

MONITORING REPORT FORM (CDM-MR) *
Version 01 - in effect as of: 28/09/2010

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MONITORING REPORT
Version 01 on 01/03/2012^[1]

Guangdong Taishan Shangchuandao Island Phase I Wind Farm Project
Reference number: 2953
The first monitoring period (from 14/08/2010 to 30/09/2011)

SECTION A. General description of the project activity

A.1. Brief description of the project activity:

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Guangdong Taishan Shangchuandao Island Phase I Wind Farm Project (hereinafter referred to as the Project) is located in Shangchuandao Island, Chuandao Town, Taishan County, Jiangmen City, Guangdong Province, P.R.China. It is invested, constructed and operated by CGN Taishanchuandao Wind Power Co., Ltd..

The total installed capacity of the Project is 48.45 MW equipped with 57 sets of wind turbines with a unit installed capacity of 850 kW. Electricity generated by the Project is delivered to China Southern Power Grid. The Project as a renewable energy source generates emission reductions by avoiding CO₂ emissions from the same amount of electricity generation from China Southern Power Grid, which is mainly composed of traditional thermal power plants.

Construction of the Project was started on 07/08/2008. The Project was commissioned on 14/08/2010. This monitoring report focuses on the emission reductions generated by the Project from 14/08/2010 to 30/09/2011. Actual emission reductions of the Project are 97,371 tCO₂ in this monitoring period.

A.2. Project Participants

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Table 1. Project participant

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)	CGN Taishanchuandao Wind Power Co., Ltd. (the Project Owner)	No
United Kingdom of Great Britain and Northern Ireland	Carbon Resource Management Ltd.	No
Switzerland	Carbon Resource Management S.A.	No

A.3. Location of the project activity:

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The Project is located in Shangchuandao Island, Chuandao Town, Taishan County, Jiangmen City, Guangdong Province, P.R.China.

Geographical coordinates:

East longitude, from 112°46'11" to 112°47'08"

North latitude, from 21°34'50" to 21°39'03"

[1] The date format in this report is DD/MM/YYYY.

A.4. Technical description of the project

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The total installed capacity of the Project is 48.45 MW equipped with 57 sets of wind turbines with a unit installed capacity of 850 kW. Electricity generated by the Project is delivered to China Southern Power Grid.

Key technical parameters of turbines in the Project are shown in Table 2.

Table 2. Key technical parameters

Manufacturer	VESTAS
Model	V52-850 kW
Rated capacity	850 kW
Rotor diameter	52 m
Rated voltage of generator	690 V

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

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The methodology ACM0002 (Version 09): *Consolidated Methodology for Grid-Connected Electricity Generation from Renewable Sources*.

Tool for the Demonstration and Assessment of Additionality (Version 05.2).

Tool to Calculate the Emission Factor for an Electricity System (Version 01.1).

For more information regarding the methodology please refer to:

<http://cdm.unfccc.int/methodologies/DB/C505BVV9P8VSNNV3LTK1BP3OR24Y5L/view.html>

A.6. Registration date of the project activity:

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The Project was registered as a CDM project on 07/02/2010.

A.7. Crediting period of the project activity and related information (start date and choice of crediting period):

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A renewable crediting period (7 years×3) is adopted by the Project. The starting date of crediting period post-registration has been changed from 07/02/2010 to 14/08/2010 and accepted by the EB. Therefore, the first crediting period is from 14/08/2010 to 13/08/2017.

A.8. Name of responsible person(s)/entity(ies):

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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 48.45 MW equipped with 57 sets of wind turbines with a unit installed capacity of 850 kW. Electricity generated by the Project is delivered to South China Power Grid. Please refer to Table 2 for key technical parameters of turbines in the Project.

Construction of the Project was started on 07/08/2008. The Project was commissioned on 14/08/2010.

From then, key equipments of the Project have been operating in line with the registered CDM-PDD 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.



SECTION C. Description of the monitoring system

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Monitoring point

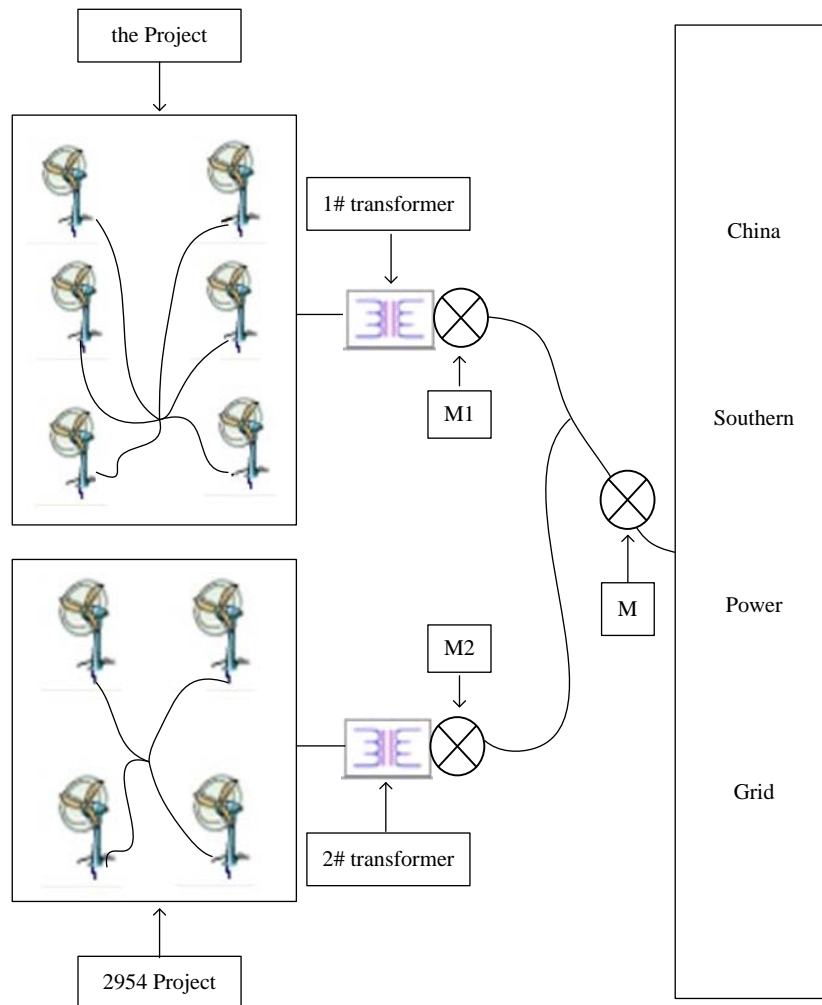


Figure 1. Monitoring point

As designed in the registered CDM-PDD, the actual situation is that two projects share the same 110 kV transmission line when connecting to the grid. In order to conservatively separate the quantity of net electricity supplied by the Project, there are three electricity meters related to the monitoring system of the Project.

The electricity meter M1 installed at the 1# transformer measures the electricity generation of the Project and the electricity meter M2 installed at the 2# transformer measures the electricity generation of 2954 Project.

As per the registered CDM-PDD, four monitoring points are utilised in the Project as follows:

- M, for total electricity exported to the grid by 2954 Project and the Project;
- M, for total electricity imported from the grid by 2954 Project and the Project;
- M1, for electricity generation of the Project;
- M2, for electricity generation of 2954 Project.

Data collection procedures

All relevant electricity data are continuously measured. Readings of these electricity meters at 00:00:00 on the first day and 24:00:00 on the last day of every month are recorded. Then, these monthly data are aggregated for use. All these data will be directly reported to the CDM manager.

Organizational structure, roles and responsibilities of personnel

Table 3. Organizational structure and roles and responsibilities

Organizational structure		Roles and responsibilities
Monitoring director		Chief responsible person
CDM manager		Overall management and coordination
On-site managers	Monitoring	Data collection, reporting and archiving Calibration and maintenance of electricity meters
	Auditing	Double check of data and information

Emergency procedures

If emergency takes place, the monitoring staff should immediately report to the CDM manager who will function as the CDM emergency team leader. The CDM manager will organize relevant personnel to make decisions and arrangements, and announce implementation of emergency procedures.

The first intention is to resume normal monitoring activities as soon as possible. Meanwhile, the whole process from the emergency to the treatment will be recorded in the internal management logs giving the time of emergency, the nature of emergency and corrective actions taken.

If malfunction of meters is found, backup meters will be immediately put into operation. If erroneous monitoring activities of personnel are found, training courses will be re-arranged for relevant personnel to ensure the correct implementation of the monitoring activities in the future after necessary corrective actions and appropriate steps are taken.



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:	$EF_{grid,CM}$
Data unit:	tCO ₂ /MWh
Description:	Baseline emission factor
Source of data used:	The registered CDM-PDD
Value(s) :	0.8933
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculation
Additional comment:	-

D.2. Data and parameters monitored

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Data / Parameter:	EG
Data unit:	MWh
Description:	Electricity supplied to the grid by the Project
Measured /Calculated /Default:	Calculated
Source of data:	N/A
Value(s) of monitored parameter:	109,001.586
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	N/A
Measuring/ Reading/ Recording frequency:	N/A
Calculation method (if applicable):	$EG = EG_{export} - EG_{import}$
QA/QC procedures applied:	N/A

Data / Parameter:	EG_{export}
Data unit:	MWh
Description:	Electricity exported to the grid by the Project
Measured /Calculated /Default:	Calculated
Source of data:	N/A
Value(s) of monitored parameter:	109,164.210
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculation

Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	N/A
Measuring/ Reading/ Recording frequency:	N/A
Calculation method (if applicable):	$EG_{export} = EG_{export, total} \times EG_{project} / (EG_{project} + EG_{others})$
QA/QC procedures applied:	ETNs are used for crosscheck.

Data / Parameter:	EG_{import}
Data unit:	MWh
Description:	Electricity imported from the grid by the Project
Measured /Calculated /Default:	Calculated
Source of data:	N/A
Value(s) of monitored parameter:	162.624
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	N/A
Measuring/ Reading/ Recording frequency:	N/A
Calculation method (if applicable):	$EG_{import} = EG_{import, total}$
QA/QC procedures applied:	ETNs are used for crosscheck.

SECTION E. Emission reductions calculation

E.1. Baseline emissions calculation

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The baseline emissions are calculated as

$$BE = EG \times EF_{grid,CM}$$

Where:

BE	=	Baseline emissions (tCO ₂)
EG	=	Net electricity supplied to the grid by the Project (MWh)
$EF_{grid,CM}$	=	Baseline emission factor (tCO ₂ /MWh)

As designed in the registered CDM-PDD, if the actual situation is that two projects share the same 110 kV transmission line when connecting to the grid, in order to conservatively separate the quantity of net electricity supplied by the Project, it is calculated as:

$$EG = EG_{export} - EG_{import}$$

$$EG_{export} = EG_{export,total} \times EG_{project} / (EG_{project} + EG_{others})$$

$$EG_{import} = EG_{import,total}$$

Where:

$EG_{export,total}$	=	Total electricity exported to the grid by 2954 Project and the Project (MWh)
$EG_{import,total}$	=	Total electricity imported from the grid by 2954 Project and the Project (MWh)
$EG_{project}$	=	Electricity generation of the Project (MWh)
EG_{others}	=	Electricity generation of 2954 Project (MWh)

Table 4. Summary of data processing (Unit: MWh)

Period	$EG_{project}$	EG_{others}	$EG_{export,total}$
14/08/2010~31/08/2010	100.320	0.000	98.560
01/09/2010~30/09/2010	4,524.080	1041.040	5563.360
01/10/2010~31/10/2010	15,043.600	11522.720	26544.320
01/11/2010~30/11/2010	10,154.320	8392.560	18532.800
01/12/2010~31/12/2010	10439.440	9264.640	19689.120
01/01/2011~31/01/2011	17322.800	15078.800	32375.200
01/02/2011~28/02/2011	8984.800	9137.040	18112.160
01/03/2011~31/03/2011	13240.480	11352.000	24571.360
01/04/2011~30/04/2011	6439.840	2018.720	8451.520
01/05/2011~31/05/2011	4229.280	1003.200	5230.720
01/06/2011~30/06/2011	3246.320	1140.480	4382.400
01/07/2011~31/07/2011	3461.040	1016.400	4473.920
01/08/2011~31/08/2011	2346.960	1127.280	3470.720
01/09/2011~30/09/2011	9721.360	2744.720	12448.480
Total	109,254.640	74,839.600	183,944.640

Period	EG_{export}	EG_{import}	EG
	$= EG_{export,total} \times EG_{project} / (EG_{project} + EG_{others})$	$= EG_{import,total}$	$= EG_{export} - EG_{import}$

14/08/2010~31/08/2010	98.560	10.560	88.000
01/09/2010~30/09/2010	4,522.649	14.080	4,508.569
01/10/2010~31/10/2010	15,031.142	3.520	15,027.622
01/11/2010~30/11/2010	10,146.611	1.760	10,144.851
01/12/2010~31/12/2010	10,431.514	5.280	10,426.234
01/01/2011~31/01/2011	17,308.686	0.000	17,308.686
01/02/2011~28/02/2011	8,980.001	7.040	8,972.961
01/03/2011~31/03/2011	13,229.109	8.800	13,220.309
01/04/2011~30/04/2011	6,434.480	25.696	6,408.784
01/05/2011~31/05/2011	4,227.857	9.856	4,218.001
01/06/2011~30/06/2011	3,243.064	5.104	3,237.960
01/07/2011~31/07/2011	3,458.319	20.064	3,438.255
01/08/2011~31/08/2011	2,344.582	24.464	2,320.118
01/09/2011~30/09/2011	9,707.635	26.400	9,681.235
Total	109,164.210	162.624	109,001.586

To summarise, $EG=109,164.210-162.624=109,001.586$ (MWh). Refer to the ER calculation spreadsheet for detailed data and calculation.

Baseline emissions

The baseline emissions in this monitoring period are calculated as

$$BE=EG \times EF_{grid,CM}=109,001.586 \times 0.8933=97,371 \text{ (tCO}_2\text{)}.$$

E.2. Project emissions calculation

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Project emissions are zero in the Project.

E.3. Leakage calculation

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Leakage is zero in the Project.

E.4. Emission reductions calculation / table

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$$ER=BE-P-L$$

Where:

<i>BE</i>	=	Baseline emissions (tCO ₂)
<i>P</i>	=	Project emissions (tCO ₂)
<i>L</i>	=	Leakage (tCO ₂)

Therefore, $ER=97,371-0-0=97,371$ (tCO₂).

Table 5. Total emission reductions in this monitoring period

	Value	Unit
Total baseline emissions	97,371	tCO ₂
Total project emissions	0	tCO ₂
Total leakage	0	tCO ₂
Total emission reductions	97,371	tCO ₂

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

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Table 6. Comparison of emission reductions

Item	Values applied in ex-ante calculation of the registered CDM-PDD	Actual values reached during the monitoring period
Emission reductions (tCO ₂)	97,539	97,371

The annual average emission reductions estimated in the registered CDM-PDD is 86,203 tCO₂, so the estimated amount of emission reductions for the corresponding 413 days (the duration of this monitoring period) are $413/365 \times 86,203 = 97,539$ tCO₂, which is higher than the actual value of 97,371 tCO₂.

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

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The amount of emission reductions actually achieved in this monitoring period is lower than the estimated value in the registered CDM-PDD, so no further remarks are provided here.