduction credits as VCUs and will not apply for other environmental credits.

1.14 Project rejected under other GHG programs (if applicable):

Prior to the application for issuance of VCUs, only CDM development was implemented for the Project. The Project was registered as a CDM project on 03/07/2010. And the Project has not been rejected by other GHG programs.

8.1 Proof of Title:

Letter of Approval issued by China's DNA for the Project can be the proof of title of the Project Owner. As described in Letter of Approval, Construction Investment Yanshan (Guyuan) Wind Energy Co., Ltd. is authorized as China's participant to voluntarily participate in and carry out the Project. Letter of Approval issued by China's DNA for the Project can be found at:
http://cdm.unfccc.int/UserManagement/FileStorage/K6RYL2HPZ7913XJWMCFUA0VN8EGD5O.

The Project Owner has also obtained all relevant permits for to the Project including Business License, FSR Approval and Power Purchase Agreement. Moreover, the ownership of the Project Owner has been described in the registered CDM-PDD (version 03), which has been validated by Bureau Veritas Certification. The validation report issued by Bureau Veritas Certification can be found at:
http://cdm.unfccc.int/UserManagement/FileStorage/GJUD586H3OW29I1KSVL47YNMEPTACB.

8.2 Projects that reduce GHG emissions from activities that participate in an emissions trading program (if applicable):

The Project does not reduce GHG emissions from activities that are included in an emissions trading program or take place in a jurisdiction or sector in which binding limits are established on GHG emissions. So this clause is not applicable.