Guohua Tongliao Kezuo Zhongqi Phase I 49.5 MW Wind Farm Project

Document Prepared By Guohua (Tongliao) Wind Power Co., Ltd.

Project Title	Guohua Tongliao Kezuo Zhongqi Phase I 49.5 MW Wind Farm Project
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1 PROJECT DETAILS

1.1 Summary Description of the Project

Guohua Tongliao Kezuo Zhongqi Phase I 49.5 MW Wind Farm Project (hereinafter referred to as "the project" or project "P") is constructed and operated by Guohua (Tongliao) Wind Power Co., Ltd.

The project generates renewable power electricity by using the wind power resource, and supplies electricity to Northeast China Power Grid (NECPG) replacing fossil fuel consumption and thus reducing GHG (CO_2) emissions. It involves installation and operation of 33 wind turbines with the unit capacity of 1,500 kW and total capacity of 49.5 MW. It is estimated that the annual generation of the proposed project will be 108,830MWh once fully operation, with a plant load factor of 25.1%. The project lifetime is 21 years (including 1 year construction period).

The electricity currently generated by the Grid is relatively fossil fuel intensive, with a combined margin emission factor of 1.0280 tCO_2/MWh. The proposed project is therefore expected to reduce emissions of GHG of 111,877 tCO_2e per year during the first crediting period by displacing electricity from NECPG.

1.2 Sectoral Scope and Project Type

The Project under sectoral scope 1: Energy industries (renewable - / non-renewable sources)

Project Category: Renewable electricity in grid connected applications.

The project is a new grid-connected renewable wind power plant and not a grouped project as per definition of Grouped Project.

1.3 Project Proponent

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1.4 Other Entities Involved in the Project

N/A

1.5 Project Start Date

16/01/2009[1]

[1] The date of the first wind turbine-generator was put into operation

1.6 Project Crediting Period

The VCS crediting period is from 16/01/2009 to 23/02/2011. The total number of years is 3, 2009, 2010 and 2011.

Project	Yes
Large project	N/A

Years	Estimated GHG emission reductions or removals (tCO_2e)
Year 2009	107,279
Year 2010	111,877
Year 2011	16,552
Total estimated ERs	**235,708**
Total number of crediting years	**3**
Average annual ERs	**111,877**

1.7 Description of the Project Activity

The project generates renewable power electricity by using the wind power resource, and supplies electricity to Northeast China Power Grid (NECPG) replacing fossil fuel consumption and thus reducing GHG (CO_2) emissions. It involves installation and operation of 33 wind turbines with the unit capacity of 1,500 kW and total capacity of 49.5 MW.

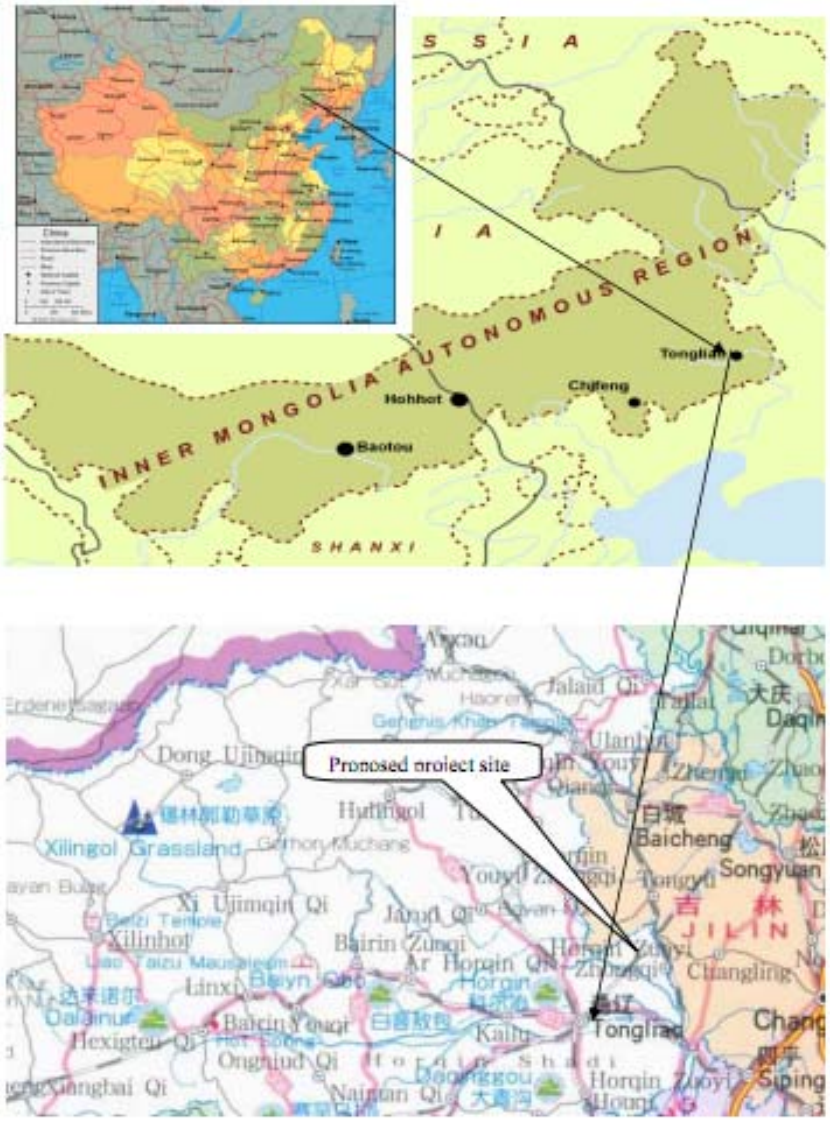
The electricity currently generated by the Grid is relatively fossil fuel intensive, with a combined margin emission factor of 1.0280 tCO_2/MWh. The proposed project is therefore expected to reduce emissions of GHG of 111,877 tCO_2e per year during the first crediting period by displacing electricity from NECPG.

The project lifetime is 21 years (including 1 year construction period)

1.8 Project Location

The project is located in Dailiji County, Kezuozhong Qi, Tongliao City, Inner Mongolia Autonomous Region, P. R. China.

The geographical coordinates of the proposed project is east longitude 122°57′ and north latitude 41°13′.



1.9 Conditions Prior to Project Initiation

The project is a green-field wind power plant and no renewable power plant or other type power plant was operated prior to the implementation of the project. The purpose of the project is to generate renewable power by wind energy to replace power from NECPG which is dominated by fossil-fuel fired power plant.

Definitely, the implementation of the project was not to generate GHG emissions primarily for the purpose of its subsequent removal or destruction.

1.10 Compliance with Laws, Statutes and Other Regulatory Frameworks

The Project owner has also 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.

1.11 Ownership and Other Programs

1.11.1 Right of Use

Letter of Approval issued by China's DNA for the Project can serve as the proof of title of the Project Owner. As described in Letter of Approval, Guohua (Tongliao) Wind Power Co., Ltd. is authorized as China's participant to voluntarily participate in and carry out the Project.

The Project owner has also obtained all relevant permits to the project including Business License, FSR Approval and Power Purchase Agreement. Moreover, the ownership of the project owner was described in the registered CDM-PDD.

1.11.2 Emissions Trading Programs and Other Binding Limits

The project does not take part in emission trading programs besides their status under CDM. However, the VCUs claimed are related to a different period (before the start of the CDM Crediting Period) and therefore there is no double counting.

1.11.3 Participation under Other GHG Programs

The project was registered as a CDM project on 24/02/2011 with Ref, No. 4495. Its estimated annual emission reductions are 111,877 tCO_2e. The project applied approved consolidated baseline and monitoring methodology ACM 0002 (Version 11): Consolidated baseline methodology for grid-connected electricity generation from renewable sources (approved on 52nd CDM-EB conference)

1.11.4 Other Forms of Environmental Credit

The Project does not intend to generate any other forms of GHG-related environmental credit for GHG emission reductions or removals claimed under the VCS Program.

1.11.5 Projects Rejected by Other GHG Programs

The project was not rejected by other GHG programs.

1.12 Additional Information Relevant to the Project

Eligibility Criteria

N/A

Leakage Management

According to ACM0002, as a wind farm project there is no need to considered leakage.

Commercially Sensitive Information

In this Project Description, there is no commercially sensitive information involved

Further Information

The project is no any information relevant legislative, technical, economic, sectorial, social, environmental, geographic etc.

2 APPLICATION OF METHODOLOGY

2.1 Title and Reference of Methodology

Approved consolidated baseline and monitoring methodology ACM0002 (Version 11): Consolidated baseline methodology for grid-connected electricity generation from renewable sources (approved on 52nd CDM-EB conference)

2.2 Applicability of Methodology

The project is a grid-connected renewable power generation project activity that installs a new wind power plant at a site where no wind power plant was operated prior to the implementation of the project activity and does not represent a capacity addition to an existing plant. The proposed project activity does not involve switching from fossil fuels to renewable energy at the site of the project activity. Therefore, the project activity meets the applicability conditions of the methodology applied to the project.

2.3 Project Boundary

The greenhouse gases and emission sources included in or excluded from the project boundary are shown in Table

Source		Gas	Included?	Justification/Explanation
Baseline	Electricity generation in fossil fuel-fired power plants that are displaced due to the project activity	CO_2	Yes	Main emission source
		CH_4	No	Excluded according to ACM0002 (Version11)
		N_2O	No	Excluded according to ACM0002 (Version11)
Project	Project Emission	CO_2	No	The proposed project is a wind power project that the project emissions should not be considered as per ACM0002 (Version 11).
		CH_4	No	
		N_2O	No	

2.4 Baseline Scenario

The conditions prior to project initiation is the baseline scenario identified in the registered CDM PDD, i.e., NECPG providing the same electricity service as the proposed project

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

According to ACM0002, the baseline emission during this monitoring period is calculated as:

$BE_y = EG_y \times EF_y$

Where:

BE_y is the baseline emissions, tCO_2e.

EG_y is net power supplied to the grid, MWh.

EF_y is the CO_2 emission factor of the grid which is ex-ante determined in the CDM-PDD and fixed in the crediting period, tCO_2e/MWh.

According to the Feasibility Study Report, the annual power generation is estimated to be 108,830 MWh.The baseline emission factor is 1.0280 tCO_2e/ MWh. Therefore, the annual baseline emission of the project (BE_y) is 111,877 tCO_2e.

3.2 Project Emissions

According to the ACM0002 and the registered CDM-PDD, the emission of wind power project activity is zero, i.e. $PE_y=0$.

3.3 Leakage

According to ACM0002 and the registered CDM-PDD, the leakage of wind power project need not be considered, i.e. $L_y = 0$

3.4 Summary of GHG Emission Reductions and Removals

The project activity will generate GHG emission reductions by avoiding CO_2 emissions from electricity generation by fossil fuel power plants. The emission reduction (ER_y) is calculated as follows:

$ER_y=BE_y-PE_y-L_y=111,877-0-0=111,877\ tCO_2e$

Years	Estimated baseline emissions or removals (tCO_2e)	Estimated project emissions or removals (tCO_2e)	Estimated leakage emissions (tCO_2e)	Estimated net GHG emission reductions or removals

				(tCO_2e)
2009	107,279	0	0	107,279
2010	111,877	0	0	111,877
2011	16,551	0	0	16,551
Total	**23,5707**	**0**	**0**	**23,5707**

4 MONITORING

4.1 Data and Parameters Available at Validation

Data Unit / Parameter:	$EF_{grid,CM,y}$
Data unit:	tCO_2e/MWh
Description:	Baseline emission factor in the year y
Source of data:	Refer to registered CDM PDD
Value applied:	1.0280
Justification of choice of data or description of measurement methods and procedures applied:	In according with Notification on Determining Baseline Emission Factor of China's Grid issued by China DNA on 06/07/2009, which is based on China Electric Power Yearbook 2006-2008 and China Energy Statistical Yearbook 2006-2008
Any comment:	The emission factor of the project ($EF_{grid,CM,y}$) is ex-ante determined and is fixed during the first crediting period.

4.2 Data and Parameters Monitored

Data Unit / Parameter:	$EG_{Total,y}$
Data unit:	MWh
Description:	The total net electricity supply to the NECPG by projects "P" and "X" in year y.
Source of data:	The data measured by the main meter
Description of measurement methods and procedures to be applied:	The readings of the electricity meter will be continuously measured and monthly recorded. Data will be archived for 2 years following the end of the crediting period by means of electronic and paper backup. The accuracy of electricity meter is 0.2s, in line with relevant national standard. The calibration frequency is once a year.
Frequency of monitoring/recording:	Continuously measurement and monthly recorded.

Value applied:	The annual on-grid electricity supply of "P" is expected at 108,830 MWh, which is used for calculating expected emission reductions of the proposed project.
Monitoring equipment:	Meter
QA/QC procedures to be applied:	According to national standard, meter will be calibrated annually. Data measured by the meter will be cross checked by receipts.
Calculation method:	$EG_{Total,y} = EG_{export,y} - EG_{import,y}$
Any comment:	-

Data Unit / Parameter:	$E_{P,y}$ and $E_{x,y}$
Data unit:	MWh
Description:	Electricity generation by project "P" and project "X" in year y.
Source of data:	Measured by on-site meters
Description of measurement methods and procedures to be applied:	The readings of the electricity meter will be continuously measured and monthly recorded. Data will be archived for 2 years following the end of the crediting period by means of electronic and paper backup. The accuracy of electricity meter is 0.5, in line with relevant national standard. The calibration frequency is once a year.
Frequency of monitoring/recording:	Continuously measurement and monthly recorded.
Value applied:	-
Monitoring equipment:	Meter(s)
QA/QC procedures to be applied:	According to national standard, meter will be calibrated annually.
Calculation method:	-
Any comment:	Uncertainty level of data is low.

4.3 Description of the Monitoring Plan

The monitoring has been carried out in accordance with the monitoring plan contained in the registered PDD.

The proposed project adopts the approved consolidated monitoring methodology ACM0002 (Version011) "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" to determine the emission reductions due to the net electricity supply to NECPG by the proposed project.

1. The users --- who use the monitoring plan

The proposed project owner will use this document as guideline in monitoring of the project emission reduction performance and will adhere to the guidelines set out in this monitoring plan. This plan should be modified according to actual conditions and requirements of DOE in order to ensure that the monitoring is credible, transparent and conservative.

2. Operational and management structure for monitoring

The monitoring of the emission reductions will be carried out according to the figure below.

General Manager:
Review
Internal audit

CDM officer

- Implementation of Monitoring Plan
- Supervise and verify metering and recording
- Collection of sales receipts and billing receipts
- Calculation of emission reduction
- Preparation of monitoring report

Plant Manager:

- Measurement of electric power,
- Daily operation and maintenance
- Information collection and data recording
-

Plant manager of wind farm is responsible to record and collect the information and data required by the Monitoring Plan. The required information and data will be documented and sent to the CDM officer monthly. The CDM officer works out the monitoring plan, charges of its implementation and reports to the General Manager of the company. The General Manager of the company will make the confirmations on monitoring calculation data and reports.

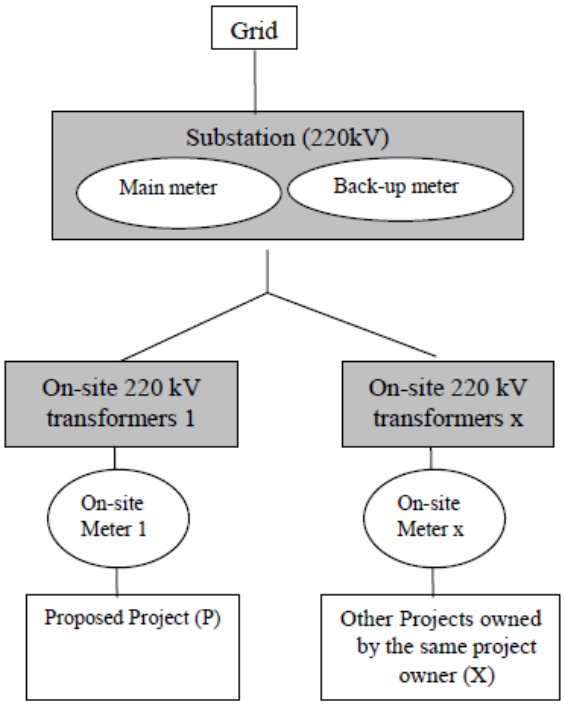
The project owner and CREIA will work together to train relevant staffs of the wind power plant for data monitoring and data management. The training contains CDM knowledge, operational regulations, quality control (QC) standard, data monitoring and data management etc.

3. Monitoring

3.1 Monitoring equipment

The main meter and back-up meter installed in the substation is bidirectional, recording the electricity of “P” and “X” exported to the grid ($EG_{export,y}$) and imported from the grid ($EG_{import,y}$). They will be owned, operated and maintained by the grid company. The reading records are provided to the project owner by the grid company regularly, and can be cross-checked by sales receipts. The Meter 1 and Meter X are installed at lower side of the on-site 220kV transformers,

which are used to monitor the electricity generation of "P" ($E_{P,y}$) and "X" ($E_{X,y}$). The on-site meters are owned, operated and maintained by the project owner. The location of those meters is presented in following figure:



Note: X here stands for different on-site meters for the corresponding projects owned by the same project owner. Each project matches with an on-site 220KV transformers.

As mentioned above, $EG_{export,y}$ and $EG_{import,y}$ was recorded by main meter installed in the substation. The net electricity supply by "P" and "X" ($EG_{Total,y}$) is the difference between $EG_{export,y}$ and $EG_{import,y}$, i.e. $EG_{Total,y}= EG_{export,y}- EG_{import,y}$

Since the "P" and "X" share the same main meter, the separate net electricity supply for each project cannot be obtained from the main meter; therefore the on-site meters can be used to calculate the share of the net supply to the grid by each project. The net electricity supplied from "P" ($EG_{P,y}$) can now be calculated as follows:

$$EG_{P,y}= EG_{Total,y}\times E_{P,y}/(E_{P,y}+E_{X,y})$$

Where:

$EG_{P,y}$ is the calculated net electricity supplied from "P" in year y;

$EG_{Total,y}$ is the total net electricity supplied to the NECPG by "P"and "X" in year y, read by the main meter;

$E_{X,y}$ is the electricity exported by the other projects owned by the same project owner in year y, read by on-site meter x;

$E_{P,y}$ is the electricity exported by the proposed project in year y, read by on-site meter 1.

The calculated net electricity supplied from "P" ($EG_{P,y}$) is therefore used for the emission reduction calculations.

This approach is flexible to accommodate potential future installations which also share the same main meter with "P".

3.2 Monitoring Procedures

The project owner and the grid company are responsible for maintenance, calibration and monitoring of the on-site meters and the main meter respectively. The procedures of monitoring the electricity are summarized as follows:

1) At fixed time on a particular day of each month, the gird company should read and record data from the main meter and together with the project owner read and record data form on-site meters installed in each project site and then check the reading of the main meter against the on-site meters.

2) The grid company provides the project owner with the monthly record of EG_{total} .

3) The sales receipts will be used for cross check purpose.

4) The project owner carries out an internal audit on the readings, grid data and calculations, and report to DOE for verification.

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 installed, unless a test by either party reveals it is inaccurate;

(b) If the backup system is not within acceptable limits of accuracy or is otherwise performing improperly the developer and grid company shall jointly prepare an estimate of the correct reading;

(c) If the grid company and the developer fail to agree then the matter will be referred for arbitration according to agreed procedures.

4. Calibration of Meters & Metering

An agreement should be signed between the project owner and the grid company that defines the metering arrangements and the required quality control procedures to ensure accuracy. The metering equipment will be properly calibrated and checked annually for accuracy.

1) The metering equipment shall have sufficient accuracy so that error resulting from such equipment shall not exceed +0.5% of full-scale rating.

2) All the meters installed shall be tested within 10 days after:

(a) The detection of a difference larger than the allowable error in the reading of both meters

(b) The repair of all or part of the meter caused by the failure of one or more parts to operate in accordance with the specifications.

Calibration is carried out with the records being provided to the project owner, and these records will be maintained by the project owner.

5. 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. This is an on-going process which will be ensured through the CDM mechanism in terms of the need for verification of the emissions on an annual basis according to this PDD and the CDM manual.

6. 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. Without accurate and efficient record keeping, project emission reductions cannot be verified. Below follows an outline of how project related records would be managed.

Overall responsibility for monitoring of GHG emissions reduction will rest with the CDM responsible person of the proposed project. The CDM manual sets out the procedures for tracking information from the primary source to the end-data calculations in paper document format. It is the responsibility of the project owner to provide additional necessary data and information for validation and verification requirements of respective DOE.

Data will be archived at the end of each month using electronic spreadsheets and will be stored on hard disk. Physical documentation such as paper-based maps, diagrams and environmental assessment will be collated in a central place, together with this monitoring plan. In order to facilitate the auditor's reference, monitoring results will be indexed. All paper-based information will be stored by the project owner and kept at least one copy. And all data including calibration records is kept until 2 years after the end of the total crediting period of the CDM project.

5 ENVIRONMENTAL IMPACT

An Environmental Impact Assessment (EIA) for the proposed project was completed in July 2006 by Inner Mongolia Exploration &Design Institute of Water Resources and Hydropower and subsequently approved by the Inner-Mongolia Environmental Protection Bureau in September 2006. The proposed project is a renewable energy project without negative impacts on the environment but of great economic, environmental and social benefit.

6 STAKEHOLDER COMMENTS

Before the start of the construction of the proposed project, the project owner carried out a survey of the local villagers and residents in the Kezuo Zhongqi on March 25, 2007.

An easy understanding questionnaire was designed to fill in, which are summarised as follows:

· Project introduction

· Respondent's basic information and education level

· Questions on:

The questionnaire includes below contents:

1. Do you know this project?

2. Do you think the proposed project will be helpful to improve the local economy?

3. Will the project impact your livelihood positively or negatively?

4. Do you think the location of the proposed project is reasonable or unreasonable?

5. Will the proposed project impact the environment?

The forum issued a total of 27 copies of the questionnaire, 27 recoveries, 100% recovery rate. There were 6 items to be interviewed in this public investigation and interview comments are summarized as follows.

- 89% of the respondents know the proposed project and 11% know a little about it;
- 100% of the respondents argue that the proposed project will promote the local economic;
- 100% agree that the proposed project will affect their life positively;
- 100% think that the proposed project is located reasonably;
- 100% think that the proposed project has no bad impact on the environment;
- 100% of the respondents support the proposed project.

From the comments above, it can be concluded most representatives think the proposed project will do good to local environment and economy and all support it.