

Monitoring Report

Volume 1

Start monitoring period: 1 January 2005

End monitoring period: 31 August 2006

Title: Chengde Hongsong Windfarm Project

Project developer:

**Hebei Hong-Song Wind Power Share Holding
Ltd.**

This Monitoring Report is approved:

Mr Wang Jian

Hebei Hong-Song Wind Power Share
Holding Ltd.

Date: _____

Project advisor:
Carbon Resource Management

Verifier:
DNV

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1 Introduction

The purpose of this Monitoring Report is to calculate the emission reductions achieved by the project activity in the period covered by this report, and to serve as the basis for the verification of these reductions and issuance of the VCUs.

1.1 Monitoring period

Volume 1: 1 January 2005 to 31 August 2006

2 Project description

2.1 Title

Chengde Hongsong Windfarm Project

2.3 Project summary

The Chengde Hongsong Windfarm Project is located in Hebei Province, China. The project consists of the installation of 84 turbines: 78 turbines of 600 kW, and 6 turbines of 750 kW capacity, providing a total of 51.3MW. The project is expected to generate some 110GWh per year once fully operational which will be exported to the North China Power Grid.

A more detailed description is available in the PDD and related documentation.

2.4 Category of project activity

Using the agreed methodology ACM0002 the category of the project activity is:

- Sectoral scope 1: Energy industries
- Category: Renewable electricity generation in grid connected applications

3 Project timeline

Starting date of the project activity	September 2004
Crediting period	Single 10 year crediting period
Starting date of crediting period	1 January 2005
End date of crediting period	31 December 2014
This monitoring report	Volume 1

Start of monitoring period	1 January 2005
End of monitoring period	31 August 2006

Table 1 lists the commissioning dates of the 84 turbines installed in the Chengde Hongsong Windfarm Project.

Table 1 Commissioning dates of turbines

No.	Commissioning date	No.	Commissioning date	No.	Commissioning date	No.	Commissioning date	No.	Commissioning date
A09	23/11/2004	B19	29/11/2004	C02	21/11/2004	D14	09/09/2005	E01	16/09/2004
A08	26/11/2004	B21	30/11/2004	C01	24/11/2004	D10	10/09/2005	E02	16/09/2004
A10	27/11/2004	B20	01/12/2004	C03	25/11/2004	D12	10/09/2005		
A11	01/12/2004	B22	02/12/2004	C06	12/12/2004	D09	11/09/2005		
A18	03/12/2004	B10	21/12/2004	C15	13/12/2004	D08	12/09/2005		
A13	05/12/2004	B11	21/12/2004	C13	14/12/2004	D07	13/09/2005		
A16	05/12/2004	B12	23/12/2004	C16	16/12/2004	D06	15/09/2005		
A15	07/12/2004	B05	28/04/2005	C04	17/12/2004	D13	17/09/2005		
A12	10/12/2004	B06	28/04/2005	C05	18/12/2004	D04	06/10/2005		
A14	10/12/2004	B03	01/05/2005	C14	18/12/2004	D01	09/10/2005		
A01	14/04/2005	B01	02/05/2005	C10	19/12/2004	D02	10/10/2005		
A02	14/04/2005	B02	04/05/2005	C11	19/12/2004	D03	12/10/2005		
A03	15/04/2005	B04	06/05/2005	C09	23/12/2004	D05	15/10/2005		
A04	17/04/2005	B09	16/06/2005	C08	24/12/2004	D11	30/10/2005		
A05	04/06/2005	B08	17/06/2005	C07	25/12/2004	D15	14/04/2006		
A19	05/06/2005	B07	20/06/2005	C12	28/12/2004	D17	28/04/2006		
A07	06/06/2005			C24	28/09/2005	D16	01/05/2006		
A20	06/06/2005			C22	29/09/2005	D19	04/05/2006		
A17	07/06/2005			C23	29/09/2005	D18	07/05/2006		
A22	08/06/2005			C19	01/10/2005	D20	12/05/2006		
A21	13/06/2005			C18	02/10/2005				
A06	25/11/2005			C17	05/10/2005				
				C21	31/10/2005				
				C20	01/11/2005				

4 Baseline

4.1 Methodology

The project participants use the approved baseline and monitoring methodology ACM0002 (version 6) "Consolidated baseline methodology for grid-connected electricity generation from renewable sources".

Using ACM0002, the emission reductions achieved by the project activity can be calculated by multiplying the net electricity supplied to the grid and the appropriate emissions factor of the grid.

4.2 Calculations

The emission reductions ER_y by the project activity during a given year y is

$$ER_y = EG_y * EF_y$$

where EG_y is the net electricity supplied to the grid, EF_y is the CO₂ emission factor of the grid.

The emission factor EFy of the grid is represented as a combination of the Operating Margin and the Build Margin, and fixed for the duration of the crediting period in the PDD.

The Operating Margin emission factor EF_OMy was calculated in the PDD as 0.992 tCO2e/MWh. The Build Margin emission factor EF_BMy was calculated as 0.861 tCO2e/MWh. The weighted average of Operating and Build Margin emission factors is:
$$EF = wOM * EFOM + wBM * EFBM = 0.75 \cdot 0.984 + 0.25 \cdot 0.859 = 0.952 \text{ tCO}_2/\text{MWh}$$

5 Monitoring methodology and plan

5.1 Monitored data

As the emissions factor is fixed for the whole period, the monitored data for the project activity only includes the net electricity generation from the windfarm.

ID	Variable	Source of data
1	EG: net electricity supplied to the grid	Electricity meter

5.2 Baseline data

5.2.1 EG: net electricity supplied to the grid

Table 2 Electricity generation and net supply to the grid by the project (kWh)

Period	Gross generation	Net supply
Jan-05	8,357,677	8,017,520
Feb-05	5,835,839	5,598,320
Mar-05	6,002,877	5,758,560
Apr-05	6,845,116	6,566,520
May-05	5,418,326	5,197,800
Jun-05	3,604,774	3,458,060
Jul-05	3,006,463	2,884,100
Aug-05	1,032,993	990,950
Sep-05	3,390,180	3,252,200
Oct-05	7,824,487	7,506,030
Nov-05	16,449,640	15,780,140
Dec-05	20,033,282	19,217,927
2005	87,801,654	84,228,127
Jan-06	10,173,427	9,766,490
Feb-06	16,484,042	15,824,680
Mar-06	13,669,581	13,122,798
Apr-06	14,012,139	13,451,653
May-06	7,743,333	7,433,600
Jun-06	7,034,714	6,753,325
Jul-06	4,511,994	4,331,513
Aug-06	2,027,000	1,945,920
Jan-Aug 2006	75,656,230	72,629,979
Aggregate	163,457,884	156,858,106

6 Quality assurance and quality control measures

6.1 Roles and responsibilities

Overall responsibility for monitoring and carrying out the monitoring following this monitoring plan lies with the Chengde Hong-Song Wind Power Share Holding Ltd.

Mr. Wu Yuzhu is responsible for the operation and maintenance of the windfarm;

Mr. Zhou Mingsheng is responsible for the monitoring and report;

Mr. He Zhiyuan is responsible for the VER data collection and internal auditing.

6.2 Training

Carbon Resource Management has advised the project developer on monitoring work.

6.3 Calibrations

The Power Interchange Agreement between Hebei Hong-Song Wind Power Share Holding Ltd. and North China Power Grid Company Limited defines the metering arrangements and the required quality control procedures to ensure accuracy.

The metering equipment are calibrated and checked annually for accuracy. The metering equipment shall have sufficient accuracy so that any error resulting from such equipment shall not exceed 0.5% of full-scale rating. The net energy output registered by the meters alone will suffice for the purpose of billing and emission reduction verification as long as the error in the meters is within the agreed limits.

Calibration is carried out by the North China Power Grid of Chengde Electric Power Company with the records being supplied to Chengde Hongsong Wind Farm, and these records will be maintained by Hebei Hong-Song Wind Power Share Holding Ltd. and the appointed third party.

All the meters installed shall be tested by North China Power Grid within 10 days after:

- the detection of a difference larger than the allowable error in the readings of both meters;
- the repair of all or part of meter caused by the failure of one or more parts to operated in accordance with the specifications; and/or

If any errors are detected the party owning the meter shall repair, recalibrate or replace the meter giving the other party sufficient notice to allow a representative to attend during any corrective activity.

Should any previous months reading of the main meter be inaccurate by more than the allowable error, or otherwise functioned improperly, the net energy output shall be determined by (a) first, by reading backup meter, unless a test by either party reveals it is inaccurate; (b) if the backup system is not with acceptable limits of accuracy or is otherwise performing improperly the Hebei Hong-Song Wind Power Share Holding Ltd. and North China Power Grid shall jointly prepare an estimate of the correct reading; and (c) if North China Power Grid and Hebei Hong-Song Wind Power Share Holding Ltd. fail to agree then the matter will be referred for arbitration according to agreed procedures.

No errors occurred during the first period of operations of the Hebei Hong-Song Wind Power Share Holding Ltd. Calibration took place as per schedule. Calibrations were carried out by the Chengde Electric Power Company on the dates given in Table 3 below.

Table 3 Dates of calibrations of monitoring equipment

Equipment	Dates of calibrations
501 & 502 (windfarm)	• 12 June 2004
111 (Shanwanzi substation)	• 10 October 2004

501 & 502 (windfarm)	• 10 June 2005
111 (Shanwanzi substation)	• 8 July 2005
501 & 502 (windfarm)	• 8 June 2006
111 (Shanwanzi substation)	• 8 June 2006

6.4 Quality control

Monthly net generation data has been approved and signed off by Mr. He Zhiyuan.

7 Emission reduction calculations

7.1 Project emissions

As a renewable energy project, project emissions are zero.

7.2 Baseline emissions

Table 4 Monthly emission reductions achieved

2005	EG(MWh)	EF(tCO ₂ e/MWh)	BE(tCO ₂ e)
Jan	8,017.52	0.952	7,633
Feb	5,598.32	0.952	5,330
Mar	5,758.56	0.952	5,482
Apr	6,566.52	0.952	6,251
May	5,197.80	0.952	4,948
Jun	3,458.06	0.952	3,292
Jul	2,884.10	0.952	2,746
Aug	990.95	0.952	943
Sep	3,252.20	0.952	3,096
Oct	7,506.03	0.952	7,146
Nov	15,780.14	0.952	15,023
Dec	19,217.93	0.952	18,295
Total	84,228.13	0.952	80,185

2006	EG(MWh)	EF(tCO ₂ e/MWh)	BE(tCO ₂ e)
Jan	9,766.49	0.952	9,298
Feb	15,824.68	0.952	15,065
Mar	13,122.80	0.952	12,493
Apr	13,451.65	0.952	12,806
May	7,433.60	0.952	7,077
Jun	6,753.33	0.952	6,429
Jul	4,331.51	0.952	4,124
Aug	1,945.92	0.952	1,853
Total	72,629.98	0.952	69,144

Total of 20 months	149,329
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7.3 Leakage emissions

As a relatively small renewable energy project, leakage from the project are considered zero.

7.4 Summary of emission reductions during the monitoring period

Table 5 below shows the summary of emissions and emission reductions. It also shows that the total reductions claimed are rounded down to the last whole tonne.

Table 5 Emission reduction calculation (tCO₂e)

Period	Project emissions	Baseline emissions	Leakage	Emission reductions
2005	0	80,185.18	0	80,185.18
Jan-Aug 2006	0	69,143.74	0	69,143.74
Total	0	149,328.92	0	149,328.92
Claimed				149,328

Annex 1: Contact details

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