CLEAN DEVELOPMENT MECHANISM
PROJECT DESIGN DOCUMENT FORM (CDM-PDD)
Version 03 - in effect as of: 28 July 2006

CONTENTS

SECTION A. General description of project activity

A.1. Title of the project activity:

Dalian Tuchengzi Wind Power Project 30 MW
Version: 6
Date: 15/06/2008

The version 1 PDD was the first draft finished in September 2007, the version 2 PDD was for the buyers of CERs, the version 3.1 PDD revised for GSP, the version 4 PDD revised for Validation Protocol, the version 5 PDD revised for the requirement of DOE.

A.2. Description of the project activity:

Dalian Tuchengzi Wind Power Project (hereafter referred as the proposed project) is a grid connected renewable energy project. The proposed project is located in Tuchengzi town, Wafangdian City, Dalian City, Liaoning Province, Northeast China. Totally 40 wind turbines with a nominal capacity of 750 KW have been installed, providing a total capacity of 30 MW. With an average annual generation supplied to the grid is 54,925 MWh, the objective of the proposed project is to generate electricity using state-of-the-art wind power generation technology and sell into China Northeast Power Grid (NEPG).

The proposed project will achieve CO_2 emission reduction by replacing electricity generated by fossil fuel fired power plant connected into NEPG. The proposed project is estimated to deliver 62,938 tonnes CO_2 emission reduction annually.

Being as an environment-friendly energy supply technology, the proposed project contributes to sustainable development goal. The contributions are summarized as follows:

- Being located in a power grid dominated by coal-fired power plants, development of the proposed project will not only reduce GHG emissions but also mitigate local environmental pollution caused by air emissions from coal- fired power plants.
- The proposed project could be helpful to diversify power mix of NEPG.
- Development of the proposed project could contribute to meet local electricity demand, therefore boost the economy in the local region.
- Increase 18 employment opportunities during operation periods.

A.3. Project participants:

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)
China (host)	Dalian Tuchengzi Wind Power Co., Ltd.	No
Japan	Marubeni Corporation	No

>>In accordance with the CDM modalities and procedures, at the time of making the CDM-PDD public at the stage of validation, a Party involved may or may not have provided its approval. At the time of requesting registration, the approval by the Party(ies) involved is required.

Further details are described in Annex 1 of the PDD.

A.4. Technical description of the project activity:

A.4.1. Location of the project activity:

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A.4.1.1. Host Party(ies):

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China

A.4.1.2. Region/State/Province etc.:

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Liaoning Province

A.4.1.3. City/Town/Community etc:

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Tuchengzi Town, Wafangdian City, Dalian City

A.4.1.4. Detail of physical location, including information allowing the unique identification of this project activity (maximum one page):

The proposed project is located in Tuchengzi Town, Wafangdian City, Dalian City, Liaoning Province of China, its geographical coordinates are north latitude 40°01′07.0″ and east longitude 121°50′40.9″ , and its average elevation is 30-150 meters. The location the GPS coordinates were taken on the site of Number 16 wind turbine for the proposed project with the GARMIN GPS positioner. The distance is 120km between the proposed project and Dalian City. The detail location of the proposed project is shown in Figure 1, Figure 2 and Figure 3.

Figure1. Sketch Map of The Proposed Project

Figure2. Geography Location of The Proposed Project

Figure3. Geography Location of The Proposed Project in Dalian City

A.4.2. Category(ies) of project activity:

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This category would fall within sectoral scope 1: energy industries. (http://unfccc.int/resource/docs/convkp/kpeng.html)

A.4.3. Technology to be employed by the project activity:

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Totally 40 wind turbines with a nominal capacity of 750 KW have been installed, providing a total capacity of 30 MW. Each turbine will have a 690V-to-10kV transformer, from which a 10kV line will link into the on-site 66kV switchgear at the Xiyang substation established in the proposed project site. By the 66 kV line, the electricity generated by the proposed project is delivered to the NEPG.

The wind turbine finally adopted by the proposed project is WD49－750kW of Zhejiang Windey Wind Generating Engineering Co., Ltd.. The main technical parameters of the wind turbine generators are in Table A4-1.

Table A4-1 Main technical parameters of the wind turbine generators

Title	Unit	Value	Note
Model		WD49-750	Technology standard of 750kW wind turbine generator
Rated power	KW	750	
Quantity of leaf	piece	3	
Diameter of rotor	m	49	
Impeller speed	rpm	22	
Rated voltage of generator	V	690	
Cut-in speed	m/s	3.5	
Rated wind speed	m/s	14	
Hub height	m	50	
Cut-out speed	m/s	25	Website of Zhejiang Windey Wind Generating Engineering Co., Ltd.

The proposed project involves no technology transfer from abroad.

A.4.4. Estimated amount of emission reductions over the chosen crediting period:

The proposed project activity employs the renewable crediting period, and the estimation of the emission reduction during the first crediting period (from Nov 1st, 2008 to Oct 31st, 2015) is presented in Table A4-2.

Table A4-2 The estimation of the emission reductions in the first crediting period

Year	Annual estimation of emission reductions in tonnes of CO2e
1	62,938
2	62,938
3	62,938
4	62,938
5	62,938
6	62,938
7	62,938
The estimation of total emission reductions in the first crediting period (tonnes of CO_2e)	440,566

Total years of the first crediting period	7
The estimation of annual average emission reductions in the first crediting period (tonnes of CO_2e)	62,938

The first crediting period is from November 1st 2008 to October 31st 2015.

A.4.5. Public funding of the project activity:

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No public funds from Annex I countries is provided to the proposed project.

SECTION B. Application of a baseline and monitoring methodology:

B.1. Title and reference of the approved baseline and monitoring methodology applied to the project activity:

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ACM0002 (Version 06): Consolidated baseline and monitoring methodology for grid-connected electricity generation from renewable sources.

Tool for the Demonstration and Assessment of Additionality (version 04)

More information about the methodology can be found on the website:
http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html

B.2. Justification of the choice of the methodology and why it is applicable to the project activity:

The baseline methodology ACM 0002(Version 06) is applicable to the proposed project and the ex-ante calculation of the grid factor, because the proposed project meets all the applicability criteria stated in the methodology.

- The proposed project is a grid-connected zero-emission renewable power generation activity from wind source;
- The proposed project is not an activity that involves switching from fossil fuels to renewable energy at the proposed project site.
- The power grid (NEPG) which the proposed project is to be connected to is clearly identified and information on the characteristics of this grid is publicly available. (http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File1364.pdf)
- The additionality of the proposed project can be verified using "Tools for the demonstration and assessment of additionality" requested by the baseline methodology (ACM0002).

The proposed project can meet the applicability criteria of the baseline and monitoring methodology (ACM0002), therefore, the methodology is applicable to the proposed project.

B.3. Description of how the sources and gases included in the project boundary:

The spatial range of the proposed project boundary is the proposed project itself and other power plants

connected to NEPG. According to the authority documents regarding to grid boundaries by the Chinese *DNA*[1], NEPG includes Liaoning, Jilin and Heilongjiang power grids.

The emission sources and gases included in the project boundary are listed in Table B3-1.

Table B3-1 The sources and gases included in the project boundary

	Source	Gas	Included?	Justification / Explanation
Baseline	Fossil fuels fired power plants	CO_2	Yes	Major emission sources
		CH_4	No	Excluded for simplification. This is conservative.
		N_2O	No	Excluded for simplification. This is conservative.
Project Activity	Electricity generation in the project activity	CO_2	No	Zero-emissions grid-connected electricity generation from renewable energy
		CH_4	No	Zero-emissions grid-connected electricity generation from renewable energy
		N_2O	No	Zero-emissions grid-connected electricity generation from renewable energy

B.4. Description of how the baseline scenario is identified and description of the identified baseline scenario:

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According to ACM0002 (Version 06), the actual and credible alternative baseline scenarios would be:

a) The coal-fired plant with the same annual electricity output as the proposed project.

b) The proposed project activity is undertaken without being registered as a CDM project activity.

c) The other renewable energy power plant with the same annual electricity output as the proposed project.

d) The NEPG as the provider for the same annual electricity output as the proposed project.

The alternative a) is unrealistic. The construction of coal power plant under 135 MW is forbidden within the grid connected area[2].

The alternative b) is unrealistic. The investment analysis shows the proposed project not undertaken as a CDM project and without CERs income, the Internal Return Rate (IRR) is only 6.96%, low to the benchmark IRR of 8%[3].So the proposed project activity is lack of the financial attraction for the potential investors and the owner would not invest the proposed project.

The alternative c) is not realistic and credible either. Other sources of renewable energy like biomass and hydro are the possible grid-connected renewable energy technologies that could be applied in China. The location of the proposed project is near the sea. As for biomass, there is not enough resource and for hydro, there is no resource in the area where the proposed project located for power generation. The solar power need much higher investment and for geothermal there is no resource in the area.

[1] http://cdm.ccchina.gov.cn/web/index.asp

[2] Notice on Strictly Prohibiting the Installation of Fuel-fired Generators with the Capacity of 135MW or below Issued by State Council Office, decree no. 2002-6

[3] The Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects, Beijing: China Electric Power Press 2003

The alternative d) is in compliance with Chinese laws and regulations, furthermore, it is financially feasible without any barriers on investment, technology and price etc.

Based on the above analysis, to purchase equivalent amount of electricity output of the proposed project from NEPG (Scenario 4) is the only feasible baseline alternative scenario.

B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered CDM project activity (assessment and demonstration of additionality):

The proposed project has been considered as a CDM project in the document signed by Dalian New Energy Electric Development Co., Ltd, concerning of the requirements for preparing of the development of the Tuchengzi Wind Power Project on August 3, 2007. The time was early than the proposed project's starting date.

According to the requirements of baseline methodologies of ACM0002 (Version 06), the following steps are used to demonstrate the additionality of the proposed project according to the "Tools for the demonstration and assessment of additionality" (Version 04) agreed by the Executive Board.

Step1. Identification of alternatives to the project activity consistent with current laws and regulations.

Sub-step 1a. Define alternatives to the project activity.

To provide the same output comparable with the proposed CDM project activity, these alternatives are to include:

a) The coal-fired plant with the same annual electricity output as the proposed project.

b) The proposed project activity is undertaken without being registered as a CDM project activity.

c) The other renewable energy power plant with the same annual electricity output as the proposed project.

d) The NEPG as the provider for the same electricity output as the proposed project.

The alternative c) is not realistic and credible. Other sources of renewable energy like biomass and hydro are the possible grid-connected renewable energy technologies that could be applied in China. As for biomass, there is not enough resource and for hydro, there is no resource in the area where the proposed project located for power generation.

Sub-step1b. Consistency with mandatory laws and regulations.

The applicable legal and regulatory requirement for the proposed project include laws, central government regulations, local regulations, departmental rules and disciplines related to electricity and environment protection.

The related laws and regulations can be found and downloaded on the website of State Electricity Regulatory Commission (SERC) and National Development and Reform Commission (NDRC): http://www.serc.gov.cn/opencms/export/serc/laws/index.html and http://nyj.ndrc.gov.cn .

According to the applicable laws and regulations, the alternative a) is not the realistic and credible alternative, because coal power plant under 135 MW will be forbidden within the grid connected area(On Prohibition of 135MW and Smaller-scale Coal-fired Power Plants, General Office of State Council).

Based on the two sub-steps, the alternative b) and alternative d) are the realistic, credible alternative which are in compliance with all applicable legal and regulations.

Step2. Investment analysis.

The investment analysis is conducted in the following steps:

Sub-step 2a. Determine appropriate analysis method.

Tools for the demonstration and assessment of additionality (Version 04) suggest three analysis methods are simple cost analysis (option I), investment comparison analysis (option II) and benchmark analysis (option III).

Since the proposed project will earn revenues not only from CERs sales but also from electricity sales, the simple cost analysis method (option I) is not appropriate.

Investment comparison analysis method (option II) is applicable to projects whose alternatives are similar investment projects. Only on such basis, comparison analysis can be conducted. The alternative baseline scenario of the proposed project is the NEPG rather than new investment projects. Therefore, investment comparison analysis method (option II) is not applicable.

The proposed project will use benchmark analysis method (option III) based on the consideration that benchmark IRR and total investment IRR of the power sector are both available.

Sub-step 2b Apply benchmark analysis.

With reference to the Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects, the financial benchmark IRR rate of return (after tax) of Chinese power industry is 8% of the total investment IRR.

Based on above benchmark IRR, the sub-step 2c of calculation and comparison of financial indicators is conducted.

Sub-step 2c. Calculation and comparison of financial indicators.

(1) Basic parameters for calculation of financial indicators

Based on the feasibility study report of the proposed project, basic parameters for calculation of financial indicators are shown in the following Table B5-1:

Table B5-1 Basic parameters from the feasibility study report

No.	Indicator	Value
1	Installed capacity	30MW
2	Annual electricity generation	66,982MWh
3	Estimated annual output	54,925MWh
4	Operational hours	2233
5	Project lifetime	20 years
6	Total investment	252.31 million RMB
7	Expected tariff	0.60 RMB/kWh

8	Tax	
	Value added tax (VAT)	8.5%
	Income tax	25%
9	Annual O&M cost	6.98 million RMB

Thinking of some factors as the maintaining of turbines, the wear and tear of leaves, the transmission line & own consumption etc.
1. The utilization rate of the wind turbine unit is 95% (loss of 5%);
2. A loss of 2% from the wear and tear of leaves;
3. The loss of 4% caused by transmission line & own consumption;
4. A deal of 2 % comes from the influence of controlling and turbulent flow;
5. 5% for guarantee the power curve.

Therefore, those 5 reasons above have shown why 18 % of the total generated electricity has been consumed[4].

The financial data for the hub height 60m from FSR was adopted in the GSP version of PDD. But actually the hub height was 50m for the proposed project which had been realized soon after the FSR finished. Then, the supplementary report was designed for the hub height 50m by the same institute which was approved together with FSR. During the documents review, the problem was found. So the financial data for the hub height 50m was used in final PDD.

⑵Comparison of IRR for the proposed project and the financial benchmark

In accordance with benchmark analysis (option III), if the financial indicators (IRR) of the proposed project are lower than the benchmark IRR, the proposed project is not considered as financially attractive.

Table B5-2 Financial indicators of the proposed project

Item	Unit	Without income from CERs	Benchmark	With income from CERs
IRR	%	6.96	8	10.05

Table B5-2 shows the IRR of the proposed project with and without CDM revenues. Without CDM revenues, the IRR of total investment is lower than the benchmark IRR. Thus, the proposed project is not financially attractive. With CDM revenues, CERs revenue will significantly improve the IRR of total investment to 10.05% when the price is 12 US$ /tCO_2e and the IRR will exceed the benchmark IRR.

Sub-step 2d. Sensitivity analysis.

The objective of this sub step is to show the conclusion regarding the financial attractiveness is robust to reasonable variations of the critical assumptions.

Four factors are considered in following sensitivity analysis:

1) Total investment.
2) Generated electricity quantity.
3) Annual operation and maintenance cost.
4) Electricity Tariff

The operational hours have relationship with generated electricity quantity, the operational hours changes

[4] The information is in the page from 86 to 87 of FSR for the proposed project.

following with generated electricity quantity.

Assuming the above four factors vary in the range of -10%-+10%, the IRR of the proposed project (without income from selling CERs) varies to different extent, as shown in Table B5-3 and Figure 4.

Table B5-3 The IRR sensitivity analysis of the proposed project (excluding CDM)

Fluctuation range of indicators	-10%	-5%	0	5%	10%
Construction investment	8.19%	7.55%	6.96%	6.41%	5.88%
Generated electricity quantity	5.44%	6.22%	6.96%	7.63%	8.28%
Annual O&M cost	7.28%	7.12%	6.96%	6.81%	6.64%
Electricity Tariff	5.44%	6.22%	6.96%	7.63%	8.28%

The construction investment is the most important factor for financial attractiveness. The construction investment includes three parts: wind turbines, construction and others. Most of the total investment is due to wind turbines. Wind turbines chosen by project participant are homemade; the price of the wind turbines is one of the lowest in China and it's impossible to reduce the price; the costs for the construction engineering can not be reduced as well due to that the price of raw materials, the cost of worker and the price index are all advancing up. And the others mainly include costs of land use, engineering management, preparation to start generation and the prospect & design, which take a lower proportion in the total investment and may not be changed, therefore, the construction investment has a trend to increase, so the figure of the total investment may be getting higher as the time goes by, and the decrease possibility could not be seen in the moment and near future. Therefore, the total investment couldn't decrease and make the IRR of the proposed project to attain the IRR benchmark 8%.

The electricity is another important factor affecting the financial attractiveness of the proposed project. The Feasibility Study Report shows that the average of wind speed 50 meters above the surface had been measured in the duration of the July 2005-the June 2006 which is 6.7(m/s) higher than that of annual average of former seven years(1999-2005), which is 6.0(m/s), the maximum is 6.4(m/s) in 1999 and 2002. [5]

The annual electricity output of the proposed project is higher enough because it's designed on the basis of data measured actually during of the July 2005-the June 2006, so that there is few of probability for the wind speed will be higher than what was measured actually in duration of the July 2005-the June 2006.The output of the turbines to be employed by the proposed project with scientific approach applied internationally. The power generation of the proposed project is a yearly average figure for the whole life time of the proposed project. Although the wind resource might be variable year by year, but the years average wind resource is not likely to be changed higher comparing data measured actually being used for design of the proposed project. The anticipated power generation is also approved to by the local government and wind energy experts. Therefore, the annual power supply of the project is designed to be 54,925MWh, and annual operational hours are2233 hours. The power generations of the wind turbines are assumed to be kept the same for the whole project life time. Facing the risk that not all the turbines of the proposed project could operate well for 20 years, the power generation is likely to be decreased in the last years of the project life time. Since it is based on years wind assessment, the figure is considered as an accuracy figure and not likely to change in the life time of the proposed project.

That the annual electricity output to the grid in practice is universal lower than that of pretest quantity in

[5] The information is in the page from page 23 to 32 in FSR of the proposed project.

the FSR for a certain wind farm was drawn in the <Implementation on Review and Appraisal of Chinese Renewable Energy Law> compiled by Institute of Energy of Chinese National Development and Reform Commission.[6]

Professor Shi Pengfei Assistant deputy Secretary General of Chinese Wind Source Association said that the calculating of the wind source and the net electricity supplied to the grid were not be estimated exactly before operation of the wind farm and the real annual electricity output of wind farm was universal 20% lower contrast with the estimated annual electricity output in FSR in China.[7]

Therefore, it is not possible to raise the power output and to make the IRR of the proposed project to attain the IRR benchmark 8%.

The impact of the annual O&M cost is the slightest, the IRR of the proposed project never exceeds the benchmark IRR when the annual O&M cost decreases by more than 10%. Therefore, the proposed project is always lack of financial attractiveness within the reasonable range of annual O&M cost.

For the electricity tariff of the proposed project is approved by Liaoning Price Bureau, checked and ratified by the National Development and Reform Commission. The electricity tariff can not be changed after it's approved, and so the electricity tariff is not likely to change the IRR of the proposed project.

The letter of undertaking of the grid connection tariff of Dalian Tuchengzi Daoli Wind Power Project, issued by Liaoning Price Bureau, file No., Liao Jia Han 20#(2006), dated Mar. 20th, 2006.

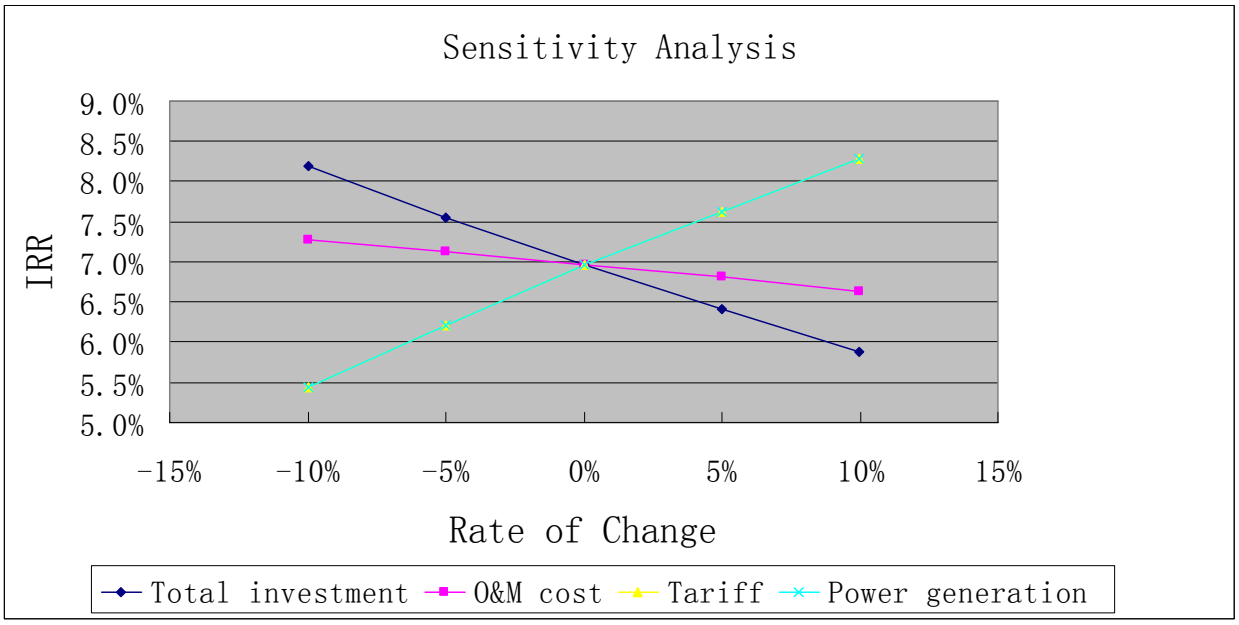

Figure 4 Sensitivity analysis of the Project

To conclude, under the reasonable variations in the critical assumptions, the conclusion regarding the financial additionality is robust and supported by sensitivity analysis.

Step 4. Common practice analysis

[6] http://www.efchina.org/csepupfiles/report/200762245523267.84008610380704.pdf/RE%20Law%20Implementation%20Review_070408%20CN.pdf

[7] http://tech.gansudaily.com.cn/system/2006/07/13/010076655.shtml

Sub-step 4a. Analyze other activities similar to the proposed project activity

For the purpose of analyzing common practice, all the wind farm projects in Northeast of China, with installed capacity between 20MW to 45MW, and operated after the year 2002 are listed in TableB5-3

Table B5-3 sectional projects located in Northeast of China[8]

Project title	Installed capacity(MW)	Commissioning date	CDM
Liaoning Zhangwu Wind Farm[9]	24.65	2004	yes
Liaoning Kangping Wind Farm[10]	24.65	2003	yes
Liaoning Huanren Niumaodashan Wind Power Project[11]	24.65	2006	yes
Shenyang Faku Wanghaisi Wind Power Project[12]	20.4	2006	yes
Jilin Baicheng ChaganHot Wind Power Project[13]	30	2006	yes
Heilongjiang Huafu Muling Wind Farm Project[14]	32.7	2005	yes
Yichun Shimaodingzi Wind Power Project[15]	30.6	2006	yes
Wuerguli 30 MW Wind Power Project[16]	30	2006	yes
Yichun Erduoyan Wind Power Project 28.05MW[17]	28.05	2006	yes

Eight of the all the nine wind power projects have registered at EB. The only one wind power project that hasn't registered is Shenyang Faku Wanghaisi Wind Power Project. This wind power project is currently still in validation and can be viewed under in unfccc.
http://cdm.unfccc.int/Projects/Validation/DB/R9XI9G6HV6GG3CS9RBSHBHLXGEZ7AO/view.html

Sub-step 4b. Discuss any similar options that are occurring

[8] http://cdm.ccchina.gov.cn./web/index.asp

[9] http://cdm.unfccc.int/Projects/DB/DNV-CUK1154525743.09/view

[10] http://cdm.unfccc.int/Projects/DB/DNV-CUK1153828094.42/view

[11] http://cdm.unfccc.int/Projects/DB/DNV-CUK1199956532.2/view

[12] http://cdm.unfccc.int/Projects/Validation/DB/R9XI9G6HV6GG3CS9RBSHBHLXGEZ7AO/view.html

[13] http://cdm.unfccc.int/Projects/DB/TUEV-SUED1179316153.17/view

[14] http://cdm.unfccc.int/Projects/DB/DNV-CUK1169849299.65/view

[15] http://cdm.unfccc.int/Projects/DB/DNV-CUK1180509799.76/view

[16] http://cdm.unfccc.int/Projects/DB/BVQI1182384587.37/view

[17] http://cdm.unfccc.int/Projects/DB/DNV-CUK1172484180.34/view

All the projects listed in Table B5-3 are seeking support by applying as the CDM project activities, because they also face the same barriers and would not have come up in the absence of CDM benefits. Therefore, the proposed project is not common practice in Northeast of China.

As stated above, it is concluded that the proposed project is not common practice, as it was undertaken without the preferential tariff or preferential financing.

Before the proposed project started construction, considering the financial unattractiveness of the proposed project as described in PDD previously, the wind farm will not be developed without the CDM revenue.

Therefore, Dalian New Energy Electric Development Co., Ltd expected to look for consulting agencies and CER Buyers for CDM projects in order to develop the proposed project as CDM project. The assessment of the timeline are listed in Table B5-4

Table B5-4 Assessment of the timeline

Name of project	date
Approval of agreeing to give the exploitation right of Daoli Wind Power Project to Dalian New Energy Electric Development Co. Ltd.	18/12/2006
The requirement for preparing of the development of the Tuchengzi Wind Power Project	20/12/2006
EIA finish	02/03/2007
EIA approval	26/05/2007
Evaluation opinions on the FSR from the experts in the evaluation meeting	27/06/2007
FSR finish	01/08/2007
FSR (supplementary report)	01/08/2007
CDM consideration	03/08/2007
The CDM consulting service contract	09/08/2007
Purchase contract	15/08/2007
Construction start	16/10/2007
FSR approval	09/11/2007
Commencement of commercial operation	01/06/2008

Dalian City Development and Reform Committee agreed the exploitation right of Daoli Wind Power Project to Dalian New Energy Electric Development Co. Ltd, in the document No., Da Fa Gai Neng Yuan Zi [2006]621# on December 18th 2006.

Construction start was before receipt of FSR approval is because the conference was held for the evaluation of the project by Dalian Development and Reform Commission on June 27, 2007, in which a decision of approval has been made for the proposed project by experts. The suggestion of experts was to carry into execution early, so that to get benefit early. Therefore the owner of the proposed project has done some auxiliary job on October 16, 2007 as preparation work to avoid postpones the progress of main engineering.

The leaders of Dalian New Energy Electric Development Co., Ltd were aware of this project can be developed as a CDM project which may raise excepted income and reduce investment risk in the document of the requirements for preparing of the development of the Tuchengzi Wind Power Project on December 20, 2006.

The shareholders' meeting of Dalian New Energy Electric Development Co., Ltd was held on August 3, 2007. The general manager Li Chao introduced the project of Dalian Tuchengzi Wind Power Farm in the meeting. It shows that the IRR of the proposed project lows to the benchmark and lack of financial attractive. However, the recent amended and supplemented report of FSR showed that because the project could be served as CDM project, its future emission reduction benefit of the project will reduce the investment risk, make up for the project itself inadequate of poor economic benefits, so as to have the project's economic viability. So all the shareholders agree the motion that invest the project of Dalian Tuchengzi wind power project.

Dalian New Energy Electric Development Co., Ltd signed the CDM consulting service contract with CDM Project Office of Liaoning Province on August 9, 2007. CDM has also been considered in the FSR in August, 2007.

In conclusion, the proposed project is additional and the project owner considered applying for CDM project before the construction of the proposed project.

B.6. Emission reductions:

B.6.1. Explanation of methodological choices:

The consolidated methodology ACM0002 (Version 06) is applied in the context of the proposed project in the following four steps:

- First, calculate the baseline emissions;
- Second, calculate the proposed project GHG emissions;
- Third, calculate the proposed project leakage;
- Last, calculate the emission reductions.

I. Calculate the baseline emissions (BE_y)

Step 1. Calculate the operating margin emission factor(s) ($EF_{OM,y}$)

Based on one of the four following methods:
(a) Simple OM, or
(b) Simple adjusted OM, or
(c) Dispatch data analysis OM, or
(d) Average OM.

Analysis on each method is described as below.

Method (a) Simple OM

The simple OM method can only be used when the proportions of low-cost/must-run resources are less than 50% of total amount grid generating output. Among the total electricity generations in 2001-2005 of NEPG where the proposed project connected, the proportions of low-cost/must-run resources are less than 50% of total amount grid generating output. The detailed information could be seen in Table B6-1.

Table B6-1 Annual electricity generation of NEPG 2001-2005[18]

No.	Year	Electricity generation （10^8kWh）					Proportion of power of lowcost resources
		Total generation	Fuel-fired power	Hydro power	Nuclear Power	Other	
1	2001	1,418.66	1,318.28	99.58	/	/	7.02%
2	2002	1,496.82	1,415.45	80.14	/	1.23	5.44%
3	2003	1,658.17	1,579.83	75.68	/	2.66	4.72%
4	2004	1,830.90	1,712.67	114.32	/	3.91	6.46%
5	2005	1,929.63	1,769.91	155.28	/	4.44	8.28%

Method (b) Simple adjusted OM

The simple adjusted OM needs the annual load duration curve of the grid. As the detailed data of dispatch of NEPG and power plants are often taken as confidential business information, those data are not available in public. It isn't possible to adopt Method (b) for the calculation of the baseline emission factor of operating margin ($EF_{OM,y}$).

Method (c) Dispatch data analysis OM

Dispatch data analysis OM should be the first methodological choice if the dispatch data are available, because the method can truly reflect the displaceable relationship between power output from power plants of the baseline grid and from the proposed project activity, as well as the emission reductions generated. However, Method (c) cannot be adopted for the proposed project because of unavailability of the dispatch data of NEPG.

Method (d) Average OM

Method (d) can only be used when the proportions of low-cost/must-run resources are more than 50% of total amount of grid output. According to the statistics listed in Table B6-1, from 2001 to 2005 the proportions of low-cost/must run resources are7.02%, 5.44%, 4.72%, 6.46% and 8.28% respectively, obvious far lower than 50%, so method (d) is not suitable for the proposed project.

Thus, the method (a) Simple OM can be used to calculate the baseline emission factor of operating margin ($EF_{OM,y}$) for the proposed project.

In accordance with ACM0002 (Version 06), the OM emission factor in the first crediting period is calculated ex-ante by the proposed project and it needn't to be updated ex-post, i.e. (ex-ante) the full generation-weighted average for the most recent three years for which data are available at the time of PDD submission.

In accordance with ACM0002 (Version 06), the Simple OM emission factor ($EF_{OM,y}$) is calculated as the generation-weighted average emissions per electricity unit of all generating sources serving the system, excluding those low-cost and must-run power plants. The formula of $EF_{OM,simple,y}$ calculation is

$$EF_{OM,simple,y} = \frac{\sum_{i,j} F_{i,j,y} \cdot COEF_{i,j}}{\sum_{j} GEN_{j,y}} \quad \text{(B.1)}$$

[18] The State Electric Industry Yearbook 2002-2006

Where:

$F_{i,j,y}$ is the amount of fuel i consumed by relevant power sources j in years y, j refers to the power sources delivering electricity to the grid, not including low-cost and must run power plants, and including imports to the grid.

$COEF_{i,j,y}$ is the CO_2 emission coefficient of fuel i, taking into account the carbon content of the fuels used by relevant power sources j and the percent oxidation of the fuel in years y,

$GEN_{j,y}$ is the electricity delivered to the grid by source j.

According to ACM0002 (Version 06), when OM emission factor ($EF_{OM,y}$) is calculated by using simple OM or average OM, if the plants and data are not available, i.e. lacking of amounts of generation/power supply, amount of fuel consumption, fuel type and emission factor etc., the aggregated generation and fuel consumption data could be used. The aggregated generation and fuel consumption data of three provincial-level grids (Liaoning, Jilin and Heilongjiang) which consist NEPG are used for the proposed project.

The CO_2 emission coefficient $COEF_{i,j,y}$ is then obtained from the following equation as:

$$COEF_{ij,y} = NCV_i \cdot EF_{CO2,i} \cdot OXID_i \quad (B.2)$$

Where:

NCV_i is the net calorific value per ton of coal equivalent;

$OXID_i$ is the oxidation factor of coal;

$EF_{CO2,i}$ is the CO_2 emission factor per GJ of coal.

According to the Notification on Determining Baseline Emission Factor of China's Grid[19], the OM emission factor is calculated as a 3-year average. Table B6-2 are the most recent statistics available (refer Annex 3 for details).

Table B6-2 OM emission factor of the NEPG 2003-2005

Year	Emission factor (tCO_2e/MWh)
2003	1.1930
2004	1.2609
2005	1.2626
Weighted Average of three years	1.2404

The emission factor of coke should be 29.2tC/TJ, instead of 25.8 in NDRC and the emission factor of refinery gas should be 15.7tC/TJ, instead of 18.2 in NDRC in OM calculation. After above revision, the calculated OM factor shall be 1.2402 tCO2/MWh, instead of 1.2404 tCO2/MWh in NDRC[20].

Step 2. Calculation of the build margin emission factor ($EF_{BM,y}$)

The Build Margin Emission Factor ($EF_{BM,y}$) is calculated according to ACM0002 (Version 06):

[19] http://cdm.ccchina.gov.cn/web/index.asp

[20] According to IPCC2006

$$EF_{BM,y} = \frac{\sum_{i,m} F_{i,m,y} \cdot COEF_{i,m}}{\sum_{m} GEN_{m,y}} \quad (B.3)$$

Where

$F_{i,m,y}$ is the amount of fuel i consumed by plant m in year y;

$COEF_{i,m,y}$ is the CO_2 emission coefficient of fuel i, taking into account the carbon content of the fuels used by plant m and the percent oxidation of the fuel i in year y;

$GEN_{m,y}$ is the electricity delivered to the grid by plant m in year y.

In accordance with ACM0002 (Version 06), the BM emission factor in the first crediting period is calculated ex-ante by the proposed project and it needn't to be updated ex-post in the first crediting period.

Calculate the Build Margin emission factor ($EF_{BM,y}$) ex ante based on the most recent information available on plants already built for sample group m at the time of PDD submission. The sample group m consists of either:

- The five power plants that have been built most recently, or
- The power plants capacity additions in the electricity system that comprise 20% of the system generation and that have been built most recently.

As per the clarifications are given by EB[21], the project activity can:

- Use of capacity additions during last 1-3 years for estimating the build margin emission factor for grid electricity.
- Use of weights estimated using installed capacity in place of annual electricity generation to calculate BM emission coefficient.
- Use the efficiency level of the best technology commercially available in the provincial/regional or national grid of China, as a conservative proxy, for each fuel type in estimating the fuel consumption.

As the limit of data obtained for calculation the proportion of Coal-fired, Gas-fired and oil-fired power capacity to the total power capacity in NEPG, this PDD will adopt the following method to calculate BM emission factor:

① Use the data of fuel consumption in the latest year to calculate the proportion of the GHGs emissions of Coal-fired, Oil-fired and Gas-fired resources to the total GHGs emissions, the proportion is given by:

$$\lambda_{Coal} = \frac{\sum_{i \in COAL, j} F_{i,j,y} \times COEF_{i,j}}{\sum_{i,j} F_{i,j,y} \times COEF_{i,j}} \quad (B.4)$$

$$\lambda_{Oil} = \frac{\sum_{i \in OIL, j} F_{i,j,y} \times COEF_{i,j}}{\sum_{i,j} F_{i,j,y} \times COEF_{i,j}} \quad (B.5)$$

[21] http://cdm.unfccc.int/UserManagement/FileStorage/AM_CLAR_QEJWJEF3CFBP1OZAK6V5YXPQKK7WYJ

$$\lambda_{Gas} = \frac{\sum_{i \in GAS, j} F_{i,j,y} \times COEF_{i,j}}{\sum_{i,j} F_{i,j,y} \times COEF_{i,j}} \quad (B.6)$$

Where:

$F_{i,j,y}$ is the amount of fuel *i* (in tce) consumed in province *j* in year(s) y,

$COEF_{i,j,y}$ is the CO_2 emission coefficient of fuel *i* (tCO_2 / mass or volume unit of the fuel), taking into account the carbon content of the fuels used by relevant power sources *j* and the percent oxidation of the fuel in year(s) *y*,

② Use the efficiency level of the best technology commercially available in the provincial/regional or national grid of China, as a conservative proxy, for each fuel type in estimating the fuel consumption, and the above data to calculate the emission factor of thermal power.

$$EF_{Thermal} = \lambda_{Coal} \times EF_{Coal,Adv} + \lambda_{Oil} \times EF_{Oil,Adv} + \lambda_{Gas} \times EF_{Gas,Adv} \quad (B.7)$$

where $EF_{Coal,Adv}$, $EF_{Oil,Adv}$ and $EF_{Gas,Adv}$ the emission factor of the most efficient level of Coal-fired, Oil-fired and Gas-fired respectively of the best technology commercially available.

③ Use the data obtained in ② and the increased percentages of thermal power to calculate Build Margin emission factor of Northeast China Power Grid.

$$EF_{BM,y} = \frac{CAP_{Thermal}}{CAP_{Total}} \times EF_{Thermal} \quad (B.8)$$

Where,

CAP_{Total} is the total newly added capacity of power capacity,

$CAP_{Thermal}$ is the newly added capacity of thermal power.

According to the Notification on Determining Baseline Emission Factor of China's Grid, BM emission factor ($EF_{BM, y}$) of NEPG is:
$EF_{BM, y}$ = 0.8631tCO2e/MWh

The details could be seen in Annex 3.

Step 3. Calculation of the baseline emission factor (EF_y)

Based on ACM0002 (Version 06), the baseline emission factor (EF_y) is calculated as the weighted average of the Operating Margin emission factor ($EF_{OM, y}$) and the Build Margin emission factor ($EF_{BM, y}$).

$$EF_y = w_{OM} \cdot EF_{OM,y} + w_{BM} \cdot EF_{BM,y} \quad (B.9)$$

The weighting values of the OM and BM emissions factors are 0.75 and 0.25 respectively, according to the weight of wind power revised by EB, hence

$EF_y = 0.75 * EF_{OM,y} + 0.25 * EF_{BM,y}$

The result is shown as follows (refer to Annex 3 for details):

Table B6-3 Emission factors of NEPG

Emission factor	Value (tCO2e/MWh)	Weight	Weighted Value (tCO2e/MWh)
OM Emission Factor	1.2402	0.75	0.9301
BM Emission Factor	0.8631	0.25	0.2158
Baseline Emission Factor (EFy)			1.1459

Step 4. Calculate the baseline emissions (BE_y)

According to ACM0002 (Version 06), the baseline emissions (BE_y) are calculated as:

$$BE_y = (EG_y - EG_{aux,y}) \times EF_y \quad (B.10)$$

Where:

BE_y is the baseline emission of NEPG in year y,

EG_y is the amount of power generated by the proposed project and supplied to the grid,

$EG_{aux,y}$ is the amount of power imported by the proposed project from the grid.

EF_y is the baseline emission factor in year y.

II. Calculate the project emissions (PE_y)

According to ACM0002 (Version 06), the project emissions should not be taken into account, i.e. $PE_y = 0$.

III. Calculate the project leakage (L_y)

According to ACM0002 (Version 06), the proposed project needn't consider leakages, i.e. $L_y = 0$.

IV. Calculate the emission reductions (ER_y)

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

$$ER_y = BE_y - PE_y - L_y \quad (B.11)$$

B.6.2. Data and parameters that are available at validation:

Data / Parameter:	EF_{CM}
Data unit:	tCO_2/MWh
Description:	baseline emission factor
Source of data used:	calculated
Value applied:	$1.1459tCO_2/MWh$
Justification of the choice of data or description of measurement methods and procedures actually applied :	

Any comment:	

Data / Parameter:	EF_{OM}
Data unit:	tCO_2/MWh
Description:	Operating Margin (OM) emission factor of Northeast China Power Grid
Source of data used:	calculated
Value applied:	1.2402 tCO_2/MWh
Justification of the choice of data or description of measurement methods and procedures actually applied :	
Any comment:	

Data / Parameter:	EF_{BM}
Data unit:	tCO_2/MWh
Description:	Build Margin (OM) emission factor of Northeast China Power Grid
Source of data used:	calculated
Value applied:	0.8631 tCO_2/MWh
Justification of the choice of data or description of measurement methods and procedures actually applied :	
Any comment:	

Data / Parameter:	NCV_i
Data unit:	MJ/t, m^3
Description:	Net calorific value of each fossil fuel consumed in NEPG
Source of data used:	China Energy Statistics Yearbook 2006
Value applied:	See Annex 3 for details
Justification of the choice of data or description of measurement methods and procedures actually applied :	The data is obtained from the China Energy Statistical Yearbook 2006 and is reliable
Any comment:	

Data / Parameter:	EF_{CO2}
Data unit:	tCO_2/MWh
Description:	CO_2 emission factor per unit of energy of the fuel i
Source of data used:	2006 IPCC Guidelines for National Greenhouse Gas Inventories
Value applied:	See Annex 3 for details
Justification of the choice of data or description of measurement methods and procedures actually applied :	The data is obtained from the 2006 IPCC Guidelines for National Greenhouse Gas Inventories and is reliable
Any comment:	

Data / Parameter:	$OXID_i$
Data unit:	%
Description:	Oxidation factor of the fuel i
Source of data used:	2006 IPCC Guidelines for National Greenhouse Gas Inventories
Value applied:	See Annex 3 for details
Justification of the choice of data or description of measurement methods and procedures actually applied :	The data is obtained from the 2006 IPCC Guidelines for National Greenhouse Gas Inventories and is reliable
Any comment:	

Data / Parameter:	$GEN_{j,y}$
Data unit:	MWh/y
Description:	The electricity generated in NEPG
Source of data used:	The State Electric Industry Yearbook
Value applied:	See Annex 3 for details
Justification of the choice of data or description of measurement methods and procedures actually applied :	Official statistic data used for calculating OM emission factor
Any comment:	Uncertainty level of the data is low

Data / Parameter:	$F_{i,j,y}$
Data unit:	10^4t or $10^8 m^3$
Description:	The amount of fuel consumed by fire power generation of NEPG
Source of data used:	The China Energy Statistical Yearbook (2004, 2005,2006)
Value applied:	See Annex 3 for details
Justification of the choice of data or description of measurement methods and procedures actually applied :	Official statistic data used for calculating OM emission factor
Any comment:	Uncertainty level of the data is low

Data / Parameter:	Installed capacity
Data unit:	MW
Description:	Installed capacity of NEPG in 1998-2005
Source of data used:	China Electricity Power Yearbook (1999-2006)
Value applied:	See Annex 3 for details
Justification of the choice of data or description of measurement methods and procedures actually applied :	To calculate the Build Margin emission factor
Any comment:	

Data / Parameter:	BTCA
Data unit:	gce/kWh

Description:	Fuel consumption for best technology commercially available
Source of data used:	"Explanation on BM calculation", http://cdm.ccchina.gov.cn./website/cdm/upfile/file1374.pdf
Value applied:	343.33gce/kWh
Justification of the choice of data or description of measurement methods and procedures actually applied :	DNA China Official value
Any comment:	Uncertainty level of the data is low

B.6.3. Ex-ante calculation of emission reductions:

I. Estimated baseline emissions (BE_y)

According to Section B6.1, the Baseline Emission Factor (EF_y) of the proposed project is:
$EF_y = 1.1459tCO_2e/MWh$

According to the proposed project feasibility study report, the amount of electricity to be delivered to the grid from the proposed project is:

EG_y=54,925MWh, $EG_{aux,y}$ is assumed as 0 mentioned in B.7.1, hence

$BE_y = (EG_y - EG_{aux,y}) \times EF_y = 54,925MWh \times 1.1459tCO_2e/MWh = 62,938tCO_2$

II. Calculate the project emissions (PE_y)

According to ACM0002 (Version 06), the project emissions should not be taken into account, i.e.
$PE_y = 0$.

III. Calculate the project leakage (L_y)

According to ACM0002 (Version 06), the proposed project needn't consider leakages, i.e.
Ly =0.

IV. Calculate the emission reductions (ER_y)

The proposed 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:
$ER_y = BE_y - PE_y - L_y = 62,938-0-0=62,938\ tCO_2e$
>>

B.6.4. Summary of the ex-ante estimation of emission reductions:

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Table B6-4 Estimation of emission reductions due to the proposed project activity

Year	Estimation of project activity emissions (tonnes of CO_2e)	Estimation of baseline emissions (tonnes of CO_2e)	Estimation of leakage (tonnes of CO_2e)	Estimation of overall emission reductions (tonnes of CO_2e)
1	0	62,938	0	62,938

2	0	62,938	0	62,938
3	0	62,938	0	62,938
4	0	62,938	0	62,938
5	0	62,938	0	62,938
6	0	62,938	0	62,938
7	0	62,938	0	62,938
Total (tonnes of CO_2e)	0	440,566	0	440,566

The first crediting period is from November 1st 2008 to October 31st 2015.

B.7. Application of the monitoring methodology and description of the monitoring plan:

B.7.1. Data and parameters monitored:

>>

Data / Parameter:	**EG_y**
Data unit:	MWh/y
Description:	Electricity supplied to the grid by the project
Source of data to be used:	Electricity meter reading at project boundary
Value of data applied for the purpose of calculating expected emission reductions in section B.6	54,925
Description of measurement methods and procedures to be applied:	The readings of electricity meter will be hourly 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.
QA/QC procedures to be applied:	The electricity output from each turbine will be monitored and recorded at the on-site control centre using a computer system. The project operator is responsible for recording this set of data. Electricity sales invoices will also be obtained for double check. The electricity meter calibration and accuracy should be according to <Technical administrative cold of electric energy metering> (DL/T448-2000) issued by the State Economy and Trade Commission. Accuracy grade of the meter is 0.2S. The electricity meters are calibrated and checked half a year one time and that frequency would be continued. There are not meters available for internal consumption and gross electricity generation.
Any comment:	Electricity supplied by the project activity to the grid. Double check by receipt of sales.

Data / Parameter:	**$EG_{aux,y}$**
Data unit:	MWh/y
Description:	Power imported by the proposed project from the grid
Source of data to be used:	Data used in the PDD is assumed as zero. Actual data will be read from ammeters.
Value of data applied for the purpose of calculating expected emission reductions in section B.6	0
Description of measurement methods and procedures to be	The readings of electricity meter will be hourly measured and monthly recorded. Data will be archived for 2 years following the end of the

applied:	crediting period by means of electronic and paper backup.
QA/QC procedures to be applied:	Double-checked with readings of the backup ammeter
Any comment:	

B.7.2. Description of the monitoring plan:

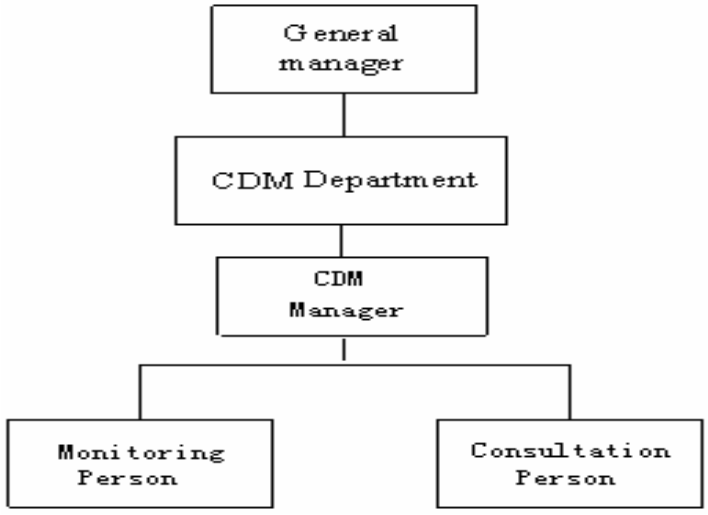
>>

Monitoring plan is a division and schedule of a series of monitoring tasks. Monitoring tasks must be implemented according to the monitoring plan in order to ensure that the real, measurable and long-term greenhouse gas (GHG) emission reduction for the proposed project is monitored and reported.

1. Management structure and staff for implementation of monitoring plan

The Management Group of the proposed project must maintain credible, transparent, and adequate data estimation, measurement, collection, and tracking systems to maintain the information required for an audit of an emission reduction project.

The Management Group consists of professional staff authorized by the owner of the proposed project, i.e. Dalian Tuchengzi Wind Power Co., Ltd. The management structure is illustrated as follows:



The Management Group is responsible for the CDM management of the proposed project, which specifically includes selecting a CDM consultant company, providing support to the selected consultant company, assisting the selected consultant company in selecting CER buyer and determine CER price, assisting the selected consultant company in applying for China DNA approval, providing support in the due diligence of the selected buyer, providing support in the CDM validation and registration by a selected DOE, and providing support in the verification by a selected DOE.

The General Manager is in general control and makes key decisions. The CDM Department is responsible for specific tasks in monitoring and execution of decisions. Specifically, the CDM Manager is responsible for the daily operation of the CDM Department, and contact with DOE and EB to support their work in validation, registration, verification, and certification. The procedure is illustrated in Section 5 of this monitoring plan. He is also responsible for Monitoring Data adjustment and settlement of Data uncertainties, together with local electric power company, and/or DOE. The procedure is illustrated in Section 3 of this monitoring plan.

The Monitoring Person is responsible for reading and calibration of the meter, recording of the readings, and reporting of readings to local electric power company and/or DOE. The procedures for reading, reporting, and calibration are illustrated in Section 2 and Section 4 of this monitoring plan, respectively.

The Consultation Person is responsible for selecting a CDM consultant company and providing support to its work in developing PDD, selecting CER buyer, and applying for DNA approval.

2. Data and Approach for Monitoring

The Data to be monitored include:

ID number(Please use numbers to ease cross referencing to table D.3)	Data variable	Source of data	Data unit	Measured (m), calculated (c), estimated (e),	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic / paper)	For how long is archived data kept?	Comment
1.EG_y	electricity supplied to the grid by the project	ammeter	MWh	m	hourly measurement and monthly recording	100%	electronic	During the crediting period and two years after	Electricity supplied by the project activity to the grid. Rechecked by receipt of sales.
2. $\mathbf{EG}_{aux,y}$	power imported by the proposed project from the grid	ammeter	MWh	m	hourly measurement and monthly recording	100%	electronic	During the crediting period and two years after	

Electricity supplied to the grid by the project will be monitored through the metering equipment at the 10kV exit side of the 10kV-to-66kV transformer station. The data can also be monitored and recorded at the on-site control centre using a computer system. The metering equipment will be owned by the project owner and operated and maintained by Liaoning Province Electric Power Co., Ltd.. The meter will have the capability to be read remotely through a communication line.

The specific steps to monitoring are listed below:

● The project owner reads the ammeter and records data on the same day of every month (which day to be determined).
● The project owner supplies readings to Liaoning Province Electric Power Co., Ltd.
●Liaoning Province Electric Power Co., Ltd. provides electricity sales invoice to the project owner.
● The project owner provides the meter's data readings to DOE for verification.
The meter reading will be readily accessible for DOE. Calibration test records will be maintained for verification.

3. Calibration of Meters & Metering

● All the meters installed shall be tested by Liaoning Province Electric Power Co., Ltd. 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.
(c) 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 grid-connected electricity generated by the proposed project 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 within acceptable limits of accuracy or is performing improperly, the proposed project owner and Liaoning Province Electric Power Co., Ltd shall jointly prepare an estimate of the correct reading, and
(c) If the proposed project owner and Liaoning Province Electric Power Co., Ltd. fail to agree the estimate of the correct reading, then the matter will be referred for arbitration according to agreed procedures.

The electricity recorded by the Main Meters alone will suffice for the purpose of billing and emission reduction verification as long as the error in the Main Meter is within the permissible limits.

Calibration is carried out by Liaoning Province Electric Power Co., Ltd. The metering equipment are calibrated and checked half a year one time for accuracy with the records being provided to the proposed project owner, and these records will be maintained by the proposed project owner.

4. Quality Assurance and Quality Control

An agreement should be signed between the proposed project owner and the Liaoning Province Electric Power Co., Ltd. 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.
● The metering equipment shall have sufficient accuracy so that error resulting from such equipment shall not exceed +0.2% of full-scale rating.
● Both Meters shall be jointly inspected and sealed on behalf of the parties concerned and shall not be interfered with by either party except in the presence of the other party or its accredited representatives.

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. Below follows an outline of how project related

records will be managed.

Overall responsibility for monitoring greenhouse gas emissions reductions will rest with the CDM Department. The CDM manual sets out the procedures for tracking information from the primary source to data calculations, in paper format. If data and information are from internet, the website must be provided. Moreover, the credibility and reliability of those data and information from internet must be confirmed.

Physical documentation will be collated in a central place. In order to facilitate auditor's reference, monitoring results will be indexed. All paper-based information will be stored by the project owner.

6. Verification and Monitoring Results

The verification of the monitoring results of the project is a mandatory process required for all CDM projects. The main objective of the verification is to independently verify that the project has achieved the emission reductions as reported and projected in the PDD. It is expected that the verification will be done annually. The responsibilities for verification of the projects are as follows:

- Sign a verification service agreement with specific DOE and agree to a time framework set by the EB for carrying out verification activities while taking into account the buyer′ s schedule. The project owner will make the arrangements for the verification and will prepare for the audit and verification process to the best of its abilities.
- The project owner will facilitate the verification through providing the DOE with all required necessary information, before, during and, in the event of queries, after the verification.
- The project owner will fully cooperate with the DOE and instruct its staff and management to be available for interviews and respond honestly to all questions from the DOE.
- DOE must be an Accredited Entity with a proven track record in environmental auditing and verification, experience with CDM projects and work in developing countries. The DOE should be accredited by the CDM EB. If the project owner deems that requirements of DOE go beyond the scope of verification, they should determine whether the requirements of DOE are reasonable. If considered unreasonable, a rejection letter in a written format should be provided to the DOE with justifiable reasons. If the project owner and the DOE cannot reach an agreement, the matter will be submitted to EB or UNFCCC for arbitration.

B.8. Date of completion of the application of the baseline study and monitoring methodology and the name of the responsible person(s)/entity(ies)

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The baseline study and monitoring methodology of the proposed project was completed on 12/10/2007.

The persons involved in the application of the baseline study and monitoring methodology are listed as follows:

Jun GUO, CDM Project Office of Liaoning Province.
Address: No. 88 Shifu Road , 115000, Yingkou City, Liaoning Province, China
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Lianchen ZHAO, CDM Project Office of Liaoning Province.
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Jixiang LI, CDM Project Office of Liaoning Province.

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Dalei ZHANG, CDM Project Office of Liaoning Province.
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(The people above aren't project participants)

SECTION C. Duration of the project activity / Crediting period

C.1. Duration of the project activity:

C.1.1. Starting date of the project activity:

>>
15/08/2007 (Date of purchase contract for the project)

C.1.2. Expected operational lifetime of the project activity:

>>
20 years

C.2. Choice of the crediting period and related information:

C.2.1. Renewable crediting period

>>
The renewable crediting period will be used

C.2.1.1. Starting date of the first crediting period:

>>
The crediting period will start on 01/11/2008, or on the date of registration of the CDM project activity, whichever is later.

C.2.1.2. Length of the first crediting period:

>>
7 years

C.2.2. Fixed crediting period:

>>

C.2.2.1. Starting date:

>>
Not applicable

C.2.2.2. Length:

>>
Not applicable

SECTION D. Environmental impacts

D.1. Documentation on the analysis of the environmental impacts, including transboundary impacts:

According to China Environmental Protection Law, Liaoning Environmental Protection Bureau approved the Environmental Impact Assessment (EIA) report of the proposed project on Judy 26, 2007.And according to the EIA report, the analysis and measures to be taken to mitigate the impacts are demonstrated in the following:

1. Waste water and sewage

The total amount of waste water and sewage from daily life will be very small. Besides, all the wastewater and sewage will be discharged directly to the dry-latrine of the local villagers who rent houses for the staff in the durations of construction and operation of the proposed project, then applied to the farmland. Therefore no waste water or sewage will be discarded.

2. The impacts on Air Environment

The sources of the air pollution are mainly the exhausting gas and dust from constructing vehicle due to the construction and earth works. The measures to prevent the impact on the air environment will be taken as following:

- Exhaust emission should conform to the national standard of exhaust emission of transporting vehicle of China (GB17691-2005).
- The transporting vehicle should be covered with canvas to prevent the dust.
- The materials and soil stacks should be covered or sprayed covering agent.

When the measures above are fulfilled the air quality around the location of the proposed project could meet with the requirement of Ambient air quality standard (GB3095-1996).

3. Solid waste

Solid waste of the proposed project is mainly waste soil from construction process beside the site, and then it will be used for backfilling partly and the rest will be used for road construction in the wind farm, so no solid waste will be discarded in the construction period. After establishing of the wind mills, the vegetation could be recovered soon. So solid waste discharged by the proposed project will not influence the local ecological environment.

4. Noise

The noise mainly comes from the operation of the construction equipment on site could be controlled and limited during construction period, since all equipments will be operated during daytime hours and the proposed project is far away from residential area, the noise levels will naturally attenuated by ambient conditions with the standards set as Standard of Noise Limits for Construction Site (GB12523-90);

The noise comes from the running of the wind mills have no impacts on residential area during operation period, as the proposed project is far away from residential area, the noise levels will be naturally attenuated by ambient conditions with the standards set as the National Environmental Standard for Urban Noises (GB3096-93).

what the location of the project is and there is no transboundary envrionmental impacts as identified in the EIA report.

D.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party:

According to the Assessment of Environmental Impacts and the approval for implementation of the proposed project issued by Liaoning Environmental Protection Bureau on July 26, 2007, the impacts of the proposed project on the environment are considered insignificant.

SECTION E. Stakeholders' comments

>>

E.1. Brief description how comments by local stakeholders have been invited and compiled:

>>

On October 16, 2007, staff from the Dalian Tuchengzi Wind Power Co., Ltd. carried out a survey of the local villagers in the area where the proposed project will be sited. The local villagers were called together by the village head of the local village.

The 1 page questionnaire contains following sections:

1) Project introduction
2) Respondent's basic information and education level
3) Questions on:

- Do they satisfied with current living conditions and surrounding environment?
- Do they familiarity with wind power projects?
- What are the positive impacts generated by the proposed project from the view of the respondent?
- What are the negative impacts generated by the proposed project from the view of the respondent?
- Among the perceived negative impacts, what are considered the most important, somewhat important and the least important?
- Will the overall impact of the project on their livelihood be positive, negative or negligible?
- What other comments and suggestions do they have regarding the proposed project?

4) Signature and date

E.2. Summary of the comments received:

>>

The survey was conducted through distributing and collecting responses to a questionnaire.

Total 34 people took part in the meeting and 34 pieces of questionnaires were sent out and all returned, and the main findings are as follows:

●Education level of the respondents: primary level (73.5%), middle level (14.7%).

●Most of the respondents (79.4%) have some understanding of wind power projects while 8.8% has thorough understanding of wind power projects.

●Among the positive impacts generated by the proposed project, "increase of local employment" and "increase of income" accounts for the highest percentage (91.2%), followed by "improvement of standard of living" (88.2%) and "improvement of air quality" (58.8%).

●Among the negative impacts mentioned, the main concerns were the "land-use impacts" (82.4%). And 2.9% of the respondents deemed that "noise", " the increasing amount of solid waste" and "impacts on the natural environment". Two respondents raised his/her concern on "wastewater discharge in construction phase of the wind farm".

●100% of the respondents deemed that the construction of the proposed project will have overall positive impacts on their livelihoods.

●100% of the respondents supported the construction of the proposed project.

Conclusion

The survey shows that the proposed project receives very strong support from local people. This is closely linked to the fact that the majority of local villagers have had some familiarity with wind power projects. The respondents generally deem that the proposed project activities will improve their living standard and bring them multiple benefits. Among the negative impacts, the main concerns were the "land-use impacts", little of local villagers concern the solid waste and wastewater discharge in construction phase of the wind farm.

E.3. Report on how due account was taken of any comments received:

>>

●The financial compensation for "land-use impacts" had been paid by the proposed project owner to the local villagers rationally according to the laws and regulations of China.

●All the wastewater and sewage will be discharged directly to the dry-latrine of the local villagers who rent houses for the staff in the durations of construction of the proposed project, then applied to the farmland.

●Solid waste of the proposed project is mainly waste soil from construction process beside the site, and then it will be used for backfilling partly and the rest will be used for road construction in the wind farm, so no solid waste will be discarded in the construction period.

Since there is no negative comment received, it's no need to make adjustment on design, construction and operation of the proposed project.

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY

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Annex 2

INFORMATION REGARDING PUBLIC FUNDING

>>

No public funding from Annex I countries is involved in the proposed project.

Annex 3

BASELINE INFORMATION

>>

1. Calculation of Operating Margin (OM) Emission Factor

Table 3-1 Operating margin data for the North East Power Grid（2003）

Fuel types	Unit	Liaoning	Jilin	Heilongjiang	5ubtotal	Emission factor	0xidation factor	NCV	C02 emission (tC02e)
						tc/TJ	%	MJ/t,m3	H=G×D×E×F×44/12/10000 (Mass unit)
		A	B	C	D=A+B+C	E	F	G	H=G×D×E×F×44/12/ 1000 (Volume unit)
Raw coal	10^4t	3,556.51	2,006.66	2,763.62	8382.79	25.8	100	20,908	164,695,313
Cleaned coal	10^4t	70.83		3	73.83	25.8	100	26,344	1,839,948.734
0ther washed coal	10^4t	617.04	15.9	53.41	686.35	25.8	100	8,363	5,429,988.017
Coke	10^4t				0	29.2	100	28,435	0
Coke oven gas	10^8m^3	1.66			1.66	12.1	100	16,726	123,184.7599
0ther coal gas	10^8m^3	5.31			5.31	12.1	100	5,227	123,141.3249
Crude oil	10^4t	3.39			3.39	20	100	41,816	103,954.576
Gasoline	10^4t					18.9	100	43,070	0
Diesel	10^4t	0.32	0.34		0.66	20.2	100	42,652	20,850.00368
Fuel oil	10^4t	14.87	0.7	4.32	19.89	21.1	100	41,816	643,474.2257
LPG	10^4t	1.55			1.55	17.2	100	50,179	49,051.64513
Refinery gas	10^4t	4.03		0.46	4.49	15.7	100	46,055	119,040.3542
Natural gas	10^8m^3		0.04	4.47	4.51	15.3	100	38,931	984,997.1241
0ther oil products	10^4t				0	20	100	38,369	0
0ther coal chemicals	10^4t				0	25.8	100	28,435	0
0ther energy	10^4t ce	29.38			29.38	0	100	0	0
								Total	174,132,943.7

Data sources: China Energy Statistical Yearbook 2004

Table 3-2 Fire power generation of North East Power Grid (2003)

Name of the province	Generation (MWh)	Rate of electricity used by factory (%)	Power Supply (MWh)
Liaoning	797,510,000	7.17	74,032,853
Jilin	29,739,000	7.32	27,562,015
Heilongjiang	48,493,000	8.48	44,380,794
Total			145,975,752

Total emission amount 174,132,944 tCO2e

Total power supply 145,975,752 MWh

Emission factor in 2003 1.192890 tCO2e/MWh

Data sources: The State Electric Industry Yearbook 2004

Table 3-3 Operating margin data for the North East Power Grid （2004）

Fuel types	Unit	Liaoning	Jilin	Heilongjiang	5ubtotal	Emission factor	0xidation factor	NCV	C02 emission (tC02e)
						tc/TJ	%	MJ/t,m3	H=G×D×E×F×44/12/10000 (Mass unit)
		A	B	C	D=A+B+C	E	F	G	H=G×D×E×F×44/12/1000 (Volume unit)
Raw coal	10^4t	4,144.2	2,310.9	3,084.8	9,539.9	25.8	100	20,908	188,689,376.8
Cleaned coal	10^4t	84.75	1.09	4.88	90.72	25.8	100	26,344	2,260,871.585
0ther washed coal	10^4t	577.67	14.26	61	652.93	25.8	100	8,363	5,165,589.096
Coke	10^4t				0	29.2	100	28,438	0
Coke oven gas	10^8m^3	4.83	2.91		7.74	12.1	100	16,726	574,367.4948
0ther coal gas	10^8m^3	57.33	4.19		61.52	12.1	100	5,227	1,426,676.894
Crude oil	10^4t				0	20	100	41,816	0
Gasoline	10^4t					18.9	100	43,070	0
Diesel	10^4t	2.04	1.16	0.24	3.44	20.2	100	42,652	108,672.7465
Fuel oil	10^4t	12.81	1.78	2.86	17.45	21.1	100	41,816	564,536.2111
LPG	10^4t	2.19			2.19	17.2	100	50,179	69,305.22764
Refinery gas	10^4t	9.79		1.14	10.93	15.7	100	46,055	289,779.7487
Natural gas	10^8m^3		0.03	2.53	2.56	15.3	100	38,931	559,111.4496
0ther oil products	10^4t				0	20	100	38,369	0
0ther coal chemicals	10^4t				0	25.8	100	28,435	0
0ther energy	10^4t ce	26.97	5.07		32.04	0	100	0	0
								Total	199,708,287.3

Data sources: China Energy Statistical Yearbook 2005

Table 3-4 Fire power generation of North East Power Grid (2004)

Name of the Province	Generation (MWh)	Rate of electricity used by factory	Power Supply (MWh)
Liaoning	84,543,000	7.21	78,447,450
Jilin	33,242,000	7.68	30,689,014
Heilongjiang	53,482,000	7.84	49,289,011
Total			158,425,475

Total emission amount 199,708,287 tCO2e

Total power supply 158,425,475 MWh

Emission factor in 2004 1.260582 tCO2e/MWh

Data sources: The State Electric Industry Yearbook 2005

Table 3-5 Operating margin data for the North East Power Grid （2005）

Fuel types	Unit	Liaoning	Jilin	Heilongjiang	5ubtotal	Emission factor	0xidation factor	NCV	C02 emission (tC02e)
						tc/TJ	%	MJ/t,m3	H=G×D×E×F×44/12/10000 (Mass unit)
		A	B	C	D=A+B+C	E	F	G	H=G×D×E×F×44/12/1000 (Volume unit)
Raw coal	10^4t	4,305.41	2,446.13	3,383.21	10,134.75	25.8	100	20,908	200,454,895.9
Cleaned coal	10^4t				0	25.8	100	26,344	0
0ther washed coal	10^4t	524.74	19.26	24.16	568.16	25.8	100	8,363	4,494,939.888
Coke	10^4t				0	29.2	100	28,438	0
Coke oven gas	10^8m^3	1.03	3.57	0.68	5.28	12.1	100	16,726	391,816.5856
0ther coal gas	10^8m^3	12.62	8.37		20.99	12.1	100	5,227	486,767.6854
Crude oil	10^4t	1.16			1.16	20	100	41,816	35,571.47733
Gasoline	10^4t				0	18.9	100	43,070	0
Diesel	10^4t	1.18	1.48	0.57	3.23	20.2	100	42,652	102,038.6544
Fuel oil	10^4t	9.32	2.46	1.55	13.33	21.1	100	41,816	431,247.4323
LPG	10^4t	0.12			0.12	17.2	100	50,179	3,797.54672
Refinery gas	10^4t	5.48			5.48	15.7	100	46,055	180,283.8327
Natural gas	10^8m^3		0.84	2.24	3.08	15.3	100	38,931	672,680.9628
0ther oil products	10^4t				0	20	100	38,369	0
0ther coal chemicals	10^4t				0	25.8	100	28,435	0
0ther energy	10^4t ce	16.18			16.18	0	100	0	0
								Total	207,254,040.0

Data sources: The State Electric Industry Yearbook 2006

Table 3-6 Fire power generation of North East Power Grid (2005)

Name of the Province	Generation (MWh)	Rate of electricity used by factory	Power Supply (MWh)
Liaoning	83,697,000	7.03	77,813,101
Jilin	35,294,000	6.59	32,968,125
Heilongjiang	58,000,000	7.96	53,383,200
Total			164,164,426

Total emission amount 207,254,040 tCO2e

Total power supply 164,164,426 MWh

Emission factor in 2005 1.262478 tCO2e/MWh

Data sources: The State Electric Industry Yearbook 2006

$EF_{OM,y}$ =1.2402tCO2e/MWh

2. Calculation of Build Margin (BM) Emission Factor

Table 3-7 NCV, oxidation factor and potential emission factor of each fuel

Fuel types	NCV	Emission factor	Oxidation factor
Raw coal	20,908 kJ/kg	25.8tc/TJ	1
Cleaned coal	26,344 kJ/kg	25.8tc/TJ	1
Other washed coal[22]	8,363 kJ/kg	25.8tc/TJ	1
Coke	28,435 kJ/kg	25.8tc/TJ	1
Crude oil	41,816 kJ/kg	20.0tc/TJ	1
Gasoline	43,070 kJ/kg	18.9tc/TJ	1
Coal oil	43,070 kJ/kg	19.6tc/TJ	1
Diesel	42,652 kJ/kg	20.2tc/TJ	1
Fuel oil	41,816 kJ/kg	21.1tc/TJ	1
Other oil products[23]	38,369 kJ/kg	20.0tc/TJ	1
Natural gas	38,931 kJ/m	15.3tc/TJ	1
Coke oven gas[24]	16,726 kJ/m3	12.1tc/TJ	1
Other coal gas[25]	5,227 kJ/m3	12.1tc/TJ	1
LPG	50,179 kJ/kg	17.2tc/TJ	1
Refinery gas	46,055 kJ/kg	18.2tc/TJ	1

[22] Calculated as per NCV of washed coal provided by China Energy Statistical Yearbook 2006 p. 287, and as the average NCV of coal slime is larger than that of washed coal, it is conservative to conduct this way.

[23] China Energy Statistical Yearbook each year doesn't indicate the NCV of other oil products. The NVC in the annex is 38,369kJ/kg, which is equivalent to 1.3108tce/t.

[24] Calculated as per the lower value of NCV range 16,726-17,981 kJ/m^3 of Coke oven gas provided by China Energy Statistical Yearbook 2006 p. 287.

[25] Calculated as per lowest value of NCV of coal gas provided by China Energy Statistical Yearbook 2006 p. 287.

Data sources: the heat value of each fuel is from China Energy Statistical Yearbook 2006 p. 287. The potential emission factor of each fuel is from 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Volume 2 Energy, Chapter 1, p. 1.23-1.24, Table 1.3 & 1.4.

The efficiency level of the best technology commercially available of coal-fired power in the calculation result is set as 600MW domestic subcritical generator sets. The weighted average value of coal consumption of power supply of 15 set of 600MW generator sets newly built in 2005 is taken as the estimation of the efficiency level of the best technology commercially available in the calculation result. The coal consumption of power supply of 600MW domestic subcritical power plant is estimated to be 3343.33gce/kWh, which is equivalent to 35.82% of power supply efficiency.

Table 3-8. Calculating the proportion of solid fuel, liquid fuel and gas fuel in the total emission

Fuel types	Unit	Liaoning	Jilin	Heilongjiang	Total	NCV	Emission factor	0xidation factor	C02 emission (tC02e)
						MJ/t,m3	tc/TJ		H=G×D×E×F×44/12/10000 (Mass unit)
		A	B	C	D=A+B+C	E	F	G	H=G×D×E×F×44/12/1000 (Volume unit)
Raw coal	10^4t	4,305.41	2,446.13	3,383.21	10,134.75	20,908	25.8	1	200,454,896
Cleaned coal	10^4t	0	0	0	0	26,344	25.8	1	0
0ther washed coal	10^4t	524.74	19.26	24.16	568.16	8,363	25.8	1	4,494,940
Coke	10^4t	0	0	0	0	28,438	25.8	1	0
Total									204,949,836
Crude oil	10^4t	1.16	0	0	1.16	41,816	20	1	35,571
Gasoline	10^4t	0	0	0	0	43,070	18.9	1	0
Kerosene	10^4t	0	0	0	0	43,070	19.6	1	0
Diesel	10^4t	1.18	1.48	0.57	3.23	42,652	20.2	1	102,039
Fuel oil	10^4t	9.32	2.46	1.55	13.33	41,816	21.1	1	431,247
0ther oil products	10^4t	0	0	0	0	38,369	20	1	0
Total									568,858
Natural gas	10^8m^3	0	0.84	2.24	3.08	38,931	15.3	1	672,681
Coke oven gas	10^8m^3	1.03	3.57	0.68	5.28	16,726	12.1	1	391,817
0ther coal gas	10^8m^3	12.62	8.37	0	20.99	5,227	12.1	1	486,768
LPG	10^4t	0.12	0	0	0.12	50,179	17.2	1	3,798
Refinery gas	10^4t	5.48	0	1.32	6.8	46,055	18.2	1	208,991
Total									1,764,054
								Total	207,282,748

Data sources: China Energy Statistical Yearbook 2006

According to the data and raleted calculation formula，λ_{Coal} =98.88%， λ_{Oil} =0.85%， λ_{Gas} =0.27%.

Table 3-9 Efficiency of power supply of coal-fired power plant

	Variable	Efficiency of power supply	NCV (tc/TJ)	Oxidation factor	Emission factor (tCO_2/MWh)
		A	B	C	D=3.6/A/1000*B*C*44/12
Coal-fired power plant	$EF_{Coal,Adv}$	35.82%	25.8	1	0.9508
Gas-fired power plant	$EF_{Gas,Adv}$	47.67%	15.3	1	0.4237
Oil-fired power plant	$EF_{Oil,Adv}$	47.67%	21.1	1	0.5843

Hence, $EF_{Thermal} = \lambda_{Coal} \times EF_{Coal,Adv} + \lambda_{Oil} \times EF_{Coal,Adv} + \lambda_{Gas} \times EF_{Gas,Adv}$ =0.9453(tCO_2/MWh)

Table 3-10 Installed capacity of the North East Power Grid 2005

Installed capacity	Unit	Liaoning	Jilin	Heilongjiang	Total
Fire power	MW	15,999	6,359.4	11,575.6	33,934
Hydro power	MW	1,403.9	3,720.8	846.	5,971.4
Nuclear power	MW	0	0	0	0
Wind power and other	MW	135.5	85.4	52.4	273.3
Tota	MW	17,538.4	10,165.6	12,474.7	40,178.7

Data sources: The State Electric Industry Yearbook 2006

Table 3-11 Installed capacity of the North East Power Grid 1999

Installed capacity	Unit	Liaoning	Jilin	Heilongjiang	Total
Fire power	MW	12,425.7	4,583.1	10,128.1	27,136.9
Hydro power	MW	1,240.0	3,508.2	774.	5,522.7
Nuclear power	MW	0	0	0	0
Wind power and other	MW	22.9	0	0	22.9
Tota	MW	13,688.6	8,091.3	10,902.6	32,682.5

Data sources: The State Electric Industry Yearbook 2000

Table 3-12 Installed capacity of the North East Power Grid 1998

Installed capacity	Unit	Liaoning	Jilin	Heilongjiang	Total
Fire power	MW	12,560.3	4,428.6	9,11	26,104.9
Hydro power	MW	1,223.1	3,474.7	784.	5,482.3
Nuclear power	MW	0	0	0	0
Wind power and other	MW	17	0	0	17
Tota	MW	13,800.4	7,903.3	9,900.5	31,604.2

Data sources: The State Electric Industry Yearbook 1999

Table 3-13 BM calculation of the North East Power Grid （MW）

	Installed capacity 1998	Installed capacity 1999	Installed capacity 2005	New added installed capacity 1998-2005	The fraction of newly added installed capacity
	A	B	C	D=C-A	
Fire power	26,104.9	27,136.9	33,934	7,829.1	91.31%
Hydro power	5,482.3	5,522.7	5,971.4	489.1	5.70%
Nuclear power	0	0	0	0	0
Wind power	17	22.9	273.3	256.3	2.99%
Total	31,604.2	32,682.5	40,178.7	8,574.5	100.00%
The fraction of installed capacity 2005	78.66%	81.34%	100%		

$EF_{BM,y}$ = 0.9453×91.31% = 0.8631tCO_2e/MWh

Annex 4

MONITORING PLAN

There is no further information to add here.