

JIANGSU DONGTAI PHASE II WIND POWER PROJECT

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1 PROJECT DETAILS

1.1 Summary Description of the Project

The objective of Jiangsu Dongtai Phase II Wind Power Project (here after refer to the Project), a grid-connected renewable power project, is to utilize the wind resources for generating renewable electricity to sell into the East China Power Grid (here after refer to the ECPG), so as to be a self-sustained green-power investment project in the market of the PRC. The Project activity will achieve the greenhouse gas (GHG) emission reductions by avoiding CO₂ emissions from the business-as-usual scenario, the electricity generation of those fossil fuel-fired power plants connected into the East China Power Grid.

The Project is sited within the Jianggang Town, Dongtai County, Yancheng City, Jiangsu Province, in the East China. The Project involves the installation of 100 turbines, each of which have a capacity of 2000kW, providing a total installed capacity of 200MW. The annual operating hours of the proposed project are 2030 hours and it is expected to generate 406,020¹ MWh per year to be sold into the Jiangsu Power Grid, which is part of the East China Power Grid, and generate emission reductions for 338,011 tCO₂e annual average.

The purpose of the Project is to generate zero-emission wind power and supply it to East China Power Grid.

For the Project,

- (a) The scenario existing prior to the start of the implementation of the project activity is East China Power Grid providing the same electricity supply as the Project;
- (b) The project scenario is the implementation of the Project i.e., the installation and operation of 100 sets of 2000kW wind turbines which will supply an average annual generation of 406,020 MWh to East China Power Grid and replace the same amount of electricity generated by fossil fuel fired power plants connected into East China Power Grid;
- (c) The baseline scenario is the same as the scenario existing prior to the start of implementation of the project activity.

1.2 Sectoral Scope and Project Type

The purpose of the project belongs to Sectoral Scope 1: Energy (renewable/non-renewable). It is to generate zero-emission wind power and not a grouped project.

1.3 Project Proponent

Organization name	Guohua (Jiangsu) Wind Power Co., Ltd.
Contact person	Yuan Liang

¹ Data from FSR edited by Hydrochina Huadong Engineering Corporation accredited by National Development and Reform Commission

Title	Project Manager
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Telephone	+86 138 5103 5344
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1.4 Other Entities Involved in the Project

Organization name	-
Role in the project	-
Contact person	-
Title	-
Address	-
Telephone	-
Email	-

1.5 Project Start Date

10/12/2010(The Project started commissioning on 10/12/2010).

1.6 Project Crediting Period

A CDM crediting period of 7 (seven) years (renewable twice) was selected for the Project activity. The first CDM crediting period is from 01/04/2012 to 31/03/2019.

The VCS crediting period of the Project is from 10/12/2010 to 31/03/2012. Obviously, no overlapping periods exists between the VCS crediting period and the CDM crediting period.

1.7 Project Scale and Estimated GHG Emission Reductions or Removals

Project Scale	
Project	No
Large project	Yes

Year	Estimated GHG emission reductions or removals (tCO ₂ e)
2010	203,73
2011	338,011

2012	84,271
Total estimated ERs	442,655
Total number of crediting years	3
Average annual ERs	338,011

1.8 Description of the Project Activity

The main parts of the Project include wind turbine, transformer, and substation. Totally 100 sets of W2000M-93-80 turbines with a unit capacity of 2000kW were selected for the Project, providing a total installed capacity of 200MW. The W2000M-93-80 turbines are manufactured by local supplier Sewind Co. Ltd. According to the turbine layout, each turbine will have a 690V-to-35kV transformer. The Project consist two area, north wind farm with 60 sets of turbines and south wind farm with 40 sets of turbines. The expected operational lifetime of the project activity is 20 years.

The electricity generated by the Project from north wind farm will be delivered to the Jiangsu Power Grid through the Guohua Dongtai Phase II Wind Farm North 220kV substation. The electricity generated by the Project from south wind farm will be delivered to the Jiangsu Power Grid through Guohua Dongtai Phase I Wind Farm 220kV substation. Electricity meters were installed to measure the electricity generated by the Project.

The annual operating hours of the proposed project are 2030 hours and it is expected to generate 406,020 MWh per year to be sold into the Jiangsu Power Grid, which is part of the East China Power Grid, and generate emission reductions for 338,011 tCO₂e annual average.

In order to be normal operation of the Project, the Project owner and local suppliers will train all the relative staffs before the operation of the generators. There was no technology transfer occurred in the project activity. Key technical parameters of turbines are listed in the following table.

Table. Technology parameters of W2000M-93-80 Turbines

Item	Unit	Index
Nominal capacity	kW	2000
Number of blades	piece	3
Rotor diameter	m	93
Cut-in speed	m/s	3
Cut-out speed	m/s	25
Rated voltage of generator	V	690
Frequency	Hz	50
Estimated life time (year)	Year	20

1.9 Project Location

The Project is sited in the Jianggang Town, Dongtai County, Yancheng City, Jiangsu Province, P.R.China. The Project has geographical coordinates with east longitude of 120°54'11" and north latitude of 32°39'35". Figure below show the location of the Project.

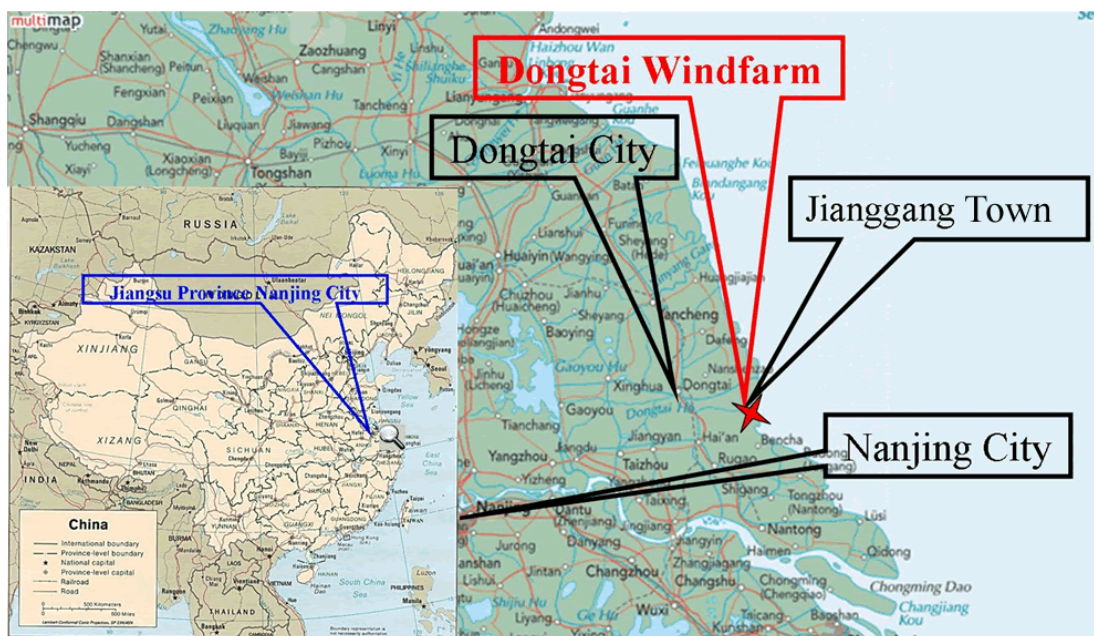


Figure A-1. Location of the project

1.10 Conditions Prior to Project Initiation

The purpose of the Project is to generate zero-emission wind power and supply it to East China Power Grid. For the Project,

- (a) The scenario existing prior to the start of the implementation of the project activity is East China Power Grid providing the same amount electricity supply as the Project;
- (b) The project scenario is the implementation of the Project (with CDM as an indispensable consideration), i.e., the installation and operation of 100 sets of 2000kW wind turbines which will supply an average annual generation of 406,020 MWh (plant load factor of the Project is 23.17%) to East China Power Grid and replace the same amount of electricity generated by fossil fuel fired power plants connected into East China Power Grid;
- (c) The baseline scenario is the same as the scenario existing prior to the start of implementation of the project activity.

1.11 Compliance with Laws, Statutes and Other Regulatory Frameworks

The project owner has obtained all relevant permits to the project including Business License, FSR Approval and Power Purchase Agreement. The project is compliance with regional and national laws and regulatory frameworks.

1.12 Ownership and Other Programs

1.12.1 Right of Use

The project owner has also obtained all relevant permits to the Project. Moreover, the ownership of the project owner was described in the registered CDM-PDD validated by Bureau Veritas Certification.

1.12.2 Emissions Trading Programs and Other Binding Limits

N/A.

1.12.3 Other Forms of Environmental Credit

The Project neither has nor intends to generate any other form of GHG-related environmental credit for GHG emission reductions or removals claimed under the VCS Program, or that any such credit has been or will be cancelled from the relevant program.

1.12.4 Participation under Other GHG Programs

The Project was registered as a CDM project on 26/03/2012 with reference No.5924. The Project applied approved consolidated baseline and monitoring methodology ACM 0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” (Version 12.1.0).

1.12.5 Projects Rejected by Other GHG Programs

N/A.

1.13 Additional Information Relevant to the Project

Eligibility Criteria

N/A.

Leakage Management

According to ACM0002 (Version 12.1.0), leakage of wind power project can be neglect.

Commercially Sensitive Information

No commercially sensitive information has been excluded from the public version of the project description. .

Further Information

There is no additional relevant legislative, technical, economic, sectoral, social, environmental, geographic, site-specific and/or temporal information that may have a bearing on the eligibility of

the project, the net GHG emission reductions or removals, or the quantification of the project's net GHG emission reductions or removals.

2 APPLICATION OF METHODOLOGY

2.1 Title and Reference of Methodology

The approved consolidated baseline and monitoring methodology ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", Version 12.1.0.

2.2 Applicability of Methodology

Wind power generation technology is a renewable electricity generation technology which displaces fossil fuel-fired power generation technology to supply electricity to the grid. Therefore the methodology used to determine the Project baseline is the approved consolidated baseline methodology ACM0002. The methodology can be used to calculate GHG emission reductions achieved by wind power generation.

The project meets all applicability conditions of baseline methodology ACM0002 as follows:

- 1) The proposed project is the installation of a new grid-connected wind power generation activity at a site where no renewable power plant was operated prior to the implementation of the project activity;
- 2) The Project does not involve switching from fossil fuel-fired to renewable energy at the site of the Project activity.

Therefore, the approved consolidated baseline methodology ACM0002 "Consolidated Baseline and Monitoring Methodology for Grid-connected Electricity Generation from Renewable Sources." is applicable to the Project.

2.3 Project Boundary

Source		Gas	Included?	Justification/Explanation
Baseline	Electricity generation of those fossil fuel-fired power plants connected into the East China Power Grid	CO ₂	Yes	Main emission sources.
		CH ₄	No	Excluded for simplification. This is conservative.
		N ₂ O	No	Excluded for simplification. This is conservative.
Project	Project emission	CO ₂	No	The Project is a wind power project, so the project emissions should not be considered as per ACM0002.
		CH ₄	No	
		N ₂ O	No	

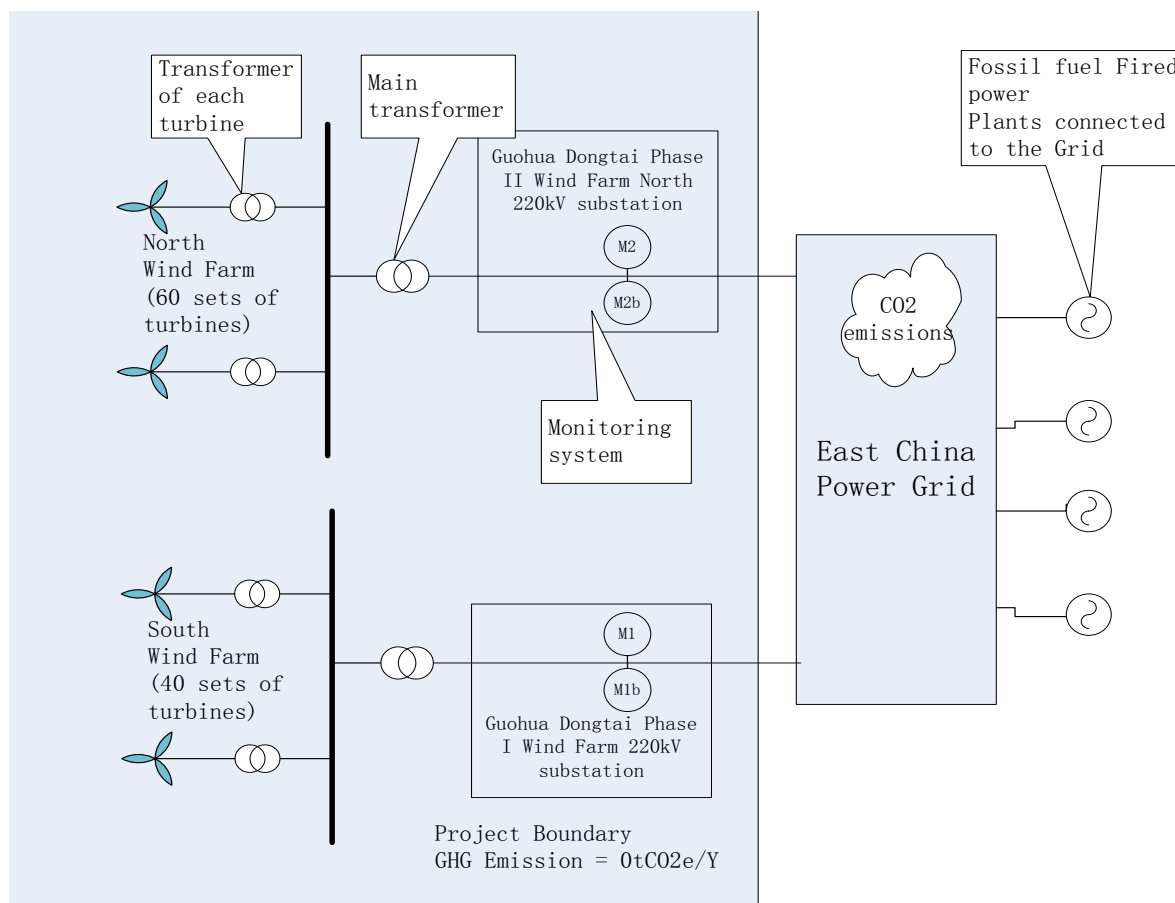


Figure 1. The follow diagram of the project boundary

2.4 Baseline Scenario

According to the registered PDD, the baseline scenario for the project is as follows: Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of power plants connected to ECPG and by the addition of new generation sources of ECPG.

2.5 Additionality

The additionality of the project is validated in the registered CDM PDD.

2.6 Methodology Deviations

N/A.

3 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

3.1 Baseline Emissions

Baseline emissions are calculated with the combined baseline emission factor and the electricity delivered to the grid by the Project as follows:

$$BE_y = EG_y \times EF_y$$

$$EG_y = EG_{out} - EG_{in}$$

Where:

BE_y = Baseline emissions in year y (tCO₂/yr)

EG_y = Net electricity supplied by the project activity to the grid (MWh)

EG_{out} = Electricity exported by the project activity to the grid (MWh)

EG_{in} = Electricity imported by the project activity to the grid (MWh)

$EF_y = EF_{grid,CM,y}$, combined margin CO₂ emission factor for grid connected power generation in year y calculated using the latest version of the “Tool to calculate the emission factor for an electricity system”.

3.2 Project Emissions

According to ACM0002 (version 12.1.0), the project emissions are taken as zero, i.e. $PE_y = 0 \text{ tCO}_2\text{e}$.

3.3 Leakage

According to ACM0002(version 12.1.0) and the registered CDM-PDD, the leakage of wind power project need not be considered, i.e. $L_y = 0 \text{ tCO}_2\text{e}$.

3.4 Net GHG Emission Reductions and Removals

The project activity will generate GHG emission reductions by avoiding CO₂ emissions from electricity generation by fossil fuel power plants. The emission reduction (ER_y) is calculated as follows:

$$ER_y = BE_y - PE_y - L_y = 338,011 - 0 - 0 = 338,011 \text{ tCO}_2\text{e}$$

During the VCS crediting period, the Estimated GHG emission reductions are listed as below:

Year	Estimated baseline emissions or removals (tCO ₂ e)	Estimated project emissions or removals (tCO ₂ e)	Estimated leakage emissions (tCO ₂ e)	Estimated net GHG emission reductions or removals (tCO ₂ e)
Year 2010	203,73	0	0	203,73
Year 2011	338,011	0	0	338,011
Year 2012	84,271	0	0	84,271
Total	442,655	0	0	442,655

4 MONITORING

4.1 Data and Parameters Available at Validation

Data / Parameter	EF _y
Data unit	tCO ₂ /MWh
Description	Emission Factor
Source of data	The registered PDD
Value applied:	0.8325
Justification of choice of data or description of measurement methods and procedures applied	It's calculated during the validation of CDM and used to calculate the Baseline emission. Please refer to the registered PDD for detail information. http://cdm.unfccc.int/filestorage/4/G/H/4GHLIVA9B8J3SPM2T7RX0YDN5UCF6K/PDD-Dongtai%20II.pdf?t=SUV8bjlpMzB0fDCt_XzPIFBpkkytqIY9VLfa
Purpose of Data	Calculation of baseline emissions
Comments	N/A

4.2 Data and Parameters Monitored

Data / Parameter	EG _{out,y}
Data unit	MWh
Description	Electricity delivered to grid in year y
Source of data	Electricity meters (M1, M1b, M2,M2b)
Description of measurement methods and procedures to be applied	Measured directly and continuously through onsite meter.
Frequency of monitoring/recording	Continuously measurement daily reading and monthly recording.
Value applied:	–
Monitoring equipment	Electricity meters (M1, M1b, M2,M2b)
QA/QC procedures to be applied	Data measured by meters will be cross checked by electricity sales receipt.
Purpose of data	Calculation of baseline emissions
Calculation method	N/A
Comments	N/A

Data / Parameter	$EG_{in,y}$
Data unit	MWh
Description	Electricity imported from grid in year y
Source of data	Electricity meters (M1, M1b, M2,M2b)
Description of measurement methods and procedures to be applied	Measured directly and continuously through onsite meter.
Frequency of monitoring/recording	Continuously measurement daily reading and monthly recording.
Value applied:	–
Monitoring equipment	Electricity meters (M1, M1b, M2,M2b)
QA/QC procedures to be applied	Data measured by meters will be cross checked by electricity sales receipt.
Purpose of data	Calculation of baseline emissions
Calculation method	N/A
Comments	N/A

Data / Parameter	EG_y
Data unit	MWh
Description	Net electricity delivered to the Grid by the Project activity in year y.
Source of data	Calculation from $EG_{in,y}$, $EG_{out,y}$
Description of measurement methods and procedures to be applied	$EG_y = EG_{out,y} - EG_{in,y}$
Frequency of monitoring/recording	Continuously measurement daily reading and monthly recording.
Value applied:	–
Monitoring equipment	Electricity meters (M1, M1b, M2,M2b)
QA/QC procedures to be applied	Data measured by meters will be cross checked by electricity sales receipt.

Purpose of data	Calculation of baseline emissions
Calculation method	N/A
Comments	N/A

4.3 Monitoring Plan

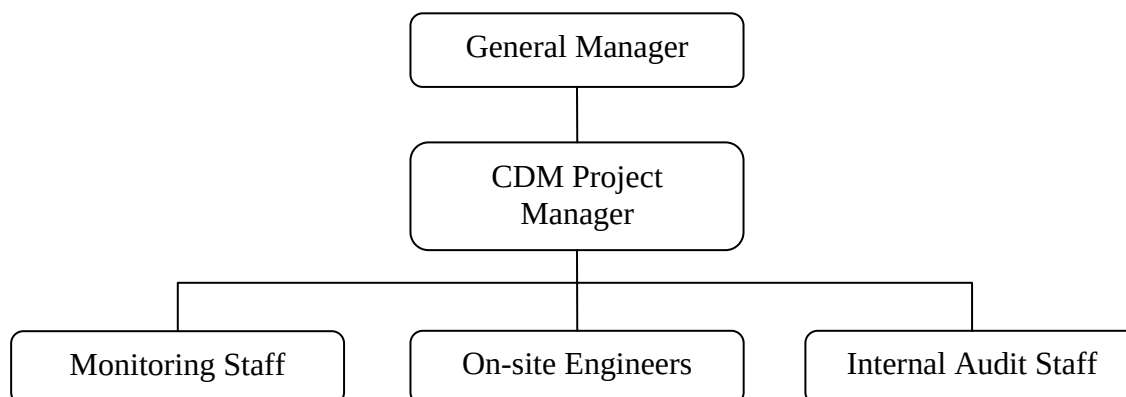
Baseline emission factor the project is determined ex ante. Therefore the electricity delivered by the project to the East China Power Grid is defined as the key data to be monitored. The monitoring plan is drafted to focus on monitoring the electricity delivered by the project to the East China Power Grid.

1. Introduction

The Project adopts the approved consolidated monitoring methodology ACM0002 (version 12.1.0) “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” to determine and monitor the emission reductions from the net electricity generation from the Project.

2. Monitoring organization

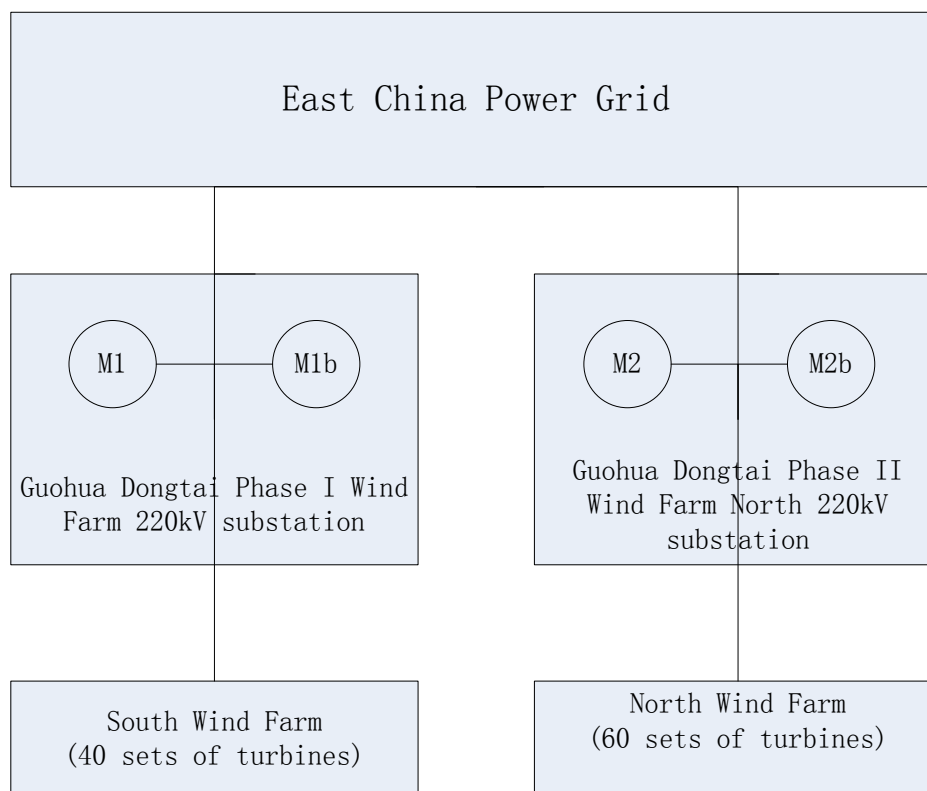
Project owner will organize a special CDM workgroup to take charge of the monitoring work of the whole project. The general manager of the project entity will appoint a CDM project manager. Monitoring staff, on-site engineers and internal audit staff are responsible for the collection of the data and information required in the monitoring plan. The collected data and information will be documented and sent to the CDM manager monthly. The CDM manager will be in charge of the implementation of the monitoring plan and report to the general manager of the project owner. The general manager will make the confirmations on monitoring, calculation data and reports. The management framework is illustrated as follows:



3. Monitor devices and calibration

The project consists two wind farms, 60 sets of turbines is installed in north wind farm and the other 40 sets of turbines is installed in south wind farm. Two pairs bidirectional electricity meters are installed for the measurement of net electricity delivered to grid. One pair (meter M1 and its backup meter M1b) were installed at Guohua Dongtai Phase I Wind Farm 220kV substation to measure the electricity export to the grid and electricity import from the grid by south wind farm of the project. Another pair (meter M2 and its backup meter M2b) will be installed at Guohua Dongtai Phase II Wind Farm North 220kV substation to measure the electricity generated from the north wind farm of the project. The metering equipment will be properly configured and checked according to the requirement from Technical Administrative Code of electric energy metering (DL/T448-2000).The metering equipment will be checked by the project owner and Grid Company before operation. The main meter will be owned, operated and maintained by East China Power Grid, and the backup meter will be owned, operated and maintained by the owner company. When the main meter is out of order, the readings from the backup meter will be used for reference.

The calibration of electric energy meter should be periodically carried out according to relevant national electric industry standards or regulations. Calibration is carried out by the authorized entity with the records being provided to the project owner, and these records will be maintained by the proposed project owner and the third party designated. The indicative grid connection diagram is provided in figure below.



4. Data monitored and collection

The emission factors of the baseline are based on ex-ante calculation; therefore the main data to be monitored will be the amount of electricity supplied to the East China Power Grid by the proposed project.

CDM project manager is responsible for supervising and checking data and whole data record process as well as keeping receipt of sales for cross check. The backup meter will be maintained by the project owner and read by the site engineer with the same frequency of data reading of main electricity meter.

If the main meter is inaccurate by detecting errors larger than the allowable one, or functions improperly, the grid-connected electricity generated by the proposed project shall be determined by the reading of its backup meter.

5. Data management system

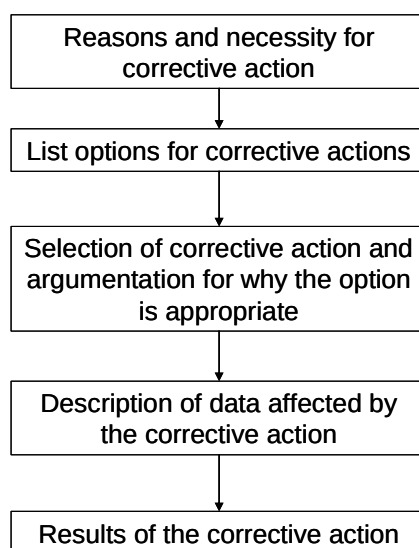
This provides information on record keeping of the data collected during monitoring. Record keeping is the most important exercise in relation to the monitoring process.

In order to facilitate auditor's reference, monitoring results will be indexed. All paper-based information will be stored by the Project owner and kept at least in one copy. And all data

collected should be archived electronically and be kept for at least 2 years after the end of the last crediting period.

6. Corrective actions

Specific staff will log all corrective actions and will report in the monitoring report. In case corrective actions are considered necessary, these actions will be implemented according to the procedure outlined below.



7. Training

The monitoring officers will attend a training session by the CDM consultants. The training session will include the following:

- Background of CDM
- Contents of PDD and monitoring plan (including monitoring procedures)
- Practical requirements for monitoring (including metering, calibration)
- Audit procedures / project performance review / corrective actions
- Worksheet (excel) containing monitoring data and calculations
- Monitoring report template
- Practical training exercise

8. Verification

The table below outlines the key documents relevant to monitoring and verification of the emission reductions from the Project. With all these documents compiled, the Project owner will sign a verification service agreement with specific DOE.

I.D. No.	Document Title	Main Content	Source
F-1	PDD, including the electronic spreadsheets and supporting documentation (assumptions, estimations, measurement, etc)	Calculation procedure of emission reduction and monitoring items	the Project owner, or directly download from UNFCCC website
F-2	Record on maintenance and calibration of metering equipment	Reasons for maintenance and calibration and the precision after maintenance and calibration	the Project owner
F-3	Monitoring report	CO ₂ emission reduction calculation	the Project owner
F-4	Project Management Record (including data collection and management system)	Comprehensive and true reflection of the management and the operation of the Project	the Project owner

9. Quality assurance and quality control

The quality assurance and quality control procedures for recording, maintaining and archiving data shall be improved as part of this CDM project activity according to EB rules and real practice in terms of the need for verification of the emission reductions on an annual basis according to this PDD.

10. Monitoring report

Monitoring report, including monitoring data, process and results of reduction calculation, will be prepared by project owner and designed consultative organization together. Relevant maintenance records of monitoring equipment will be provided to DOE for the future verification.

5 ENVIRONMENTAL IMPACT

In accordance with relevant Chinese environmental laws and regulations, the environmental impact assessment (EIA) report of the proposed project was compiled by Jiangsu Electric Power Design Institute has been approved by the General Office of Ministry of Environmental Protection of the People's Republic of China on 12-12-2008.

According to the results of EIA and the reply from the Environmental Protection Bureau, the impacts on the environment are not significant.

6 STAKEHOLDER COMMENTS

The Project owner conducted a survey on the local villagers and residents possibly affected by the Project on 06-01-2010. Totally 30 questionnaires distributed to the villagers and residents were returned.

The following is a summary of the key comments based on 30 returned questionnaires. Questions and topics for discussion are as follows:

- Are they satisfied with their surrounding environment?
- Do they know the wind power?
- Will the project improve the local development or increase job opportunities?
- Will the project have negative impacts on their livelihood?
- What impacts on environment should be considered?
- Will they support the construction of the project?

Statistic of the comments:

- All respondents (100%) are satisfied with their living conditions and surrounding environment.

24 (80%) persons of the respondents know well about wind power, and 6 (20%) persons know a little.

The respondents consider construction and operation of the Project may improve living level (57%), increase employment opportunities (27%) and income (10%), mitigate air pollution (30%), and decrease local electricity price (6%).

Among the negative impacts mentioned, the main issues concerned are garbage (50%).

28 (93%) persons of the respondents support the local constructed wind farm.

All of the 30 respondents support the construction of the Project.

This survey shows that people all agree the Project actively decrease environment pollution and mitigate local environmental quality. In addition, the construction of this Project will promote development of other industries, and partly address local employment pressure. All the stakeholders support the Project.

The residents and local government are all very supportive to the Project therefore there has been no need to modify the project due to the comments received.

Meanwhile the Project owner will actively take measures to control.