

VERs MONITORING REPORT
(Version 03)

Fujian Zhangpu Liuaio 45MW Wind Power Project
(CDM registration reference number: 1318)

Monitoring periods:
25 June, 2007 to 20 January, 2008

Dated: 3 September, 2008

1. Introduction

This document reports the emission reductions generated by the Fujian Zhangpu Liuaio 45MW Wind Power Project, CDM registration reference number 1318, in the following monitoring period:

25 June, 2007 to 20 January, 2008 (the project is registered as a CDM project on January 21, 2008 and the project is not claiming CERs before 28 January, 2008)

2. General description of the project

Project activity

The Fujian Zhangpu Liuaio 45 MW Wind Power Project is located in Liuaio town, Zhangpu County, Fujian Province, P.R.C. It involves the installation of 36 turbines, each of which has a rated output of 1250kW, providing a total capacity of 45MW. The electricity generated from the project is fed into the East China Power Grid.

The project helps reduce GHG emissions generated from the high-growth, coal-dominated power generation. And also, it contributes to sustainability in the region by reducing pollution, creating employment opportunities, promoting the local tourism industry and improving the livelihoods of local people. At a larger scale, the project assists China in stimulating and accelerating the commercialization of grid-connected renewable energy technologies and markets in China.

Technical description of the project

Location of the project activity

The project site is located in the east of Liuaio peninsula, Zhangpu County in Fujian Province. It has the Taiwan Strait to the east, Gulei Peninsula in the southwest and Jiugang town in the north. The site is 48km from the Zhangpu county government in the northwest, 100km from Zhangzhou Municipality in the north. The exact geographical coordinates of the project are $117^{\circ} 28' 20'' \sim 117^{\circ} 29' 43''$ E, $23^{\circ} 34' 25'' \sim 24^{\circ} 0' 39''$ N.

Technology employed by the project activity

Turbines of model 64/1250 manufactured by Suzlon are used for the project. The height of the wheel hub is 65m. The turbines are arranged in a matrix shape with row spacing of 7D and column spacing of 5D. According to the turbine layout, each turbine will be equipped with one transformer. The wind power generated will be delivered to the 110kV step-up substation by 35kV transmission lines. The power in the 110kV step-up substation will be transmitted to Changjiaoying substation.

3. Monitoring methodology and plan

The monitoring methodology ACM0002 (version 6) – “Consolidated monitoring methodology for grid-connected electricity generation from renewable sources” is selected for the project.

3.1 Data/parameter monitored with regard to emission reductions (according to B7.1 of the registered PDD):

Data / Parameter:	EGy
Data unit:	MWh
Description:	Net electricity delivered to grid in year y
Source of data to be used:	Measured by meters
Value of data applied for the purpose of calculating expected emission reductions in section B.5	Estimation of annual electricity generation delivered to grid: 95,602 MWh
Description of measurement methods and procedures to be applied:	Hourly measured and monthly recorded
QA/QC procedures to be applied:	According to national standard, meters will be calibrated periodically. Data measured by meters will be cross checked by electricity sales receipt.
Any comment:	

3.2 Data/parameters monitored with regard to sustainable development benefits

Sustainable Development Indicator	Data variable	Data unit	Monitoring method
Employment(number)	No of persons recruited as a result of the construction and operation of the project	Number(person)	monitored by the employment contracts and salary payment sheets
Employment(quality)	Annual salary and social welfare received by the staff	Yuan/person	monitored by the salary payment sheets and records of social welfare

4. Quality Control(QC) and Quality Assurance(QA)

4.1 QA/QC procedures

Uncertainty level of data is low. Electricity delivered to the grid by the project is the electricity exported to the grid by the project minus the electricity imported from the project.

One gateway meter (the main meter) with accuracy of 0.2s has been installed at the wind farm to monitor the electricity exported to and imported from the grid.

Electricity exported and imported is continuously measured by gateway meters, daily recorded and monthly aggregated. Periodical electricity sales receipts are used for double check.

The gateway meter was calibrated by a qualified third party periodically in accordance with relevant national regulation. Calibration certificate of the gateway meter and the accreditation certificate for the calibrator have been provided to the verifier

4.2 Roles and responsibilities

The monitoring plan clearly states the roles and responsibilities of the three persons from the project owner who are involved in the monitoring of grid-connected electricity generation by the project.

5. GHG Calculations

a) Project activity emissions

Being a wind power project, there are no project emissions according to the ACM0002 methodology. There was no fossil fuel consumption by the project for electricity generation during the monitoring period.

b) Leakages

According to ACM0002, the main indirect emissions potentially giving rise to leakage in the context of electric sector projects result from power plant construction, fuel handling (mining, processing, and transportation) and land inundation (for hydroelectric projects). The project developer does not need to consider such indirect emissions when applying the methodology. Project activities using this baseline methodology shall not claim any credit for the project on account of reducing these emissions below the level of the baseline scenario. The diesel engine which is in place for emergency purpose has not been used during the monitoring period. The leakage from the project is zero.

c) Baseline emissions

The baseline emission BE during the monitoring period results from:

$$BE = EG * EF$$

Where

EG – Net electricity delivered to the grid during the monitoring period

EF – Emission factor of the grid (calculated ex-ante and will not be updated during the first crediting period).

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

Where

EG_{export} – Electricity exported to the grid

EG_{import} – Electricity imported from the grid

Table 1. Electricity Exported to the Grid

Period	Exported electricity by meter reading(kWh)				Exported electricity from sales receipts (kWh)	Value of exported electricity used for the calculation of emission reductions(kWh)
	Meter reading at period start	Meter reading at period end	Magnification	Exported electricity from meter reading		
	A	B	C	D=(B-A)*C	E	F=Min(D,E) ¹
25 Jun., 2007- 27 Jul. 2007	0	0.1595	440,000	70,180	70,180	70,180
28 Jul. 2007- 27 Aug. 2007	0.1595	0.8898	440,000	321,332	321,332	321,332
28 Aug. 2007- 27 Sep. 2007	0.8898	1.8664	440,000	429,704	429,704	429,704
28 Sep.,2007- 27 Oct.,2007	1.8664	10.6328	440,000	3,857,216	3,857,216	3,857,216
28 Oct.,2007- 27 Nov.,2007	10.6328	24.445	440,000	6,077,368	6,077,368	6,077,368
28 Nov.,2007- 27 Dec.,2007	24.445	38.4037	440,000	6,141,828	6,141,828	6,141,828
28 Dec.,2007- 20 Jan.,2008*	38.4037	63.8314	440,000	11,188,188	11,156,948	11,156,948
Total				28,085,816	28,054,576	28,054,576

¹ For the consideration of conservativeness, smaller value of exported electricity should be used for the calculation of emission reductions

Table 2. Electricity Imported from the Grid

Period	Imported electricity by meter reading(kWh)				Imported electricity from sales receipts(kWh)	Value of imported electricity used for the calculation of emission reductions(kWh)
	Meter reading at period start	Meter reading at period end	Magnification	Imported electricity from meter reading		
	A	B	C	D=(B-A)*C	E	F=Max(D,E) ²
25 Jun., 2007- 27 Jul. 2007	0	0.0537	440,000	23,628	23,628	23,628
28 Jul. 2007- 27 Aug. 2007	0.0537	0.1005	440,000	20,592	20,592	20,592
28 Aug. 2007- 27 Sep. 2007	0.1005	0.1319	440,000	13,816	13,816	13,816
28 Sep.,2007- 27 Oct.,2007	0.1319	0.1332	440,000	572	572	572
28 Oct.,2007- 27 Nov.,2007	0.1332	0.1362	440,000	1,320	1,320	1,320
28 Nov.,2007- 27 Dec.,2007	0.1362	0.1792	440,000	18,920	18,920	18,920
28 Dec.,2007- 20 Jan.,2008*	0.1792	0.2078	440,000	12,584	12,584	12,584
Total				91,432	91,432	91,432

*: The first CDM monitoring period for the project covers the period from 21/01/2008 to 27/05/2008. The settlement day between the grid company and wind farm company is the 27th day of every month, meaning the sales receipts for every month covers the period from 28th day of a month to 27th day of the next month. No CERs are claimed between 21/01/2008 and 27/01/2008 due to lack of sales receipt for the period concerned. Exported and imported electricity between 21/01/2008 and 27/01/2008 are included in this monitoring period.

² For the consideration of conservativeness, larger value of imported electricity should be used for the calculation of emission reductions

$$EG = EG_{\text{export}} - EG_{\text{import}} = 28,054,576 - 91,432 = 27,963,144 \text{ kWh}$$

$$BE = EG * EF = 27,963.144 \text{ MWh} \times 0.880 \text{ tCO}_2\text{e/MWh} = 24,608 \text{ tCO}_2\text{e}$$

5.4 Emission reductions

As the emissions and leakage from the project activity are zero, emission reduction is equal to baseline emission.

Emission reduction generated in the monitoring period: **24,608 tCO₂e**

6. Results of monitoring sustainable development indicators

Employment (number): 66 persons were hired short-term for the construction of the wind farm and 7 persons were recruited long term for the operation and maintenance of the wind farm. Increase of employment (in number) as a result of the project is evident.

Employment (quality): annual salary for the 7 persons mentioned above is 31,500yuan/person, which is much higher than Zhangzhou's average annual salary of 18,024yuan in 2007. There is little doubt that employment quality is quite high in the wind farm.

7. Reasons for the mismatch between the start of project operation and the CDM registration date

The project began generating electricity on June 25, 2007. (At that time, the project was only partially operational).

The PDD of the project was published on the UNFCCC CDM website on January 23, 2007 and the on-site validation was undertaken on January 27, 2007. However, the process after the on-site validation took long and the CDM registration of the project only became successful on January 21, 2008.

The start date of the crediting period on the final version of the PDD (December 1, 2007) is the date on which the project developer expected the project to be successfully registered.

8. Entity who is responsible for this monitoring report

Project Owner

Datang Zhangzhou Wind Power Co., Ltd

CDM Project Consultant

CDM Department of China National Water Resources & Electric Power Materials & Equipment Co., Ltd. (CWEME)

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