THE GOLD STANDARD:
Project Design Document for Gold Standard Voluntary Offset projects

(GS-VER-PDD)

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Emissions reductions from grid connected Electricity Generation from renewable sources: Honiton Energy Bailingmiao Phase one Wind Farm Project

VOLUNTARY OFFSET PROJECTS

PROJECT DESIGN DOCUMENT FORM (GS-VER-PDD)
VERSION 01 - IN EFFECT AS OF: JANUARY 2006)

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Annexes

SECTION A. General description of project activity

A.1 Title of the project activity

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Title: Honiton Energy Bailingmiao Phase one Wind Farm Project
Version: 0~~3~~6
Date: ~~13~~12/~~04~~10/200~~9~~915

A.2. Description of the project activity

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Honiton Energy (Baotou) Co., Ltd, a subsidiary of Honiton Energy Limited. (in the following: Honiton) is developing a wind farm power project called the Bailingmiao Phase One Wind Farm Power Generation Project, in Inner Mongolia, P.R. China. The purpose of the proposed Project is to generate renewable electricity utilizing wind power and to feed in to the North China Power Grid (NCPG) on the basis of a Power Purchase Agreement (PPA). The proposed project will reduce greenhouse gas (GHG) emissions and is being undertaken as a Verified Emission Reduction (VER) project for the voluntary carbon market. The revenue from the sale of VERs will strengthen the project cash flow and enable the project to be successfully implemented. Because of the project's anticipated benefits in terms of GHG emission reduction and sustainable development parameters, this project is expected to fulfil the requirements of the Gold Standard.

The proposed project consists 40 sets of 1250kw Suzlon turbines, with a potential total installed capacity of up to 50MW. The project's net electricity production is expected to be 110.9 GWh per year, offsetting an equivalent amount that would be otherwise supplied by the NCPG. A 32km 220kV transmission line will be built to connect the proposed wind farm to 220kV Hongta substation.

The proposed project will assist China in developing its wind power generation potential, and the emerging market for grid-connected renewable energy technology. The proposed project will therefore help reduce GHG emissions versus the high-growth, coal-dominated business-as-usual scenario. The project will also improve air quality and local livelihoods and promote sustainable renewable energy industry development. The specific goals of the project are to:

- generate clean electricity;
- reduce CO_2, SO_2 and NOx emissions
- help to stimulate the growth of the wind power industry in China;
- create local employment opportunity during the assembly and installation of wind turbines, and for operation of the proposed project;
- reduce greenhouse gas emission in China compared to the business-as-usual scenario;
- act as a good corporate citizen by investing in the local community where the project is located.

The project contributes to sustainable development in the following ways:

1. Environmental well being
   - The proposed project will offset coal-dominated power generation with wind power, thereby avoiding emissions of various pollutants into the air and water. Therefore, this proposed project will reduce GHG emissions as well as emissions related to conventional electricity generation, such as sulphur dioxide, nitrogen oxides and particulates.
   - Construction-phase impacts on soil at the project site is minimized and remediated according to the project design, such that impacts are only temporary.

2. Social well being
- The proposed project will create around 20 long-term jobs as well as more than 100 temporary employments during construction;
- The workers involved in the proposed project will receive substantial, on-going training for the first five years of the project's operational lifetime.

3. Economic well being
- In addition to local employment, the construction material for the turbine foundations, transmission cables and access roads has been sourced / supplied locally.

In view of the above, the project activity profoundly contributes to sustainable development. For more information, please see the Sustainable Development Assessment Matrix (Annex 3).

A.3. Project participants:

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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)
P.R. China (host)	Honiton Energy (Baotou) Co., Ltd.	No
United Kingdom of England and Northern Ireland	CAMCO Voluntary Credits Limited~~International Ltd~~ .	No

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):

>>
People's Republic of China

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

>>
Inner Mongolia Autonomous Region

A.4.1.3. City/Town/Community etc:

>>
Bailingmiao Town, Damao County, Baotou City

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

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Honiton Energy Bailingmiao Phase one Wind Farm Project lies 30km to the northwest of Bailingmiao town, Damao County, Baotou City, Inner Mongolia Autonomous Region of People's Republic of China. It is located at longitude 110 °12′52″East and latitude 41 °51′39″ North. The average altitude of the project site is about 1400m above sea level. Figure 1 shows respectively the location of Inner

Mongolia in China and the project site within the map of Inner Mongolia Autonomous Region.

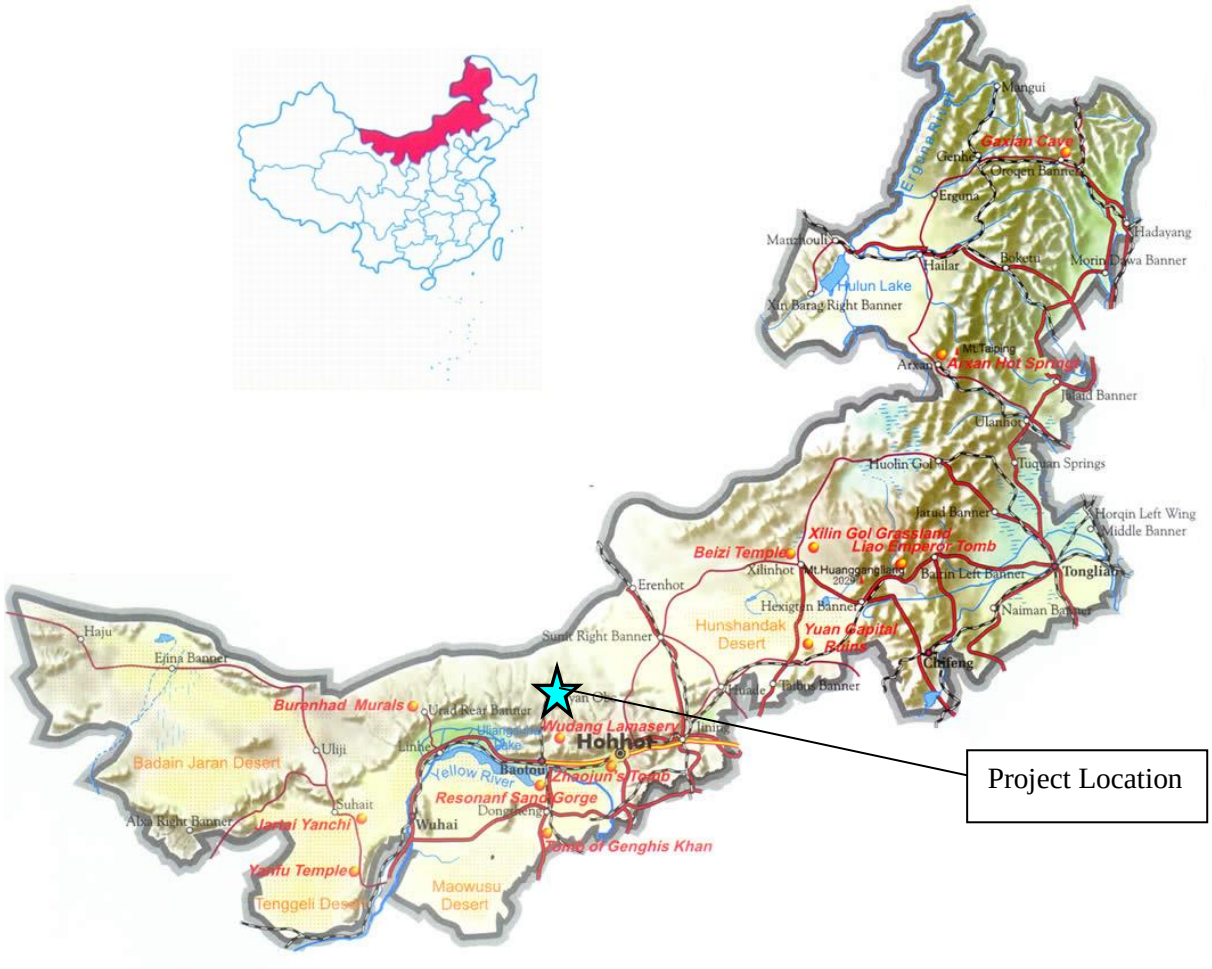

Fig.1. Map of project area

A.4.2. Size of the project:

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With an estimated emission reduction of ~~116~~102,~~998~~982tonnes CO_2e per year, the project is a large-scale project. The project is not nor will be debundled to create micro-scale projects.

A.4.3. Category(ies) of project activity:

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The proposed project falls into category A.1. - Renewable Energy, according to the Gold Standard VER Project Developer's Manual.

A.4.4. Brief explanation of how the anthropogenic emissions of anthropogenic greenhouse gas (GHGs) by sources are to be reduced by the proposed project activity, including why the emission reductions would not occur in the absence of the proposed project activity, taking into account national and/or sectoral policies and circumstances:

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Emission reductions will be calculated based on the Combined Margin emission factor for the NCPG (for details see Section B.2.). With anticipated annual electricity generation of approx. 110.9 GWh, the

project will reduce approx. 1~~16~~02,9~~9~~8~~2~~t CO_2 e per year. The GHG emission reductions account for the substitution of wind-generated power for power from the NCPG, which is produced overwhelmingly from conventional fossil fuels.

The following table show the shares of the different fuels to the overall NCPG electric generation between year 200~~8~~1 and year 201~~2~~0~~5~~:

Table 1: Power Generation by source for North China Power Network (~~2001~~ 2009 - ~~2005~~2013)

	Generation (2009) GWh China Electric Power Yearbook 2011, page 725	%	Generation (2010) GWh China Electric Power Yearbook 2011, page 725	%	Generation (2011) GWh China Electric Power Yearbook 2013, page 620	%	Generation (2012) GWh China Electric Power Yearbook 2013, page 620	%	Generation (2013) GWh China Electric Power Yearbook 2014, page 595	%
Thermal	970,800	98.1%	991,800	96.7%	1,133,500	96.2%	1,176,700	95.1%	1,243,800	94.1%
Hydro	5,210	0.5%	7,010	0.7%	6,720	0.6%	9,140	0.7%	9,770	0.7%
Nuclear	-	0.0%		0.0%		0.0%		0.0%	-	0.0%
Other(Wind)	13,670	1.4%	26,610	2.6%	37,550	3.2%	51,800	4.2%	67,950	5.1%
Total	989,680	100.0%	1,025,420	100.0%	1,177,770	100.0%	1,237,640	100.0%	1,321,520	100.0%

	Generation (2001) GWh *China Electric Power Yearbook 2002, page 617*	%	Generation (2002) GWh *China Electric Power Yearbook 2003, page 585*	%	Generation (2003) GWh *China Electric Power Yearbook 2004, page 709*	%	Generation (2004) GWh *China Electric Power Yearbook 2005, page 474*	%	Generation (2005) GWh *China Electric Power Yearbook 2006, page 568*	%
Thermal	358,066	99.19%	403,919	99.11%	457,675	99.14%	526,772	99.24%	510,886	99.40%
Hydro	2,927	0.81%	3,455	0.85%	3,798	0.82%	3,758	0.71%	2,912	0.57%
Nuclear	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Other (Wind)	0	0.00%	170	0.04%	181	0.04%	274	0.05%	152	0.03%
Total	**360,993**	**100.00%**	**407,544**	**100.00%**	**461,654**	**100.00%**	**530,804**	**100.00%**	**513,950**	**100.00%**

Table 1 shows the growth rate in power generation in the North China Power Network, by power source, where coal constitutes ~~almost 100%~~more than 90% of power generation during the period 200~~1~~9-20~~05~~13[1]. Wind power is not the least cost option for electricity generation in China as a whole and in the North China Power Network in particular where coal generates ~~almost 100%~~more than 90% of the power and wind only ~~0.03~~3.3% (average).

Table2: Power installed capacity by source for North China Power Network (2003 - 2005)

	Capacity in ~~2003~~ 2010	Capacity in ~~2004~~2011	Capacity in ~~2005~~2012	New installed capacity from ~~2003~~ 2010 to ~~2005~~ 2012	Percentage in new installed capacity
	A	B	C	D=C-A	

[1] *China Electric Power Yearbook ~~2002~~2010-~~2006~~2014.*

Thermal	~~84006.6~~208,830	~~93594.9~~224,610	~~111068.7~~235,710	~~27062.1~~31,135	~~99.28~~71.17%
Hydro	~~3266~~6,590	~~3250.7~~7,199	~~3216.2~~7,402	~~-49.8~~212	~~-0.18~~1.63%
Nuclear	0	0	0	0	0.00%
Other(wind)	~~90.1~~15,359	~~137.5~~22,978	~~335.5~~303,315	~~245.4~~14,956	~~0.90~~30.46%
Total	~~87362.7~~230,779	~~96983.1~~254,787	~~114620.4~~273,427	~~**27257.7**~~**46,303**	**100.00%**
wind farm Capacity ratio	~~0.10~~6.7%	~~0.14~~9.0%	~~0.29~~11.1%		

Table2 shows the growth rate in installed capacity in the North China Power Network, by power source from ~~2002~~ 2010 to ~~2005~~2012, where the thermal new installed capacity constitutes ~~99.28~~71.17% of all new installed capacity additions during the period 201~~002~~-20~~05~~12[2], while the new installed capacity of Wind power accounts ~~only~~ for ~~0.90~~30.46% of the new installed capacity. Indeed, ~~in the last 3 years~~from 2010 -2012, the proportion of new coal fired capacity on the North China Power Network ~~has increased at the expense of~~is still lager than the new zero emission sources (principally hydro, and to a lesser degree wind).

But more important for the justification of effective emission reductions by the proposed project activity is a glance at the future trend. ~~The total installed capacity will reach 840,000 MW by year 2010, of which 10,000MW will be wind farm power capacity, while 593,000 MW will be thermal power capacity[3]. At that time, the wind farm capacity is still less than 1%, taking 0.6% of the total installed capacity, while the thermal power plant will still be the prominent power source which will account for 70.59% of the total installed capacity.~~Based on the current trend, the new installed thermal power capacity will continue to be larger than wind farm power capacity for a long time.

Given the small current and projected share of wind capacity on the NCPG, it is clear that wind power is not the economically preferred generation option. From an investor's point of view, fossil fuel power investments are less risky and more financially attractive. The on-grid wind farm tariff is based on bidding price plus approved price[4], which does not contribute sufficient incentive to invest in inexperienced Chinese wind power projects. These regulations are considered in the investment planning of the project and do not lead to returns that make the project be attractive for investors and bank loans.

However, the proposed project demonstrates long-term potential of wind energy which will reduce greenhouse gas emissions as well as contribute to sustainable development.

A.4.4.1. Estimated amount of emission reductions over the crediting period:

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Table 3 Estimated amount of emission reductions over the chosen crediting period

[2] *China Electric Power Yearbook ~~2004~~2010-~~2006~~2014.*

[3] ~~http://www.toweld.com/Newslr.asp?id=3378~~

[4] http://news.xinhuanet.com/environment/2006-02/10/content_4161058.htm

Year			Estimation of project activity emission reductions (tonnes CO_2e)	Estimation of baseline emission reduction (tonnes CO_2e)	Estimation of leakage (tonnes CO_2e)	Estimation of emission reductions (tonnes CO_2e)
2015	7/Jan/15	31/Dec/15	0	101, 305	0	101, 305
2016	1/Jan/16	31/Dec/16	0	102, 998	0	102, 998
2017	1/Jan/17	31/Dec/17	0	102, 998	0	102, 998
2018	1/Jan/18	31/Dec/18	0	102, 998	0	102, 998
2019	1/Jan/19	31/Dec/19	0	102, 998	0	102, 998
2020	1/Jan/20	31/Dec/20	0	102, 998	0	102, 998
2021	1/Jan/21	31/Dec/21	0	102, 998	0	102, 998
2022	1/Jan/22	6/Jan/22	0	1, 693	0	1, 693
Total			0	720, 986	0	720, 986
Total emission reductions (tonnes of CO_2e)			720, 986			
Total number of crediting years			7*3			
Annual average over the crediting period of estimated reductions (tonnes of CO_2e)			102, 998			

~~Years~~	~~Annual estimation of emission reductions in tonnes of CO_2 e~~
~~07/01/2008~06/01/2009~~	~~116,982~~
~~07/01/2009~06/01/2010~~	~~116,982~~
~~07/01/2010~06/01/2011~~	~~116,982~~
~~07/01/2011~06/01/2012~~	~~116,982~~
~~07/01/2012~06/01/2013~~	~~116,982~~
~~07/01/2013~06/01/2014~~	~~116,982~~
~~07/01/2014~06/01/2015~~	~~116,982~~
~~Total emission reductions (tonnes of CO_2 e)~~	~~818,880~~
~~Total number of crediting years~~	~~7*3~~
~~Annual average over the crediting period of estimated reductions (tonnes of CO_2e)~~	~~116,982~~

Note: Start of the current crediting period is the date 07th January 2015 ~~7th January, 2008~~. The end of the ~~first~~ current crediting period is seven years after the renewal of the second crediting period.~~6th January, 2015~~.

The baseline emissions factor has been fixed for the ~~first~~ second 7-year crediting period. The amount of VERs actually generated by the project will vary depending on the metered power supply of the project.

SECTION B. Application of a baseline methodology

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

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The methodology applied to the Project is "~~Consolidated baseline and monitoring methodology for grid-connected electricity generation from renewable sources~~Grid-connected electricity generation from renewable sources''ACM0002 (~~version7~~version16.0) (http://cdm.unfccc.int/methodologies/DB/EY2CL7RTEHRC9V6YQHLAR6MJ6VEU83~~http://cdm.unfccc.int/UserManagement/FileStorage/CDMWF_AM_323M30IDF1IH6AG3GRCJ4PKR9CKM7P~~).

Tools referenced in this methodology:

- Tool for the demonstration and assessment of additionality
- Combined tool to identify the baseline scenario and demonstrate additionality
- Tool to calculate project or leakage CO2 emissions from fossil fuel combustion
- Tool to calculate the emission factor for an electricity system
- Tool to determine the remaining lifetime of equipment

~~The "Tool for the demonstration and assessment of additionality (version5)" are also applied to the Project as required by the methodology ACM0002. (http://cdm.unfccc.int/methodologies/PAmethodologies/AdditionalityTools/Additionality_tool.pdf)~~

B.1.1. Justification of the choice of the methodology and why it is applicable to the project activity:

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The approved methodology ACM0002 is applicable to the proposed project activity, because:

- The proposed project is a grid-connected renewable power generation project that adds electricity capacity from wind energy; and
- The proposed project does not involve switching from fossil fuels to renewable energy at the site of the project activity; and
- The geographic and system boundaries for the North China Power Grid (NCPG) can be clearly identified and information on the characteristics of the grid is available.

B.2. Description of how the methodology is applied in the context of the project activity:

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1. Baseline Emission (BE_y)

In accordance with ***GOLD STANDARD PROCEDURES FOR THE RENEWAL OF A CREDITING PERIOD***, the validity of the original baseline should be assessed. In order to assess the validity of the original baseline, the "Tool to assess the validity of the original/current baseline and to update the baseline at the renewal of a crediting period" was used.

Step 1: Assess the validity of the current baseline for the next crediting period

The validity of the current baseline is assessed using the following Sub-steps:

Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies

The current baseline, equivalent electricity service provided by the NCPG, complies with all relevant mandatory national and/or sectorial policies, which have come into effect after the submission of the project activity for validation and applicable at the time of requesting renewal of the crediting period.

Step 1.2: Assess the impact of circumstances

This sub-step is to assess the impact of circumstances existing at the time of requesting renewal of the crediting period on the current baseline emissions, without reassessing the baseline scenario.

In the situation where the baseline scenario identified at the validation of the project activity was the continuation of the current practice without any investment, an assessment of the changes in market characteristics is required for the renewal of the crediting period.
Evaluate whether the conditions used to determine the baseline emissions in the previous crediting period are still valid. Assess the availability of new fuels or raw materials and the impact of electricity or fuel prices in the identification of the current practice for the baseline emissions;

At the time of requesting renewal of the crediting period, there are no known circumstances that make a continued validity of the current baseline not plausible.

The conditions used to determine the baseline emissions in the previous crediting period are still valid for the second crediting period. The identification of the current baseline for the project is not affected by the new fuels or raw materials and the electricity/fuel prices.

.

Step 1.3: Assess whether the continuation of use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested.

This sub-step is only applied if the baseline scenario identified at the validation of the project activity was the continuation of use of the current equipment(s) without any investment and, the projects proponents or third party (or parties) would undertake an investment later due, for example, to the end of the technical lifetime of the equipment(s) before the end of the crediting period or the availability of a new technology.

This is not the case in the project and therefore Step 1.3. is not applicable to the project.

In conclusion, the baseline is still valid for the 2nd crediting period.

According to ACM0002 (Version ~~7~~16.0),if the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following:
Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system".

The proposed Honiton Energy Bailingmiao Phase one Wind Farm Project is connected to the Western Inner Mongolia Power Grid, an integrated part of the North China Power Grid. The North China Power Grid covers Beijing, Tianjin, Hebei province, Shanxi province, Shandong province and Inner Mongolia Autonomous Region.

According to ACM0002 (version~~7~~16.0), a project electricity system is defined by the spatial extent of the power plants that can be dispatched without significant transmission constrains. In this case, there is significant, unhindered transmission of electricity between the different provinces that comprise the North China Power Grid. It is appropriate for the proposed project to regard the regional rather than provincial power grid as the project boundary. Therefore, for the proposed project, the North China Power Grid is defined as the project electricity system.

Additionally, the Northeast Power Grid is physically connected to the North China Power Grid. The electricity transfers between the two grids consist of imports from the Northeast Power Grid to the North China Power Grid. As per the tool to calculate the emission factor for an electricity system, the Northeast Power Grid is defined as the connected electricity system. The electricity imported from the Northeast Power Grid is included in the calculation of the OM emission factor. According to the methodology ACM0002, the calculation is conservative.

Therefore, the baseline of this project activity is Comparable capacity or electricity generation addition provided by NCPG.

The baseline emission factor (EF_y) is calculated as a combined margin (*CM*), consisting of the combination of operating margin (*OM*) and the build margin (*BM*) factors according to the following five steps defined in "Tool to calculate the emission factor for an electricity system".

Data of OM and BM are from NDRC's official release "Emission factor 20~~07~~14 for power grid in China" and the ~~calculations is~~calculations are based on official, publicly available national statistical yearbooks published annually: *China Energy Statistical Yearbook* and *China Electric Power Yearbook.*

Step 1. Identify the relevant electric power system

This is identified above as the North China power grid.

Step 2. Select an operating margin (OM) method

The calculation of the operating margin emission factor ($EF_{grid,OM,y}$) is based on one of the following methods:

a) Simple OM
b) Simple adjusted OM
c) Dispatch data analysis OM
d) Average OM

Option (c) - Calculation of OM from grid dispatch data analysis can give the most reliable estimation of emission reduction since this method counts the actual portion of the baseline power which will be substituted by the output of the VER project. However, this option requires detailed running dispatch data of the connected-grid power plants. However, this data is not publicly available in China so option (c) is not feasible.

Option (b) - the option of Simple Adjusted Operation Margin Emission Factor will require the power grid to provide annual Load Duration Curve. For the same reason as (c), the project also could not gain the detailed dispatching data from the China Power Grid. Therefore, option (b) is also not feasible.

Option (d) - the average OM is suitable for power grids where low cost and must run[5] power plants constitute more than 50% of the total grid power generation. However, within the most recent 5 years for which data is available for power generation of the North China Power Grid (2002-2006),in the composition of gross annual generation power for North China Grid, the ratio of power generated by hydro-power and other low cost/compulsory resources is as following:
0.89%, 0.81%, 0.74%、0.67% and 0.75％ in 2002, 2003, 2004, 2005 and 2006 respectively, so, option (d) cannot be applied.

Option (a),—the option of Simple Operation Margin Emission Factor is the only appropriate option to calculate the OM when low cost/must run resources constitute less 50% of the total power generation of the grid. As shown above, low cost/ must run power generation in the North China Power Grid constituted far less than 50% of the total. Therefore, the project will use option (a) to calculate the Operation Margin Emission Factor.

The simple OM is calculated ex-ante using a 3-year generation weighted average, based on the most recent data available at the time of submission of the VER-PDD to the DOE for validation.

Step 3. Calculate the operating margin emission factor according to selected method.

According to the "Tool to calculate the emission factor for an electricity system", the Simple OM emission factor is calculated as the generation-weighted average CO_2 emissions per unit net electricity generation (tCO_2/MWh) of all generating power plants serving the system, not including low-operating cost and must-run power plants/units. It may be calculated:

- Based on data on fuel consumption and net electricity generation of each power plant/unit (Option A)
- Based on data on net electricity generation, the average efficiency of each power unit and the fuel type(s) used in each power unit (Option B)
- Based on data on the total net electricity generation of all power plants serving the system and the fuel types and total fuel consumption of the project electricity system (Option C)

According to the Tool, option A should be preferred and must be used if fuel consumption data is available for each power plant/unit. In other cases, option B or option C can be used. For the purpose of calculating the simple OM, Option C should only be used if the necessary data for option A and option B is not available and can only be used if only nuclear and renewable power generation are considered as low-cost/ must-run power sources and if the quantity of electricity supplied to the grid by these sources is known.

Data on fuel consumption, power generation and average efficiency of individual power stations is not publicly available in China. Therefore, in the proposed project activity, Option C is used and the following formula is used:

$$EF_{grid,OMsimple,y} = \sum_i FC_{i,y} * NCV_{i,y} * EF_{CO2,i,y} / EG_y \quad (1)$$

Where:

$FC_{i,y}$ is the amount of fossil fuel type i consumed in the project electricity system in year y (mass or volume unit),

[5] Typical low cost/must run power plants comprise of power generated by hydro, geothermal, wind, low- cost biomass, nuclear and solar generation.

$NCV_{i,y}$	is the net calorific value (energy content) of fossil fuel type i in year y (GJ/mass or volume unit)
$EF_{CO2,i,y}$	is the CO_2 emission factor of fossil fuel type i in year y (tCO_2/GJ)
EG_y	is the electricity generated and delivered to the grid by all power sources serving the system, not including low-cost/must-run power plants/units, in year y (MWh)
i	is all fossil fuel types combusted in power sources in the project electricity system in year y
y	is the three most recent years for which data is available at the time of submission of the VER-PDD to the DOE for validation (ex-ante option)

Based on calculation from the China DNA (see Annex ~~3~~2), the OM Emission Factor of the North China Power Grid is **1. ~~1169~~0580 tCO_2/MWh**.

Step 4: Identify the cohort of power units to be included in the build margin

According to the tool to calculate the emission factor for an electricity system, the sample group of power units m used to calculate the build margin could consist of either:

(a) the set of five power plants that have been built most recently, or
(b) the set of power capacity additions in the electricity system that comprise 20% of the system generation (in MWh) and that have been built most recently;

The tool also states that project participants should use the set of power units that comprises the larger annual generation. In this case option (b) is used.

In terms of the vintage of the data, two options are given in the tool. In this case Option 1 is chosen: For the first crediting period, the build margin emission factor is calculated ex-ante based on the most recent information available on units already built for sample group m at the time of VER-PDD submission to the DOE for validation. For the second crediting period, the build margin emission factor should be updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the DOE. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used. This option does not require monitoring the emission factor during the crediting period.

Step 5: Calculate the build margin emission factor

According to the tool, the build margin emission factor is the generation-weighted average emission factor (tCO_2/MWh) of all power units m during the most recent year y for which power generation data is available, calculated as follows:

$$EF_{grid,BM,y} = \Sigma_m EG_{m,y} ~~*~~ EF_{BL,m,y} / \Sigma_m EG_{m,y} \quad (2)$$

Where:

$EF_{grid,BM,y}$	Build margin CO_2 emission factor in year y (tCO_2/MWh)
$EG_{m,y}$	Net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh)
$EF_{EL,m,y}$	CO_2 emission factor of power unit m in year y

m Power units included in the build margin
y Most recent historical years for which power generation data is available

Following guidance issued by the CDM Executive Board in response to a request for guidance from an accredited DOE on the determination of the Build Margin in methodology AM0005 in China, $EF_{BM,y}$ is calculated as the capacity weighted average emissions factor of new installed capacity rather than the generation weighted factor. Furthermore, it is suggested in the same guidance note that the efficiency level of the best technology commercially available in the provincial/regional or national grid of China is used as a conservative proxy for each fuel type in estimating the fuel consumption when calculating the Build Margin. The suggested approach is followed in the determination of the Build Margin for the purposes of this project.

Because capacities of technologies using coal, oil and gas cannot be separated from the total thermal power generation from available statistics, the following method is used for the calculation: first, use the recent one year available energy balance data and calculate percentages of CO_2 emissions of power generation using solid, liquid and gas fuel in the total CO_2 emission. Second, calculate grid thermal power emission factors, using the percentages (as weights) and emission factors of technologies corresponding to best available efficiencies. Lastly, the thermal power emission factor is multiplied by the percentage of thermal power in the newest 20% capacity in the grid, and the result is the Build Margin emission factor of the grid.

The steps and equations are as follows:

1: Calculate percentages of CO_2 emission of power generation using solid, liquid and gas fuel in total CO2 emission.

$$\lambda_{Coal} = \frac{\sum_{i \in COAL, j} F_{i,j,y} \times COEF_{i,j}}{\sum_{i,j} F_{i,j,y} \times COEF_{i,j}} \quad (3)$$

$$\lambda_{Oil} = \frac{\sum_{i \in OIL, j} F_{i,j,y} \times COEF_{i,j}}{\sum_{i,j} F_{i,j,y} \times COEF_{i,j}} \quad (4)$$

$$\lambda_{Gas} = \frac{\sum_{i \in GAS, j} F_{i,j,y} \times COEF_{i,j}}{\sum_{i,j} F_{i,j,y} \times COEF_{i,j}} \quad (5)$$

Where:

$F_{i,j,}$ amount of fuel i (tce) consumed by power plants m in year y,
$COEF_{i,j,y}$ CO_2 emission coefficient of fuel i (tCO_2 /tce), taking into account the carbon content of the fuels used by power plants m and the oxidation percent of the fuel in year(s) y,
COAL, OIL and GAS refer to coal fuel, oil fuel and gas fuel in the subscript set

2: Calculate thermal emission factor

$$EF_{Thermal} = \lambda_{Coal} \times EF_{Coal,Adv} + \lambda_{Oil} \times EF_{Oil,Adv} + \lambda_{Gas} \times EF_{Gas,Adv} \quad (6)$$

Where:

$EF_{Coal,Adv}$, $EF_{Oil,Adv}$ and $EF_{Gas,\ Adv}$ are emission factors corresponding to commercially optimal efficient power generation technology using coal, oil and gas.

The weighted average of coal consumption per kWh supplied of 11 new built 600 MW sub critical units in 2006 is adopted to determine the emission factor of the best advanced coal fired generation technology, which is 329.94gce/kWh. In other word, the efficiency of best advanced coal fired generation technology is 37.28%. The maximum electricity supplied efficiency of oil and gas fired generation ~~plants is~~plants are regarded as approximate estimation of commercially optimal efficiency technology. Similarly, the fuel consumption per kWh supplied of best advanced oil and gas fired generation technology is determined to be 252 gce/kWh, which means a generation efficiency of 48.81%.

The installation capacity, generation data, and average self consumption rate data are from the China Electric Power Yearbooks (2005-2007). The data of fuel consumption per electricity generated and low calorific values of fuels are from the China Energy Statistical Yearbooks 2007. The $EF_{CO2,i}$ and $OXID_i$ data by fuels are from Table 1.3 and 1.4 in Page 1.21-1.24 in the first chapter of "Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories" Volume 2 Energy.

Calculate the BM of the Grid

$$EF_{BM,y} = \frac{CAP_{Thermal}}{CAP_{Total}} \times EF_{Thermal} \qquad (7)$$

Where:

CAP_{Total} is the new added total capacity,

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

Based on calculation from the China DNA (see Annex 2~~3~~), the BM Emission Factor of the North China Power Grid is **0~~.8687~~.5410CO_2/MWh**.

Step 6. Calculate the combined margin emissions factor

The combined margin emissions factor is calculated as follows:

$$EF_{grid,CM,y} = EFg_{rid,OMy} \text{ ~~x~~*} \omega_{OM} + EF_{grid,BM,y} \text{ ~~x~~*} \omega_{BM} \qquad (8)$$

Where:

$EF_{grid,OM,y}$	Operating margin CO_2 emission factor in year y (tCO_2/MWh)
$EF_{grid,BM,}y$	Build margin CO_2 emission factor in year y (tCO_2/MWh)
ω_{OM}	Weighting of operating margin emissions factor (%)
ω_{BM}	Weighting of build margin emissions factor (%)

The following default values are used for ω_{OM} and ω_{BM}, according to the Tool: Since for the proposed project Operating Margin and Build Margin emission factors are fixed for the duration of the second~~first~~

7-year crediting period, the baseline emissions factor is also fixed for the second~~first~~ 7-year crediting period and calculated as:

$EF_{grid,CM,y}$ = (1.~~1169~~0580x 0.75) + (0.~~8687~~5410 x 0.25) = **~~1.0548~~0.92875tCO$_2$/MWh**

Where the baseline emissions (BE_y in tCO_2) are the product of the baseline emissions factor ($EF_{grid,CM,y}$ in tCO_2/MWh) times the net electricity supplied by t he project activity to the grid (EG_y in MWh), as follows:

$$BE_y = EG_{PJ,y} \times EF_{grid,CM,y} = EG_{facility,y} \times EF_{grid,CM,y}$$

~~$BE_y = EG_y \times EF_{grid,CM,y}$~~ （9）

Where:

BE_y =Baseline emission in year *y* (tCO_2/yr)

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr)

$EG_{facility,y}$ =Electricity supplied by the project activity to NCPG in year *y* (MWh/yr)

$EF_{grid,CM,y}$ =Combined margin CO_2 emission factor of NCPG in year *y* (tCO_2/MWh)

Therefore, $BE_{y=}$=~~1.0548~~0.92875~~*~~*110, 900=**1~~1602~~,9~~9~~8~~2~~ **tCO$_2$e**

2. Project emission (PE_y)

According to ACM0002, as a renewable energy activity, PE_y of the proposed project is zero.

3. Leakage (L_y)

According to ACM0002, no leakage is considered for the proposed project.

4. Emission Reduction (ER_y)

The proposed project activity mainly reduces carbon dioxide through substitution of grid electricity generation from fossil fuel power plants by renewable electricity. The emission reduction ER_y by the project activity during a giving year y is the difference between baseline emission (BE_y), project emissions (PE_y) and emission due to leakage (L_y), as follows:

$$ER_y = BE_y - PE_y \quad (10)$$

Therefore, $\boldsymbol{ER_y}$= 1~~1~~602,9~~9~~8~~2~~-0-~~0~~=1~~1~~602,9~~9~~8~~2~~ **tCO$_2$e/y**

B.3. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered VER project activity:

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Additionality argument for the Proposed Project

The feasibility study report of the proposed project showed the project's financial returns to be low without carbon revenue[6]. Due to the low tariff and the uncertainty presented by windfarms in China, Honiton was (and to date still is) unable to obtain bank loans for the project and Honiton was pursuing Carbon financing all along with the developing of the windfarm. The project has not been previously publicly announced to go ahead as a normal project. In the first instance, Honiton intent to develop this project as CDM eagerly and Honiton even drafted a CDM-PDD in October 2006[7] and began negotiating with several carbon development consulting companies including Camco to develop the proposed project as a CDM project, through whom the project owner discovered that it is not eligible to be a CDM project owner under current Chinese DNA rules, since it is not a majority-owned Chinese company. Wishing to benefit from CER revenue, the project owner investigated this rule and the possibility of undertaking with a Chinese Partner to make it eligible for applying CDM. Once it realized that its only carbon financing option would be to develop the project for the voluntary carbon market, the project owner resumed its negotiations with Camco and signed a carbon asset development agreement in September 2007 to develop the proposed project as Retroactive Gold Standard VER project. The following table illustrates milestones of the development of the proposed project:

Table 4 Milestones of the development of the proposed project

Time	Project Implementation Activities	Carbon Financing Application Activities
2005.04	EIA report finished	
2005.05	EIA approval obtained	
2006.06	FSR was finished with a total investment of 501.23 million RMB with Carbon Revenues included.	
2006.07		Began negotiating with CDM development and began writing CDM-PDD
2006.08	Won the bidding of developing the proposed project with a tariff of 0.548RMB/KWh within 30000h	
2006.10		CDM-PDD was completed and Contacted CAMCO (The emails are submitted to DOE)
2007.01		First round of stakeholder consultation undertaken
2007.04	FSR approval obtained	
2007.04	Began construction	
2007.05	Turbine Contract Signed	
2007.07	Adjusted FSR was finished with a total investment of 551.33 million RMB	
2007.09		CADA signed with CAMCO to develop this project as GS-VER project
2007.09		Documents Submitted to GS-TAC for pre-assessment
2007.11	Adjusted FSR approval obtained	
2007.11		Got Confirmation from GS-TAC that the

[6] The spreadsheet of the feasibility report

[7] From project owner

		proposed project can apply retroactive GS as a VER project provided that all the points mentioned in the pre-assessment outcome are undertaken.
2008.01	Project began Operational	
2008.01		Contract signed with SGS, PDD was on SGS website for two months global stakeholder consulting.
2008.01		Second round of stakeholder consultation undertaken according to GS requirements
2008.06	Validation and Verification site visit of this project undertaken	Validation and Verification site visit of this project undertaken

As per the Tool for the demonstration and assessment of additionality, the following steps are taken to demonstrate the additionality of the project.

Step 1: Identification of alternatives to the project activity consistent with current laws and regulations

Sub-step 1a: Define alternatives to the project activity
The demonstration about the alternative that provides outputs or services comparable with the proposed GS-VER project activity is as follows:

a) The proposed project activity NOT undertaken as a GS-VER project activity.
b) The thermal power plant with the comparable capacity or electricity generation.
c) Commercial renewable power plant of equivalent capacity to the proposed project NOT undertaken as a GS-VER activity.
d) Comparable capacity or electricity generation addition provided by NCPG.

Scenario a) The proposed project will face investment barriers if not taken as a GS-VER project, as discussed in Step 2, and the proposed project activity not undertaken as a GS-VER project activity is not a realistic alternative.

Scenario b): Thermal power plant with the comparable capacity or electricity power generation. If taking the capacity with the same annual generation, according to the current laws and regulations, it is not realistic alternative (please refer to the analysis in sub-step 1b).

Scenario c): Besides wind energy, solar PV, geothermal, biomass and hydro are the possible grid-connected renewable energy technologies that could be applied in China. Due to the technology development status and the high cost for power generation, solar PV, geothermal and biomass of the similar installed capacity as the proposed project are alternatives far from being attractive investments on the grid in China. Only hydropower projects have the investment return rate that can compete with that of wind power projects in China.However, there are no attractive, exploitable hydro resources in Inner Mongolia[8] and there are no existing hydro power plants near the proposed project site[9], therefore, it will not be feasible to build a hydro power plant onsite. Solar power generation is only at an infant stage and

[8] http://www.nmgslw.gov.cn/jthtm/slgc-1.htm
[9] http://www.nmgslw.gov.cn/jthtm/slgc-7.htm

there are several demonstration Solar Photovoltaic Generation projects[10], which are exclusively for household users and the capacity is too small. Therefore scenario c) is excluded to be the possible baseline scenario alternative.

Scenario d): According to the regulation and policies currently governing the Chinese power market, the North China Power Network will have to guarantee power to meet the demand of the growing industrial and commercial sectors of the region. Therefore it can be considered the project baseline.

Therefore, only **Scenario** d) is considered to be the realistic and reliable baseline scenario alternative of the project activity.

Sub-step 1b: Consistency with mandatory laws and regulations

For **Scenario b)** described in sub-step 1a, the expected capacity factor for the proposed wind project is approximately 29%. Modern coal fired power plants generally reach capacity factors of nearly twice as much, whereas oil fired or gas fired power plants have even higher capacity. This means that fossil fuel-fired power plants with annual power output comparable to the proposed project would have half or lower capacity than the proposed project (25 MW or lower). According to Chinese regulations[11], newly built-up coal-fired power plants of less than 135MW are strictly limited and controlled. Therefore, Scenario b) cannot be considered to be the project baseline and should be excluded.

The other alternatives described in sub-step 1a are all in compliance with applicable legal and regulatory requirements as required by the methodology used. However, only comparable capacity or electricity generation addition provided by Northeast Power Grid is a realistic alternative consistent with current laws and regulations.

In conclusion, scenario d) is the baseline scenario.

Step 2: Investment analysis

Sub-step 2a. Determine appropriate analysis method
The proposed project activity generates financial benefit through the sales of electricity, so the simple cost analysis (Option I) should not be applied. The investment comparison analysis (Option II) is suitable for a project which has a similar type alternative project. The alternative of the proposed project is comparable capacity or electricity generation addition provided by NCPG, not a concrete project, so Option II is not suitable, either.
Therefore, the benchmark analysis (Option III) is adopted.

Sub-step 2b: Option III Apply Benchmark Analysis

With reference to Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects, issued by the former State Power Corporation of China, there is not an official IRR benchmark for China's power generation industry. However the project IRR shall not be lower than 8% considering economic assessments of hydropower projects, fossil fuel fired projects, transmission and substation

[10] http://61.138.111.231/nmgfgw/html/2006-11-9/200611991400.htm

[11] Notice on Strictly Prohibiting the Illegal Installation of coal-fired Generators with the Capacity of 135MW or below issued by the General Office of the State Council, Guo Ban Fa Ming Dian decree No. 2002-6.

projects, especially the interest rates of commercial loans over five years[12]. This has become a well acknowledged benchmark for power projects and specifically for new investment in wind power generation and has been adopted in this analysis to demonstrate the proposed project activity's financial additionality.

Sub-step 2c: Calculation and comparison of financial parameters:

1. Parameters and Assumptions

The major parameters and assumptions are listed in the following table to calculate the financial parameters of the Project.

Table 5 Parameters and Assumptions for Financial Assessment

Parameter	Value	Unit	Source
Installed capacity	50	MW	FSR, p140
Net power generation	110,900	MWh	FSR, p140
Construction period	1	year	FSR, p137
Operation period	24	year	FSR, p137
Electricity tariff(inclusive VAT) within 30,000 operational hours	0.548	RMB /kwh	FSR, p140
Electricity tariff(inclusive VAT) After 30,000 operational hours	0.257	RMB /kwh	FSR, p140
Total Fixed assets investment	500,833	RMB million	FSR, p141
Working capital	0.4	RMB million	FSR, p140
O & M	7.31	RMB million	FSR, p142
Depreciation rate	6.67%		FSR, p137
Income tax	15%		FSR, p138
VAT	8.5%		FSR, p138
Construction surcharge	5%		FSR, p138
Education surcharge	3%		FSR, p138
GS VER Price	70	RMB/t CO_2	Estimated

Approved FSR of this project was completed in June 2006 by "Inner Mongolia Electrical Power Survey & Design Institute", which is an independent organization and is certified to compile design reports for windfarm projects with the highest grade A issued by the Construction Bureau of Inner Mongolia Province[13]. Therefore, the FSR of this project can be considered as an independent and realistic assessment of the proposed project activity, including the parameters listed and used as input values in the IRR calculation of the PDD for requesting registration.

[12] State Power Corporation of China: Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects. Beijing: China Electric Power Press, 2003.

[13] http://www.nmdsy.com/Default.aspx?tabindex=2&tabid=15

All the input values are cited from FSR even the estimated Carbon Revenue as the project owner considered Carbon incentive as early as the FSR writing period.

The tariff in the FSR is the same as what is in the PPA, because this project is a concession project and the tariff in FSR is the bidding tariff which is approved by the DRC of Inner Mongolia and it is written clearly on the approval of the project.(please see the attached" Notice on winning the bidding"[14], "the approval of the project by DRC of Inner Mongolia[15]" and "the PPA[16] " , the tariff mentioned in the three documents are same as the tariff in PDD, namely:_

1) Power price of the first phase: on-grid power price when the time of the wind farm runs at equivalent full load is less than 30000 hours (calculated according to rated capacity), the tariff is 0.548RMB/Kwh including VAT.
2) Power price of the second phase: the average on-grid power price of the electric power market at that time is the on-grid power price from the time when the wind farms runs at equivalent full load exceeds 30000 hours to the end of concession period.

With an operational hour of 2218 h per year, it will be year 15 after 30000 hours' operation, that is when we use 0.257RMB/kwh since year 16(year 15 is a weighted average tariff of 0.548 and 0.257,see the IRR spreadsheet). The on grid tariff in Inner Mongolia in year 2005 is 0.257RMB/kwh[17]and there is no change so far.

In order to demonstrate the appropriateness of the input values in the IRR calculation, the key input values from FSR will be cross checked using the actual data or reference to the conditions of available documents for similar project activities.

	Value in FSR	Actual Value	Comment
Net Power Generation	110,900 MWh	The project began operational from January 7th 2008. the net power generation from January 7th 2008 to November 31st 2008 is 78,249.754MWh	The net power generation in the FSR is calculated based on wind resource data of 47years (1954~2000) in the nearby Damaoqi weather station real monitoring on site from April 2005 to March 2006 , so dramatically change of electricity generation of the project in the whole crediting period will rarely happen. Therefore, the value of net power generation from FSR is reasonable to be used for IRR calculation.
Grid tariff	0.548RMB/k	0.548RMB/kwh within	The tariff in FSR and in PPA

[14] Notice on winning the bidding

[15] Approval of the project issued by DRC of Inner Mongolia

[16] Relevant paragraph in PPA to demonstrate the tariff

[17] http://www.nmpi.gov.cn/jgzz/jgzz_060902.htm

	wh within 30000hours, 0.257RMB/kwh after 30000hours, including VAT	30000hours, the average on-grid power price of the electric power market at that time is the on-grid power price after30000, including VAT	within30, 000h is the same. The on grid tariff in Inner Mongolia in year 2005 is 0.257RMB/kwh and there is no change so far. Therefore, the tariff used in the FSR is reasonable.
Total investment	501,230,000 RMB	The total investment increased from 501,230,000RMB to 551,330,000RMB which is approved by DRC of Inner Mongolia in November 2007[18]	The actual investment is far higher than the designed total investment in the FSR and even higher than the approved adjusted total investment 551,330,000 RMB, therefore, the total investment used in IRR calculation is more conservative.
Annual operational cost	RMB 7.31 million Yuan	To be announced	The annual overhaul cost and insurance fee in the FSR are based on the power industry statistic data. The employee's number and salary, welfare and housing fund in the FSR are based on the marketing survey and the similar projects nearby. As the shortage of the technicians on wind farms, the salary and welfare is higher than the number in FSR. Besides, along with a rapid economic development, China has been experiencing rising labour and material costs[19]. Therefore, the annual operational costs from the FSR used in IRR calculation of PDD are more conservative.

2. The main result of financial parameter calculation

The financial parameters obtained based on the above parameters are presented in the following Table. Without VER revenue, the project IRR is only 6.06%. As this is lower than the benchmark, the proposed Project cannot be considered financially attractive.

With an assumed GS-VER price of 70RMB/tCO_2, the Project IRR is 8.21%, reaches the benchmark. Therefore, the implementation of VER raise the IRR to the benchmark and the strengthened cash flow will bring the project owner additional financial support and will help to alleviate the financial barriers to undertaking the project.

[18] A letter from DRC of Inner Mongolia to show that the Investment is bigger than the approved one

[19] http://finance.jrj.com.cn/news/2008-03-28/000003465715.html

Table 6 Results of the Financial Analysis of the Project

	Project IRR	Benchmark
Without the VER revenue	6.06%	8%
With VER revenue	8.21%	

In IRR calculation, the fixed input values were used by the project owner for the electricity tariff and O&M costs for the whole operation period. This is required by the national criteria. According to <Methods and Parameters> which is the national guidance for evaluation of new investments and is also the guidance for Design Institute to conduct the FSR[20], the tariff rates for both output and input values should be predicted at the beginning of the operation period and that these predictable tariff rates will be fixed and applied throughout the operation period. This is due to the fact that the operation period is long and it is difficult to predict the inflation rate and the outcome of that rate[21].

Also in China, the electricity tariff is controlled by China government and it is hard for project owner to forecast the future electricity tariff rate and inflate rate for the O&M cost. The electricity tariff is related tightly to the national economy. The Government will only raise tariffs when it is absolutely necessary and therefore when the costs of power production have increased sufficiently to justify an increase. The power tariff is increased only due to the rise in operation costs (such as coal price, labour, transportation and interest rates) of the power generators. Because of fears that it could further drive up inflation and as a developing country it is important to keep prices down to ensure affordability across society[22]

Moreover, the published sector benchmark is based on the assumption of application of fixed input value. Compared to such a benchmark, the same assumption in the IRR calculation should be applied.

As such fixed input values were applied by the project owner for the electricity tariff and O&M costs. These were applied in the calculation of the IRR over the whole operation period in FSR by the Design Institute.

Sub-step 2d: Sensitivity analysis:
The sensitivity analysis is to show that if the financial attractiveness of the proposed project is robust to reasonable variations in the critical assumptions, in other words, if investment analysis could consistently supports the conclusion that the Project is unlikely to be financially attractive.

As the power tariff rate is priced and fixed within the 30,000 hours in PPA, which does not fluctuate as market during that periods. The tariff after 30,000 operational hours will be priced according to the average on-grid tariff in Inner Mongolia. Therefore, the tariff after 30,000 operational hours is included in the sensitivity analysis. The following four parameters are considered in the sensitivity analysis:
:

1. Total fixed assets investment
2. Power Output
3. Operation and Maintenance Costs

[20] P84 Method and Parameters (Version 3), published by the NDRC and the Ministry of Construction of China, 2006

[21] P84 Method and Parameters (Version 3)

[22] http://www.ndrc.gov.cn/xwfb/t20050628_27624.htm

4. Tariff after 30,000 operational hours

The results are shown in Table 7 and Figure 2 below.

Table 7 Results of the Sensitivity Analysis of the Project IRR

	-10%	-5%	0	5%	10%
Total fixed investment	7.68	6.84	6.06	5.35	4.68
Annual generation	4.51	5.30	6.06	6.81	7.54
Annual O&M cost	6.30	6.18	6.06	5.95	5.83
Tariff after 30000h	5.86	5.96	6.06	6.16	6.26

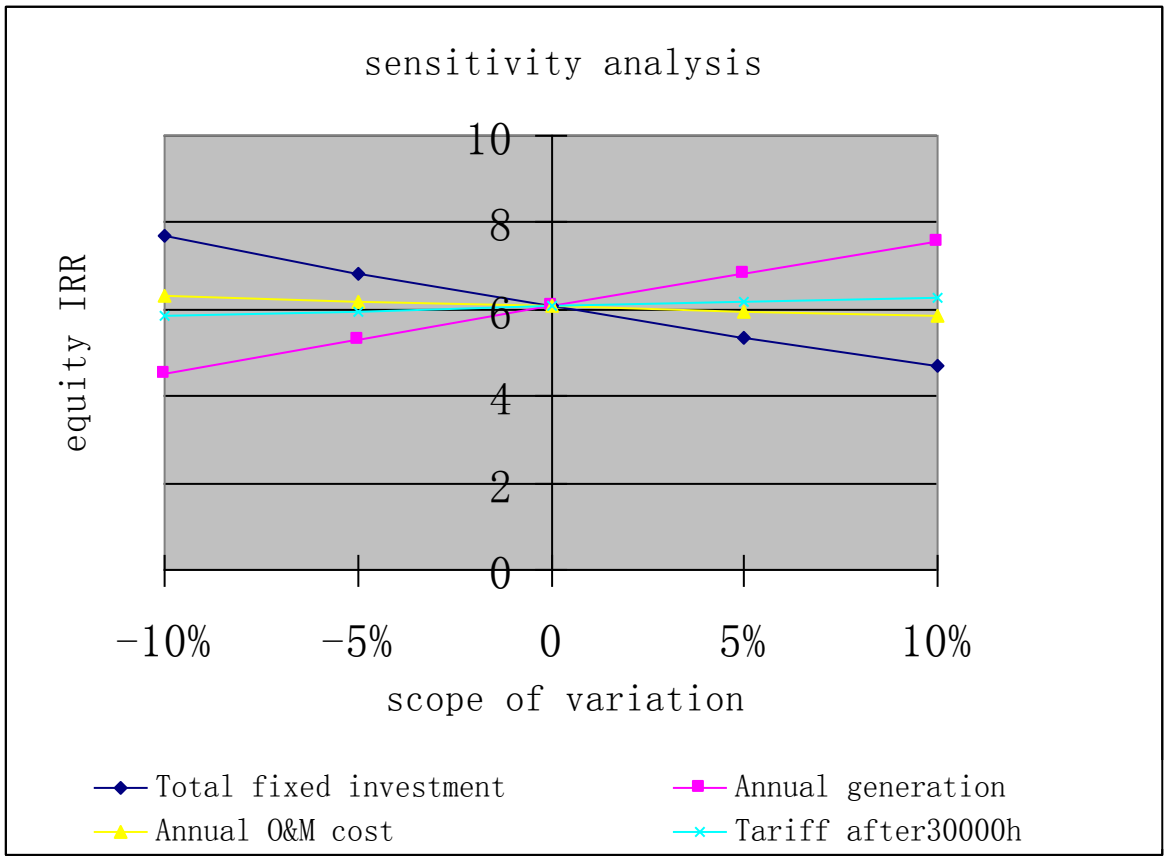

Figure 2 Sensitivity of the project IRR

The sensitivity analysis shows that the project is particularly sensitive to power output and the construction investment. However, even with a 10% rise in the estimated power output or 10% decrease in the construction investment, the project IRR remains below the benchmark.

In conclusion, if the critical parameters vary within a reasonable range, the IRR of the Project remains lower than the benchmark. The sensitivity analysis confirms that the Project is not financially attractive.

Step 3: Barrier analysis
Barrier analysis is not adopted for the Project which satisfies the requirement of the Tool for the Demonstration and Assessment of Additionality.

Step 4: Common practice analysis

Sub-step 4a: Analyse other activities similar to the proposed project activity

Table 8 below shows the wind farms which were installed before 2004 in Inner Mongolia.

Table 8 Windfarms Installed in Inner Mongolia before 2004 in Inner Mongolia Autonomous Region [23]

Location	Commission date	Manufacturer	Diameter and Power (m-kW)	No. of WTG	Capacity (kW)	Comments
Sonid Youqi Zhurihe	1989.12	USW	18-100	5	500	small scale
	1993.09.	HSM-250T	28-250	4	1000	small scale
	1994.12.	Bonus-HEEW	19-120	10	1200	small scale
	1994.11.	Nordtank	31-300	3	900	small scale
	2000.11.	MADE	32-330	10	3300	small scale
Shangdu Dashanwan	1994.12.	Nordtank	31-300	12	3600	small scale
Xilinhot Baoligensh an	1995.12.	HSM-250T	28-250	4	1000	small scale
	2000.11.	MADE	32-330	6	1980	small scale
	2003.04.	Wandian	46-600	3	1800	small scale
Qahar Youyi Zhongqi Huitengxile	1996.10. 1997.10.	Micon	43-600	9 33	5400 19800	5.4MW wind project is helped with soft loan from Denmark government; another 19.8MW is supported as Shuangjia Demostration Project by SETC[24]
	1997.12.	Zond	40-550	10	5500	Loan from Export-Import Bank of the

[23] Shi Pengfei, CREIA, 2006 China National Wind Capacity Statistics.

[24] http://www.nwtc.cn/Article/ShowArticle.asp?ArticleID=814

						United States, and small scale project[14]
	1998.12.	Vestas	44-600	9	5400	Loan from Export-Import Bank of the United States[14], and small scale project
	1999.04.	NEG Micon(UK)	48-600	1	600	small scale
	2000.01.	Wandian	46-600	1	600	small scale
	2002.01.	Nordex	43-600	9	5400	small scale
Hexigten Qi Dali	1999.04. 1999.12	Nordex NEG-Micon	43-600 48-750	2 7	1200 5250	5.25MW project is helped with soft loan from Dutch government; and small scale project[25]
	2001.12.	Yituo-MADE NEG-Micon	46-660 48-750	6 13	3960 9750	3.6 MW project is Chengfeng Plan Demonstration Project supported by State Plan Commission; 9.75MW project is demonstration Project supported by State Economic and Trade Commission[15]
	2003.12.	Goldwind	43-600	17	10200	Demonstration Project supported by national debt fund[15]

[25] http://www.gd.xinhuanet.com/newscenter/ztbd/2007-10/18/content_11435955.htm

It can be seen from the above Table that before 2004, there were very few wind farms in Inner Mongolia Autonomous Region. Nearly all are small scale projects with capacity lower than 15MW, and lower investment requirements. Many received assistance from soft loans or were financially supported by the Chinese government. Some are demonstration projects. What is more, none of them used Sulzon equipment.
In conclusion, there is no similar project to the proposed projects before year 2004 in Inner Mongolia Autonomous Region.
Table 9 shows the wind farms that were installed between 2004 and 2006 in Inner Mongolia Autonomous Region.

Table 9 Wind farms Installed in Inner Mongolia Autonomous Region from 2004 to 2006[26]

Year Installed	Name	dia,-pwr. (m-kW)	Capacity (kW)	Number of Turbines	Comments
2004.04.	Hexigten Qi Dali NEG Micon	48-750	21000	28	Addition of the former projects .Demonstration Project supported by national debt fund[15]
2004.05	Huitengxile (NEG Micon)	52-900	10800	12	This project is being financed through the CDM[27]
2004.11	Huitengxile (GE Wind)	70-1500	15000	10	This project is being financed through the CDM[16]
2005.10	Hexigten Qi Saihanba (Vestas)	52-850	30600	36	This project is being financed through the CDM[16]
2006.12	Hexigten Qi Saihanba (Vestas)	52-850	90100	106	
2006.12	Songshan Qu Dongshan (Vestas)	52-850	49300	58	This project is being financed through the CDM[16]
2006.12	Zhouzi Bayinxile (Suzlon)	64-1250	12500	10	This project is being financed through the CDM[16]
2006.12	Sonid Youqi Zhurihe (Sinovel)	70-1500	7500	5	Small scale
2006.12	Qahar Youyi Zhongqi Dadonggou (Sinovel)	70-1500	19500	13	Part of the "Huadian Inner Mongolia Huitengxile 100.25MW windfarm" project[28] which has applied for CDM financing[16].
2006.12	Qahar Youyi Zhongqi Dayangpuzi (Goldwind)	48-750	59250	79	Applying For CDM financing

[26] Shi Pengfei, CREIA, 2006 China National Wind Capacity Statistics

[27] http://cdm.unfccc.int/index.html

[28] www.cwp-om.com/html/fdc/gnwfdc/200812/15-107.html

2006.10	Ongniud Qi Sunjiaying (Goldwind)	48-750	100500	134	Applying For CDM financing
2006.11	Xin Barag Youqi Alatanemole (Dongqi)	70-1500	4500	3	Small scale

Table 9 above shows that all of the projects implemented between 2004 and 2006 applied for CDM financing or enjoyed other forms of financial assistance, with the exception of two very small scale projects whose investment requirements and risk profiles cannot be considered comparable to the proposed project activity, besides, it can be seen that only one project Zhouzi Bayinxile among the 12 projects installed between 2004 and 2006 used Suzlon manufacturer, which is also applied for CDM financing.

Therefore, there is no similar project to the proposed projects between 2004 and 2006 in Inner Mongolia Autonomous Region.

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

Sub-step 4a shows that there are no comparable projects to the proposed project in the Inner Mongolia province Autonomous Region.

B.4. Description of how the definition of the project boundary related to the baseline methodology selected is applied to the project activity:

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According to the latest version of ACM0002,the emission sources and GHGs in the project boundary are as follows:

Table 10 Emission sources and GHG included in the project boundary

Source		Gas	Included	Justification/explanation
Baseline	CO_2 emissions from 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 for simplification. This is deemed a conservative measure.
		N_2O	No	Excluded for simplification. This is deemed a conservative measure.
Project activity	For geothermal power plants, fugitive emissions of CH_4 and CO_2 from non-condensable gases contained in geothermal steam	CO_2	No	Not applicable
		CH_4	No	Not applicable
		N_2O	No	Not applicable
	CO_2 emissions from combustion of fossil	CO_2	No	Not applicable
		CH_4	No	Not applicable

Source		Gas	Included	Justification/explanation
	fuels for electricity generation in solar thermal power plants and geothermal power plants	N_2O	No	Not applicable
	For hydro power plants, emissions of CH_4 from the reservoir	CO_2	No	Not applicable
		CH_4	No	Not applicable
		N_2O	No	Not applicable

	~~Source~~	~~Gas~~	~~Included?~~	~~Justification / Explanation~~
~~Baseline~~	~~CO_2 emissions from electricity generation in fossil foul fired power that is displaced due to the project activity~~	~~CO_2~~	~~Yes~~	~~Main emission source~~
		~~CH_4~~	~~No~~	~~Exclude from simplification. This is conservative.~~
		~~N_2O~~	~~No~~	~~Exclude from simplification. This is conservative.~~
~~Project Activity~~	~~On-site fossil fuel energy consumption~~	~~CO_2~~	~~No~~	~~According to ACM0002, the project emission of renewable energy project activity is not considered.~~
		~~CH_4~~	~~No~~	~~According to ACM0002, the project emission of renewable energy project activity is not considered.~~
		~~N_2O~~	~~No~~	~~According to ACM0002, the project emission of renewable energy project activity is not considered.~~

The spatial extent of the project boundary includes the wind farm project site and all power plants physically connected to the North China Power Grid that the wind farm is connected to.

The North China Power Grid is the project electricity system, which is defined by the spatial extent of the power plants that can be dispatched without significant transmission constrains. The electricity transmission between different provinces in the North China Power Grid is very large and it is not appropriate for the proposed project to regard the provincial power grid as the project boundary. So the North China Power Grid is the project electricity system.

B.5. Details of baseline information, including the date of completion of the baseline study and the name of person (s)/entity (ies) determining the baseline:

>>

The baseline study and monitoring methodology for the project was completed on 01/01/2008.

Organisation	Is organisation a Project Participant *Yes/No*
~~Sun Li~~Zhang Yuzhong Camco ~~International Limited~~Voluntary Credits Limited Rm1819 Rongjinglidu Tower A, No.3 Rongjing East Street~~Room 906, Lucky Tower A, No. 3 North Road,~~	No

~~East 3rd Ring Road, Chaoyang District~~, Beijing Economic-Technological Development Area Beijing 100~~027~~171, China Tel: (86 10) 8448 3~~025/3049/1385/~~1623 Fax: (86 10) 8448 ~~2499/~~2432 email: ~~Lilian.sun~~zhang.yuzhong@camcocleanenergy.com~~global.com.cn~~ WWW: www.camcocleanenergy~~global~~.com~~.cn~~	

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:

>>
20/04/2007/ (Construction start date)

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

>>
24years

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

>>
A renewable crediting period has been selected for the project.

C.2.1. Renewable crediting period

>>

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

>>
The ~~first~~ second crediting period starts ~~with~~ on the date 07th January 2015 ~~commissioning of the windfarm, 7th January 2008~~

C.2.1.2. Length of the first crediting period:

>>
7years, 0 months

C.2.2. Fixed crediting period:

>>

C.2.2.1. Starting date:

>>
Not applicable

C.2.2.2. Length:

>>
Not applicable

SECTION D. Application of a monitoring methodology and plan

D.1. Name and reference of approved monitoring methodology applied to the project activity:

>>

Approved Monitoring Methodology ACM0002 (Version ~~07~~16.0), which is the consolidated monitoring methodology for grid-connected electricity generation from renewable sources, is applied.

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

>>

Application of this methodology is justified because:

- the project activity is connected to the grid and information on its characteristics is available
- electricity generation from the wind energy sources
- this is not a fuel-switch project

D.2. 1. OPTION 1: Monitoring of the emissions in the project scenario and the baseline scenario

As all the necessary baseline emission factors are all defined ex ante(Operational and Built Margin, see baseline description), the only parameter that needs to be monitored is the annual amount of electricity delivered to the NCPG by the proposed project.

D.2.1.1. Data to be collected in order to monitor emissions from the project activity, and how this data will be archived:

ID number *(Please use numbers to ease cross-referencing to D.3)*	Data variable	Source of data	Data unit	Measured (m), calculated (c) or estimated (e)	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic/ paper)	Comment

Left blank on purpose, as the proposed project activity is a zero-emission generating activity.

D.2.1.2. Data to be collected in order to monitor project performance on the most sensitive sustainable development parameters:

ID number *(Please use numbers to ease*	Sustainable Development Parameter	Data type	Data variable	Data unit	Measured (m), calculated (c) or estimated (e)

cross-referencing to D.3)					
ID1	*Employment(number)*		*Number of employment created by the project*		*M;* *monitored by the Monthly salary payment sheet*
ID2	*Employment(quality)*		*Qualitative value of the employment*		*M;* *Monitored by Training record and the welfare which can be shown on the salary payment sheet*
ID3	*Soil Condition*		*The remediation measures taken and the outcome produced*		*M;* *Monitored by independent institute or consulting company's report in which the re-seeding measures taken and outcome produced for the area surrounding the excavation will be discussed* *This parameter will be monitored annually until the project has obtained the final acceptance on environment protection issued by the local authorities (Normally the local Environmental Protection Bureau) officially which means that the remediation outcome is satisfactory and accepted and thus the monitoring of this parameter is finished..* *The issue was closed during the first verification. Therefore, the parameter needs not being monitored during the second crediting period.*
ID4	Human and institutional capacity		*Number of English teachers provide by the project owner and how many children get benefit from this*		*M;* *Monitored by contract from Honiton and the Teacher and salary payment sheet and the attendance or the roll-in list of the children.*
ID5	Water quality		*Whether the waste caused by personnel is properly treated*		*M:* *Checked by independent institute or consulting company whether the waster water treatment*

					facility is on site and in operation. *Monitored by independent institute or consulting company about the quality of the effluent, eg: the COD value* *As the water quality is not an issue raised in the EIA and to cut unnecessary cost for this financially unattractive project, this monitoring data for this parameter can be only available for the first verification if the monitoring data shows that water quality is below relevant nation standards.* *The issue was closed during the first verification. Therefore, the parameter needs not being monitored during the second crediting period.*
ID6	Noise Pollution		*Whether the project will generate Noise that is above the national standards*		*M;* *Monitored by independent institute or consulting company about the noise level when the proposed project is in full operation.* *As the noise is not an issue raised in the EIA and to cut unnecessary cost for this financially unattractive project, this monitoring data for this parameter can be only available for the first verification if the monitoring data shows that the noise level is below relevant national standards.* *The issue was closed during the first verification. Therefore, the parameter needs not being monitored during the second crediting period.*
ID7	Grassland owner compensation fees		*Whether the project owner has paid the compensation fees to*		*Checked by independent institute or consulting company whether the grassland compensation fees are paid through the individual compensation*

			the Grassland owner who grassland is taken by the project		*agreements signed between the individual grassland owner and the project owner* *When it is verified that all the compensation fees are paid to the individuals for the loss of their grazing land , the monitoring of this parameter is finished;* *The issue was closed during the first verification. Therefore, the parameter needs not being monitored during the second crediting period.*

D.2.1.3. Description of formulae used to estimate project emissions (for each gas, source, formulae/algorithm, emissions units of CO2 equ.)

>>

Project emissions are zero.

D.2.1.4. Relevant data necessary for determining the baseline of anthropogenic emissions by sources of GHGs within the project boundary and how such data will be collected and archived :

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)	Comment

ID5.	*$E_{out,y}$:.The electricity supplied to the North China Power Grid by the proposed project*	*Electricity Meter*	*MWh*	*m*	*~~Hourly~~ Continuous measurement and monthly recording*	*100%*	*Electronic and paper*	*The data will be taken from the monthly meter readings in Honiton Bailingmiao Phase One Plant 220kv line. In the future when Honiton Energy Bailingmiao Phase Two Wind Farm Project delivers electricity to North China Power Grid, the data will be taken from the monthly meter readings in 35kv lines. Sales receipts will be used for double check.~~ Used to calculate the net electricity supplied to the grid by the project. This is in compliance with ACM0002 and conservative.*
ID6	*$E_{in,y}$: The electricity purchased from the North China Power Grid*	*Electricity Meter*	*MWh*	*m*	*~~Hourly~~ Continuous measurement and monthly recording*	*100%*	*Electronic and paper*	*The data will be taken from the monthly meter readings in Honiton Bailingmiao Phase One Plant 220kv line. In the future when Honiton Energy Bailingmiao Phase Two Wind Farm Project delivers electricity to North China Power Grid, the data will be taken from the monthly meter readings in 35kv lines. Invoice will be used for double check. Used to calculate the net electricity supplied to the grid by the project. This is in compliance with ACM0002 and conservative.*

ID7	*$E_{backup,y}$: The electricity purchased from the grid through the 10kV line*	*Electricity Meter*	*MWh*	*m*	*Hourly measurement and monthly recording*	*100%*	*Electronic and paper*	*The 10KV backup power supply will be available in site in the early time of the proposed project and the amount of electricity imported through this line will be checked by the invoice. Used to calculate the net electricity supplied to the grid by the project. This is in compliance with ACM0002 and conservative.*

D.2.1.5. Description of formulae used to estimate baseline emissions (for each gas, source, formulae/algorithm, emissions units of CO2 equ.)

>>

Baseline emissions are estimated by the following formula:

$BE_y = EG_{PJ,y} \times EF_{grid,CM,y} = EG_{facility,y} \times EF_{grid,CM,y}$ ~~$BE_y = EG_y \times EF_{grid,CM,y}$~~

Where:

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

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr)

$EG_{facility,y}$ =Electricity supplied by the project activity to NCPG in year *y* (MWh/yr)

~~EG_y = Net Electricity supplied by the project activity to the grid (MWh).~~

$EG_{facility,y} = EG_{PJ,y} = E_{out,y} - E_{in,y} - E_{backup,y}$

$EF_{grid,CM,y}$ = Combined margin CO_2 emission factor [tCO_2e/MWh] for grid connected power generation in year y

D. 2.2. OPTION 2: Direct monitoring of emission reductions from the project activity (values should be consistent with those in section E).

D.2.2.1. Data to be collected in order to monitor emissions from the project activity, and how this data will be archived:

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)	Comment

Not applicable

D.2.2.2. Description of formulae used to calculate project emissions (for each gas, source, formulae/algorithm, emissions units of CO_2 equ.):

>>

Not applicable

D.2.3. Treatment of leakage in the monitoring plan

Potential leakage emissions in the context of power sector projects are emissions arising due to activities such as power plant construction, fuel handling. However, according to the methodology, those emissions sources do not need to be taken into account.

D.2.3.1. If applicable, please describe the data and information that will be collected in order to monitor leakage effects of the project activity

ID number *(Please use numbers to ease cross-referencing to table D.3)*	Data variable	Source of data	Data unit	Measured (m), calculated (c) or estimated (e)	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic/ paper)	Comment

Not applicable

D.2.3.2. Description of formulae used to estimate leakage (for each gas, source, formulae/algorithm, emissions units of CO_2 equ.)

>>

Not applicable

D.2.4. Description of formulae used to estimate emission reductions for the project activity (for each gas, source, formulae/algorithm, emissions units of CO_2 equ.)

>>

Since the direct and indirect emissions from the project are both zero, the annual emission reductions from the project activity are equivalent to the annual emission of the baseline, namely $ER_y = BE_y$

D.3. Quality control (QC) and quality assurance (QA) procedures are being undertaken for data monitored

Data *(Indicate table and ID number e.g. 3.-1.; 3.2.)*	Uncertainty level of data (High/Medium/Low)	Explain QA/QC procedures planned for these data, or why such procedures are not necessary.
ID1	*Low*	Certificate stored electronically
ID2	*Low*	Certificate stored electronically

ID3	*Low*	Certificate stored electronically
ID4	*Low*	Certificate stored electronically
ID5, ID6,ID7	*Low*	The meters will be properly calibrated and checked periodically for accuracy. Monthly generation data will be approved and signed off the Operations Manager of the wind farm, before it is accepted and stored. The meters in Honiton Energy Bailingmiao Phase one Wind Farm Project will be cross-checked by the invoice from Baotou power supply company. This internal audit will identify potential improvements to procedures to improve monitoring and reporting in future years. If such improvements are proposed these will be reported to the DOE and only operationalised after approval from the DOE.

D.4. Please describe the operational and management structure that the project operator will implement in order to monitor emission reductions and any leakage effects, generated by the project activity

>>

Overall responsibility for monitoring and carrying out the monitoring following this monitoring plan lies with Honiton Energy (Baotou) Co., Ltd.

The Operations Manager of the wind farm, is responsible for the monitoring and reporting of the windfarm.

Honiton Energy (Baotou) Co., Ltd., in co-operation with the North China Power Grid Company, and existing windfarm experienced experts, and with the help of DOEs, will train the staff carrying out the monitoring work.

For more detailed information, please refer to Annex 4.

D.5 Name of person/entity determining the monitoring methodology:

>>

Organisation	**Is organisation a Project Participant *Yes/No***
Zhang Yuzhong Camco Voluntary Credits Limited Rm1819 Rongjinglidu Tower A, No.3 Rongjing East Street,	No

Beijing Economic-Technological Development Area Beijing 100171, China Tel: (86 10) 8448 3025/3049/1385/1623 Fax: (86 10) 8448 2499/2432 email: zhang.yuzhong@camcocleanenergy.com WWW: www.camcocleanenergy.com~~Sun Li~~ ~~Camco International Limited~~ ~~Room 906, Lucky Tower A, No. 3 North Road,~~ ~~East 3rd Ring Road, Chaoyang District,~~ ~~Beijing 100027, China~~ ~~Tel: (86 10) 8448 3025/3049/1385/1623~~ ~~Fax: (86 10) 8448 2499/2432~~ ~~email: lilian.sun@camcoglobal.com.cn~~ ~~WWW: www.camcoglobal.com.cn~~	

SECTION E. Estimation of GHG emissions by sources

E.1. Estimate of GHG emissions by sources:

>>

There are no emissions associated with production of electricity using wind energy in the project activity.

E.2. Estimated leakage:

>>

No leakage identified.

E.3. The sum of E.1 and E.2 representing the project activity emissions:

>>

The total project emissions are zero.

E.4. Estimated anthropogenic emissions by sources of greenhouse gases of the baseline:

>>

Based on the Feasible Study Report, the proposed project will generate some110,900 MWh electricity to the NCPG annually. The emission factor of the NCPG is ~~1.0548~~0.92875t CO_2 e /MWh. Therefore, the estimated baseline emission amounts to ~~116,982~~102,998tCO_2 e per year.

E.5. Difference between E.4 and E.3 representing the emission reductions of the project activity:

>>

As the total project emissions are zero, the emission reduction is equal to the baseline emission, namely **1~~16~~02,9~~9~~8~~2~~** tCO_2 per year and the total emission reduction in the first crediting period is **~~818,880~~720,986** tCO_2 e.

E.6. Table providing values obtained when applying formulae above:

>>

Year			Estimation of project activity emission reductions (tonnes CO_2e)	Estimation of baseline emission reduction (tonnes CO_2 e)	Estimation of leakage (tonnes CO_2e)	Estimation of emission reductions (tonnes CO_2e)
2015	7/Jan/15	31/Dec/15	0	101, 305	0	101, 305
2016	1/Jan/16	31/Dec/16	0	102, 998	0	102, 998
2017	1/Jan/17	31/Dec/17	0	102, 998	0	102, 998
2018	1/Jan/18	31/Dec/18	0	102, 998	0	102, 998
2019	1/Jan/19	31/Dec/19	0	102, 998	0	102, 998
2020	1/Jan/20	31/Dec/20	0	102, 998	0	102, 998
2021	1/Jan/21	31/Dec/21	0	102, 998	0	102, 998
2022	1/Jan/22	6/Jan/22	0	1, 693	0	1, 693
Total			0	720, 986	0	720, 986

~~Year~~	~~Estimation of project activity emission~~	~~Estimation of baseline emission~~	~~Estimation of leakage (tonnes~~	~~Estimation of emission~~

	~~reductions (tonnes CO_2 e)~~	~~reduction (tonnes CO2 e)~~	~~CO_2 e)~~	~~reductions (tonnes CO_2 e)~~
~~07/01/2008~06/01/2009~~	~~0~~	~~116,982~~	~~0~~	~~116,982~~
~~07/01/2009~06/01/2010~~	~~0~~	~~116,982~~	~~0~~	~~116,982~~
~~07/01/2010~06/01/2011~~	~~0~~	~~116,982~~	~~0~~	~~116,982~~
~~07/01/2011~06/01/2012~~	~~0~~	~~116,982~~	~~0~~	~~116,982~~
~~07/01/2012~06/01/2013~~	~~0~~	~~116,982~~	~~0~~	~~116,982~~
~~07/01/2013~06/01/2014~~	~~0~~	~~116,982~~	~~0~~	~~116,982~~
~~07/01/2014~06/01/2015~~	~~0~~	~~116,982~~	~~0~~	~~116,982~~
~~Total(tCO_2e)~~	~~0~~	~~818,880~~	~~0~~	~~818,880~~

SECTION F. Environmental impacts

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

>>

In China, an EIA must be performed for every construction project and the EIA approval should be given by the government before the construction starts. The EIA of the proposed project has been completed by Baotou Boda Environmental Technology Development Co., Ltd and has been approved by the Environmental Protection Bureau of Inner Mongolia Autonomous Region. Below is a summary of the EIA and the environmental impacts are not deemed to be significant.

1. Ecosystem

- The vegetation within the assessment area have been confirmed to be common and widespread plant species, therefore, the disappearance of reasonable quantities of this vegetation during construction will not cause changes to the characterization of the vegetation community and biodiversity within the assessment area. Nevertheless, appropriate construction, installation and transportation will be arranged to minimize negative effects.
- During the construction, any habitat of wild animal that is found shall be avoided if to the extent that it is reasonable and feasible. It is forbidden to capture and hunt wild animals in this area.
- The construction area will be minimized. After construction is completed, the excavated soil will be used to as cover to remediate the area. The surrounding area will be re-seeded too.
- For birds, the project site is not their migration channel. Besides, the volume of the birds and the types of birds are extremely few in the site area; therefore, the chance of collision from birds on the wind turbines is very small. There is no impact on the birds in the proposed site area.

2. Noise

Noise during construction will be mainly caused by wind turbine on operation. Low noise wind turbine will be applied in this project to mitigate the noise effect. The impact of noise is thus not significant.

3. Waste water

During the project construction phase the daily use of water by the workers will be the composition of the waste water, which will be treated by integrative sewage treatment equipment. The disposed water will reach the standard and could be used to irrigate forest and plants and will not bring negative impact to environment.

4. Dust

Due to the comparative scattered construction sites including multiple function building, tower, electrical cable frame and channel, the ground dust will be generated and will thus impact atmosphere environment in limited scope. During construction period, water will be spilled in big windy day. The impact on the atmosphere from the project will occur mainly at the stage of construction and in a very limited scope.

5. Soil

The construction activity would have made some soil revealed in the air, however, due to lack of rain in this area, the impact on water and soil erosion is little. The EIA also shows that the project site was right and appropriate.

6. Radioactivity

There is no radioactivity pollution generated from the project.

F.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:

>>

Environmental impacts are not considered significant. The Environmental Protection Bureau of Inner Mongolia Autonomous Region has approved the EIA of the proposed project.

SECTION G. Stakeholders' comments

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

>>

Complementary Stakeholder Consultation for the second crediting period

In accordance with "Gold standard procedure for the renewal of a crediting period", *Project participants shall discuss if and why there is or is not a need to conduct a complementary stakeholder consultation for the renewal of the crediting period.*

The PP did not conduct a complementary stakeholder consultation for the renewal of the crediting period for the following reasons:

- There is no change to the project design during the first crediting period;
- The project has been operated in accordance with the registered PDD. There is no difference between the first crediting period and the second crediting period in terms of the project operation;
- The last stakeholder was held when the project was put into operation. All the concerns in addition to grassland compensation fee have been addressed during the last stakeholder consultation. The only remaining issue, grassland compensation fee, has been addressed or closed during the first verification.

For the First Round of Stakeholder consulting (ISC):
In the earlier January 2007, the staff from Honiton Energy (Baotou) Co., Ltd. voluntarily carried out a survey to seek the comments from the nearby community on the proposed project. 100 questionnaires were sent out, 87 copies were collected, and 78 copies were useful. The surveyees were from the nearby companies, schools, governments and local residents of the surrounding areas; the result of the survey indicated the support to the project (see Section G.2).Below is the soft copy of the original questionnaire:

Name		Sex		Age	
Residential Address			Company Name		
Education (tick √)	Junior high school□ senior high school□ technical secondary school□ university □ postgraduate□ others□				
occupation(tick√)	farmer□ worker□ cadre□ student□ teacher□ others□				
Honiton Energy Bailingmiao Phase one Wind Farm Project is located in the northwest of Bailingmiao Town, Baotou with a gross installed capacity of Bailingmiao Wind Farm is 50MW, it is recommended 1250kW WTGs be used in the wind farm. The participation and recognition of the public is a key basis for the construction of the project. To obtain sound economic, social and environmental effects and further understand the issues cared about by residents nearby, we carry out this survey. Thank you for your cooperation!					
1. Is your present living, working, and studying environment quiet?			Yes □	No□	Uncertain □
2. Do you think the construction will influence your surroundings? (air, noise and			Yes □	No □	Uncertain □

water)			
3. Does the construction exert negative influence on the life, work and study of your family? (if any, please specify on an attached sheet)	Yes □	No □	Uncertain □
4. Will the completion of the construction bring any positive influence on your life?	Yes□	No□	Uncertain □
5. During the construction and operation of the project, what is your most concerning problem?	Noise □	Air pollution □	Equipment safety □
	Sewage emission □	electromagnetism disturbance□	scene destroyed □
6. Are you in favour of the development and construction of the project?	Yes □	No□	Uncertain □
7. What measures do you think shall be taken to protect the environment during the construction and operation of the project?			
8. With regard to the project, do you have other suggestions or advice for the developer?			

Later on 18th January 2007, there were consultations carried out by the staff from Honiton Energy (Baotou) Co., Ltd. with the local government, which represents the local community on the third floor meeting room in the DaMao government Building. The purpose of this consultation meeting was to seek comments from the local government officials on the proposed project and discuss the concerns of the stakeholders from the questionnaires.

For the Second Round of Stakeholder consulting (MSC):

A main stakeholder meeting was held in January 2008 in accordance with Gold Standard requirements to confirm whether the stakeholders are satisfied with the project operation and whether they have further comments for the project owner regarding the operation during the full commissioning period.

The GS MSC consisted of a public meeting and the opportunity to give feedback to the project developer by email, phone or fax. The following groups of people were invited to attend the meeting and give comments on the project through email, call or sending posters:

- Chinese NGOs

Name of organisation	Response
Friends of Nature	No response
Global Environmental Institute	No response
Global Village Beijing	No response
Green Earth Volunteers	No response
Green Long March/ Future Generations	No response

- International NGOs that have endorsed the Gold Standard

Name of organisation	Response
Greenpeace	No response
Mercy Corps	No response

REEEP	REEEP East Asia Secretariat (CREIA) wrote back to ask Camco contact REEEP headquarters for permission and when the headquarter replied, there was no time for them to participate in the meeting. However, they kindly asked whether they could help to complete aquestionnaire, but as the questions are customized for local conditions, most of the questions they can't answer. Therefore, this questionnaire is not included for summarizing.
WWF	No response

➢ DOE

SGS will validate the proposed GS project and was emailed an MSC meeting invitation January 9th 2008. No response was received.

➢ Chinese GS expert

Email was sent to Chinese GS expert Mr. Dai Yuran ('yuran@cdmgoldstandard.org') January 9th 2008. No response was received.

➢ Local people directly impacted by the project

There are no people living within 500m from the Project site. There are 7 households within 5km whose land may be directly impacted by the project. The local residents in the community where the project is planned were invited to take part in the consultation and the public meeting by the following methods:

1. Posters announcing the meetings were placed in Damao County coach station, post office, main cross road and wind farm site.
2. The project owner telephoned the local residents from the 7 households who may be directly impacted by the proposed GS project directly to invite them to participate to the meeting. For the local residents whose phone numbers the project owner didn't have, the project owner asked the village government official to inform them and to invite them.

At least 1 person from each of the 7 households who may be directly impacted by the project attended the meeting. Some other local residents who do not live near the project site also participated in the meeting. In total, 29 local residents participated in the MSC meeting.

➢ Local government officials

The project owner sent invitations to the local officials directly. The local officials are from: Damao County Environment bureau, Windfarm management bureau, Development and Reform Committee, Commerce bureau, Land and Resources bureau, Construction bureau, Water Authority, Bailingmiao Government, Grassland supervising and management authority.

In total, 15 officials from Bailingmiao Government, Windfarm management bureau, Grassland supervising and management authority, Damao County Environment bureau and Development &Reform Committee attended the meeting and completed questionnaires.

➢ An independent local expert

Professor Cao Yun, who is the president of Inner Mongolia Electric Power University, is very familiar with the Power Generation industry as well as local conditions.
The project owner telephoned him and sent invitation to him directly.
He attended the meeting and gave an introduction to windfarm projects in China.

➢ The China Designated National Authority

The China DNA is the Office of the National Co-ordination Committee on Climate Change, part of the National Development and Reform commission. They were informed by email of the intention to develop the project as a Gold Standard VER project on Dec. 7, 2007. No response was received.

At the same time, the PDD of the project were published on SGS website for 2 month global stakeholder consultation since January 17, 2008 and there is no comments received. Please refer to the following website: http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/project.php?id=423

At the same time, the project owner also put the PDD on his own website for global stakeholder consultation, no comments were received, please refer to the following website: http://www.honitonenergy.com/chinese/resources/survey.php

For more detailed information, please see the MSC report.

G.2. Summary of the comments received:

>>

For the First Round of Stakeholder consulting:

1. Comments from the questionnaires

100 questionnaires were sent out, 87 copies were collected, and 78 copies were usable. As there are limited local residents living near the proposed project site, only around 10 people live with in 5km away from the site, most of the surveyees are from the companies, schools, governments and local residents of the surrounding areas in Balingmiao Town, which are quite far away from the project site. The following is a summary of the key findings:

- ✓ *With regard to"Will the completion of the construction bring any positive influence on your life",* 62 of the surveyees think it has positive impact on their life, accounting for 79.5%, while 3 of the surveyees think it has no impact on their life, accounting for 3.8% and 13 of the surveyees are not sure about the answer, accounting for 16.7%

- ✓ *With regard to "Does the construction exert negative influence on the life, work and study of your family",*
  55 of surveyees think it has no negative impact on their life, accounting for 70.5%, while
  21 of surveyees are not sure about the answer, accounting for 26.9% and 2 of surveyees think it has some negative impact on their life, accounting for 2.6%.

- ✓ *With regard to " Concerns about proposed project during construction and operation", the biggest concerns are :*
  Noise:36 of the surveyees are concerned about noise, accounting for 46.1%;
  Radioactivity:30 of the surveyees are concerned about radioactivity, accounting for 38.5%.

- ✓ *With regard to "Are you in favour of the development and construction of the project",*
  1 of the surveyees is not sure about whether to be for or against the proposed project, accounting for 0.01%;
  77 of the surveyees are for the construction of the proposed project, accounting for 99.9%.

The survey shows that the proposed project has strong support among the local people, as further evidenced by the local government support letter. The main concerns of the local residents are radioactivity and noise. The EIA shows that the noise levels would be within China national standards. The electromagnetic interference can be produced when the wind farm project is operating, but the power is low. What's more, the wind farm is far away from the residential area, so it will not have negative effects on the residents. Therefore, all these concerns are perhaps perceived problems rather than real ones. This is confirmed at the main stakeholder consultation that the noise and radioactivity have no negative impact on the stakeholder at all. Because on the main stakeholder meeting, the project has been on trial operational, the comments from the stakeholder are real and experienced. Even so, the developer

will enforce all measurements to keep a pleasant environment for local people and if any problem occurs during operation, they will work to resolve it.

2. Comments from the consulting meeting

As for the consultation meeting with the local government, they all approved the project. Following is a translation of the meeting minutes from the local government which shows that the proposed project is highly supported.

Comments from Local Government about the Honiton Energy Bailingmiao Phase one Wind Farm Project Honiton Energy Bailingmiao Phase one Wind Farm Project is located in Bailingmiao Town, Baotou City, Inner Mongolia Autonomous Region. We believe the construction and operation of the windfarm will increase the local tax contribution, and promote the development of related industries e.g. tourism and will create jobs for the town. Using local wind resources, the project will contribute to the sustainable development of this developing region. And as a green electricity project, this project will be an environment-friendly one, alleviate the power shortage and reduce carbon dioxide emission. As the local government, we fully support the development of the Bailingmiao. The People's Government of Baotou Municipal Dec 2006 Stamp

During the meeting with local governments, the concerns of the stakeholders were also discussed; the main concerns were explained and recorded in the meeting minutes as follows:

- ✓ The proposed project will generate some radioactivity, but it is quite low density and as the local residents live far away from the project site, it will not impact local stakeholders. The experience of other wind farms in operation shows that there is no impact on radio or TV.

- ✓ When the wind speed is high, the sound of the wind will cover the noise from the wind turbines. When wind speed is low, the noise from the wind turbines will attenuate quickly. The measurements from the Zhangbei Wind farm show that the noise is 39.5dB(A) at 250m distance from the wind turbine, which is lower than the noise standard during the day time of 55dB(A). At night, the standard is 45dB(A). It should also be noted that there are only 10 houses with in 500m-5000 meters away from the project site, while the householders are not living in the houses most of the time. The nearest household is about 500 meters away from the proposed project site. The noise from the operation of the windfarm should not adversely impact any stakeholders.

For the Second Round of Stakeholder consulting:

1. Comments from the questionnaires

29 copies of questionnaires were collected. Comments are summarized as follows:

Issue	Feedback
Noise impact on working and living	No negative scores
Radioactivity impact on TV	No negative scores
Impacts on grazing activities; 7 of the 29	No negative scores

interviewees indicated that they have grazing activities in the project	
Impacts on grasslands; 5 of the 29 interviewee's grassland are affected by the project	No negative scores
Biodiversity impact	No negative scores
Impact on the view due to wind turbines and generators.	No negative scores, and 20 positive scores.
Establishment of English school to be funded by the project owner for the local community	No negative scores, and 19 positive scores.
Impact on local economic development	No negative scores and 22 positive scores.
Project management and design	24 of the 29 interviewees are satisfied, and 5 of 29don't care.
Environmental protection measures of the project.	23 of the 29 interviewees are satisfied, and 6 of the 29 don't care.

We can see from the above that the noise and radioactivity concerns raised in the initial consultation are not worrying the local stakeholder anymore. On the main stakeholder meeting, the project has been on trial operational, so the comments from the stakeholder were real and experienced.

2. Comments from the consulting meeting

The questions from the stakeholders and the responses of Honiton are in the following table 3:

Questions from the stakeholders	***Response from Honiton***
1. when will the compensation fee be given to the grassland owner? Will it be given all at once or in multiple installments?	The compensation fees will be paid to the grassland owner by the end of the lunar year 2007(before February 6th 2008), to be paid all at once.
2. How will the area of grasslands used be calculated?	The actual area of the grassland used will be measured jointly by the farmers, Honiton and representatives from the government and the outcome of the compensation amount will be reported to the grasslands owner as soon as possible.

3. Comments from email, fax, or telephone

No comments were received by email, fax or telephone by the end of January 2008.

4. Comments from the global stakeholder consultation

No comments were received on the PDD during 2 months publication on SGS website and the project owner his own website.

For more information, please refer to the MSC report.

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

>>

For the First Round of Stakeholder consulting (ISC):

The questions and concerns from the public were clarified and responded to as follows:
The concerns from the stakeholder questionnaires were discussed in the consulting meeting with the local government officials d and the key points were recorded in the meeting minutes. (See G1and G2)
The project owner presented EIA report summary and the consulting meeting minutes to the local residents to explain the sound impact on the environment and living conditions, in addition, the project owner also stated that all prevention and control measures will be taken strictly following EIA report and the project owner will implement the project in a serious and responsive manner.

For the Second Round of Stakeholder consulting (MSC):

A poster giving the response by Honiton to the queries raised in the MSC meeting was made and has been posted in Damao County Coach station, post office, main cross road and wind farm site where the invitation posters were originally advertised.
The meeting minutes of the MSC is kept in a file copy. The project has been in operation since January 7th 2008, before the MSC meeting was held. Consequently, the stakeholders' feedback is based on their direct, actual experience with the project rather than anticipated experience. Both the comments from the course of the meeting and the summary of the questionnaires show that the project noise level, radioactivity, soil and biodiversity impacts and impact on the view/scenery is not a concern to stakeholders. Feedback shows that most the stakeholders believe the project will be beneficial to local sustainable development and that stakeholders are supportive of the project. The compensation fees have been given to the local residents already.
In conclusion, no changes will be made to the project design and Honiton will proceed, undertaking all environmental protection measures described during the MSC meeting.

G.4. Grievance Mechanism:

In accordance with the latest GS rules, "All projects submitted to GS after 31 December 2011, are required to apply the Grievance Mechanism. However, projects applying for renewal of crediting period can choose to opt for the Grievance Mechanism."

Thus, the PP chooses to adopt this mechanism, and will establish methods of continuous input & grievance expression for this project activity during the second crediting period. The following methods will be used for this project activity:

1. Continuous Input Process Book.

2. Telephone access
3 Internet/email access

Comments received through any of the Methods will be documented using the table template below.

Date	Comment	Action requested from project	Response from project	Person designated with responsibility by project	Issue resolved?

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY

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Annex 2

BASELINE INFORMATION

According to the approved methodology ACM0002 and the "Tool to calculate the emission factor for an electricity system", the $EF_{grid,CM,y}$, could be calculated as following:

$$EF_{grid,CM,y} = \omega_{OM} \cdot EF_{grid,OM,y} + \omega_{BM} \cdot EF_{grid,BM,y}$$

According to Methodological Tool, the default weights of wind farm project are follows:

ω_{OM} =0.75, ω_{BM} = 0.25

Currently, Chinese DNA publishes official $EF_{grid,OM,y}$, and $EF_{grid,BM,y}$ annually. According to the document "*Chinese DNA's Notice on Baseline Emission Factor of Regional Power Grid 2014"* released at http://cdm.ccchina.gov.cn/ on 17 September 2014, $EF_{grid,OM,y}$, and $EF_{grid,BM,y}$ of North China Power Grid (NCPG)are respectively 1.0580 tCO_2/MWh and 0.5410 tCO_2/MWh.

Thus, $EF_{grid,CM,y}$ is equal to:

$$EF_{grid,CM,y} = 0.75 \times EF_{grid,OM,y} + 0.25 \times EF_{grid,BM,y} = 0.75 \times 1.0580 + 0.25 \times 0.5410 = \mathbf{0.92875}\ tCO_2/MWh$$

For detailed calculation and relevant data, please refer to:

$EF_{grid,OM,y:}$
http://cdm.ccchina.gov.cn/archiver/cdmcn/UpFile/Files/Default/20150317120351621130.pdf

$EF_{grid,BM,y:}$
http://cdm.ccchina.gov.cn/archiver/cdmcn/UpFile/Files/Default/20150511145355964897.pdf

~~**BASELINE INFORMATION**~~

~~According to Annex 1-3 of "**Bulletin about confirming baseline emission factor of regional power grid in China**" announced by Office of National Coordination Committee on Climate Change, National Development and Reform Commission (NDRC) of China (DNA of China) on July.18th, 2008.~~

~~**Table A1.Electricity Generation of North China Grid from 2002-2006**~~

~~Year~~	~~Electricity Generation（Unit：MWh）~~			~~The proportion of low-cost/must-operation plants~~
	~~Thermal Power~~	~~Others~~	~~Total~~	
~~2002~~	~~403919000~~	~~3626000~~	~~407545000~~	~~0.89%~~
~~2003~~	~~457674000~~	~~3979000~~	~~461653000~~	~~0.81%~~
~~2004~~	~~526772000~~	~~4032000~~	~~530804000~~	~~0.74%~~
~~2005~~	~~534945000~~	~~3587000~~	~~538532000~~	~~0.67%~~
~~2006~~	~~605156000~~	~~4804000~~	~~609960000~~	~~0.75%~~

~~*Data source: China Electric Power Yearbook 2003-2007.*~~

~~Table A2-A4 is the basic data of the North China Power Grid about the electricity generation from thermal plants:~~

Table A2. Fossil power generation of the North China Grid in 2004

	Electricity generation (MWh)	Auxiliary electricity consumption (%)	Electricity delivered to the grid (MWh)
Beijing	18,579,000	7.94	17,103,827
Tianjin	33,952,000	6.35	31,796,048
Hebei	124,970,000	6.5	116,846,950
Shanxi	104,926,000	7.7	96,846,698
Inner Mongolia	80,427,000	7.17	74,660,384
Shandong	163,918,000	7.32	151,919,202
Total			**489,173,110**

Data source: China Electric Power Yearbook 2005.

Table A3. Fossil power generation of the North China Grid in 2005

	Electricity generation (MWh)	Auxiliary electricity consumption (%)	Electricity delivered to the grid (MWh)
Beijing	20,880,000	7.73	19,265,976
Tianjin	36,993,000	6.63	34,540,364
Hebei	134,348,000	6.57	125,521,336
Shanxi	128,785,000	7.42	119,229,153
Inner Mongolia	92,345,000	7.01	85,871,616
Shandong	189,880,000	7.14	176,322,568
Total	**603,231,000**		**560,751,013**

Data source: China Electric Power Yearbook 2006.

Table A4. Fossil power generation of the North China Grid in 2006

	Electricity generation (MWh)	Auxiliary electricity consumption (%)	Electricity delivered to the grid (MWh)
Beijing	20,705,000	7.51	19,150,055
Tianjin	35,924,000	6.86	33,459,614
Hebei	143,888,000	6.63	134,348,226
Shanxi	150,250,000	7.45	139,056,375
Inner Mongolia	139,593,000	7.58	129,011,851
Shandong	230,922,000	7.12	214,480,354

~~Total~~	~~721,282,000~~	~~669,506,473~~

~~*Data source: China Electric Power Yearbook 2007.*~~

Table A5. Calculation of simple OM emission factor of the North China Grid in 2004

Energy	Unit	Beijing	Tianjin	Hebei	Shanxi	Inner Mongolia	Shandong	Total fuel	Emission factor (tC/TJ)	Oxidation rate (%)	NCV (MJ/t or 1000m^3)	Emission (tCO_2e)
		A	B	C	D	E	F	G=A+B+…+F	H	I	J	K
Coal	10^4t	823.09	1410	6299.8	5213.2	4932.2	8550	27228.29	25.8	98	20908	538,547,477
Cleaned coal	10^4t	0	0	0	0	0	40	40	25.8	98	26344	996,851
Other washed coal	10^4t	6.48	0	101.04	354.17	0	284.22	745.91	25.8	98	8363	5,901,901
Coke	10^4t	0	0	0	0	0.22	0	0.22	29.5	98	28435	6,698
Coke oven gas	10^8m^3	0.55	0	0.54	5.32	0.4	8.73	15.54	13	99.5	16726	1,153,187
Other gas	10^8m^3	17.74	0	24.25	8.2	16.47	1.41	68.07	13	99.5	5227	1,578,574
Crude oil									20	100	41,816	0
Gasoline									18.9	100	43,070	0
Diesel	10^4t	0.39	0.84	4.66	0	0	0	5.89	20.2	99	42652	186,070
Fuel oil	10^4t	14.66	0	0.16	0	0	0	14.82	21.1	99	41816	479,451
LPG												0
Refinery gas	10^4t	0	0.55	1.42	0	0	0	1.97	18.2	99.5	46055	52,229
Natural gas	10^8m^3	0	0.37	0	0.19	0	0	0.56	15.3	99.5	38931	122,306
Other energy	10^4tCe	9.41	0	34.64	109.73	4.48	0	158.26	0	0	0	0
												Total: 549,024,041
Net electricity import from the Northeast China Grid to the North China Grid (MWh)									4,514,550			
Average emission factor of the Northeast China Grid (tCO_2e/MWh)									1.1738371			
Total emission of the North China Grid (tCO_2e)									554,323,387			
Fossil power supply of the North China Grid (MWh)									493,687,660			
OM emission factor of the North China Grid (tCO_2e/MWh)									1.12282			

Data sources: China Energy Statistical Yearbook 2005

Table A6. Calculation of simple OM emission factor of the North China Grid in 2005

Energy	Unit	Beijing	Tianjin	Hebei	Shanxi	Inner Mongolia	Shandong	Total fuel	Emission factor (tC/TJ)	Oxidation rate (%)	NCV (MJ/t or 1000m^3)	Emission (tCO_2e)
		A	B	C	D	E	F	G=A+B+…+F	H	I	J	K
Coal	10^4t	898	1,675	6,299	6,176	6277.23	10405.4	**32158.53**	25.8	100	20,908	636,062,536
Cleaned coal	10^4t	0	0	0	0	0	42.18	**42.18**	25.8	100	26,344	1,051,186
Other washed coal	10^4t	6.57	0	101.04	373.65	0	108.69	**656.36**	25.8	100	8,363	5,192,725
Coke	10^4t	0	0	0	0	0.21	0.11	**0.32**	25.8	100	28,435	9,742
Coke oven gas	10^8m^3	0.64	0.75	0.54	21.08	0.39	8.73	**23.48**	12.1	100	16,726	1,742,396
Other gas	10^8m^3	16.09	7.86	24.25	9.88	18.37	0	**91.03**	12.1	100	5,227	2,111,027
Crude oil						0.73		**0.73**	20	100	41,816	22,385
Gasoline				0.01				**0.01**	18.9	100	43,070	298
Diesel	10^4t	0.48	0	4.66	3.54	0.12	0	**4.14**	20.2	100	42,652	130,786
Fuel oil	10^4t	12.25	0	0.16	0.23	0.06	0	**12.54**	21.1	100	41,816	405,690
LPG												0
Refinery gas	10^4t	0	0	9.02	0	0	0	**9.02**	18.2	100	46,055	239,141
Natural gas	10^8m^3	0	0.08	0	9.02	0	0	**3.12**	15.3	100	38,931	681,417
Other Petroleum Products												0
Other energy	10^4tCe	8.58	0	32.35	109.73	7.27	118.9	**236.41**	0	100	0	0
												Total: 647,649,331

Net electricity import from the Northeast China Grid to the North China Grid (MWh)	**3,929,000**
Average emission factor of the Northeast China Grid (tCO_2e/MWh)	**1.1578**
Total emission of the North China Grid (tCO_2e)	**652,197,697**
Fossil power supply of the North China Grid (MWh)	**564,680,013**
OM emission factor of the North China Grid (tCO_2e/MWh)	**1.15499**

Data sources: China Energy Statistical Yearbook 2006

Table A7. Calculation of simple OM emission factor of the North China Grid in 2006

Energy	Unit	Beijing A	Tianjin B	Hebei C	Shanxi D	Inner Mongolia E	Shandong F	Total fuel G=A+B+…+F	Emission factor (tC/TJ) H	Oxidation rate (%) I	NCV (MJ/t or $1000m^3$) J	Emission (tCO_2e) K
Coal	10^4t	763.63	1639.2	6867.99	6968.88	8404.05	10930.66	35607.41	25.8	100	20908	704,277,823
Cleaned coal	10^4t						39.77	39.77	25.8	100	26344	991,125
Other washed coal	10^4t	6.36		214.13	371.14	61.77	544.6	1198	25.8	100	8363	9,477,855
Briquette	10^4t	7.97					27.77	35.74	26.6	100	20908	728,820
Coke	10^4t						3.23	3.23	29.2	100	28435	98,335
Coke oven gas	10^8m^3	0.38	0.63	5.8	22.32	0.64	5.79	35.56	12.1	100	16726	2,638,825
Other gas	10^8m^3	20.66	6.58	69.72	13.79	22.76	7.22	140.73	12.1	100	5227	3,263,593
Crude oil	10^4t					0.74		0.74	20	100	41816	22,692
Gasoline	10^4t			0.01				0.01	18.9	100	43070	298
Diesel	10^4t	0.21		3.01		0.07	6.32	9.61	20.2	100	42652	303,589
Fuel oil	10^4t	6.38		0.08			4.1	10.56	21.1	100	41816	341,633
LPG	10^8m^3						0.01	0.01	17.2	100	50179	316
Refinery gas	10^8m^3			2.43			2.32	4.75	15.7	100	46055	125,934
Natural gas	10^8m^3	3.41	0.73		0.53			4.67	15.3	100	38931	1,019,942
Other Petroleum Products	10^4t						0.28	0.28	20	100	38369	7,878
Other coke products	10^4t							0	25.8	100	28435	0
Other energy	10^4tCe	6.83		47.11	230.76	12.51	132.29	429.5	0	100	0	0
												Total: 723,298,659

Net electricity import from the Northeast China Grid to the North China Grid (MWh)	2,618,060
Average emission factor of the Northeast China Grid (tCO_2e/MWh)	1.16687886
Net electricity import from the North central China Grid(tCO_2e/MWh)	497,060
Total emission of the North Central Grid (tCO_2e)	0.87599
Total emission of the North China Grid (tCO_2e)	726,789,038
Fossil power supply of the North China Grid (MWh)	672,621,593
OM emission factor of the North China Grid (tCO_2e/MWh)	1.08053

Data sources: China Energy Statistical Yearbook 2007

Table A8. Emission factor of best technology

	Variable	Electricity supply efficiency	Emission factor of fuel (tC/TJ)	Oxidation rate	Emission factor (tCO_2/MWh)
		A	B	C	D=3.6/A/1000*B*C*44/12
Coal-based power plants	$EF_{Coal,Adv}$	37.28%	25.8	1	**0.9135**
Gas-based power plants	$EF_{Gas,Adv}$	48.81%	15.3	1	**0.4138**
Oil-based power plants	$EF_{Oil,Adv}$	48.81%	21.1	1	**0.5706**

Calculate with data provided in Table A8 and the formula (3) ~ (5) with the value for λ_{Coal} is 98.93%, the value for λ_{Oil} is 0.09% and the value for λ_{Gas} is 0.98%. Therefore $EF_{Thermal} = \lambda_{Coal} \times EF_{Coal,Adv} + \lambda_{Oil} \times EF_{Oil,Adv} + \lambda_{Gas} \times EF_{Gas,Adv}$ = **0.9083** tCO_2/MWh.

Table A9. Installed capacity of the North China Grid in 2006

	Beijing	Tianjin	Hebei	Shanxi	Inner Mongolia	Shandong	Total
Thermal power (MW)	3,984	6,512	26,087	26,661	28,899	49,395	141,538
Hydro power (MW)	1,053	5	785	790	818	553	4,004
Wind power and Other (MW)	24	24	218	0	565	106	937
Total (MW)	5,061	6,541	27,090	27,451	30,282	50,054	**146,479**

Data source: China Electric Power Yearbook 2007

Table A10. Installed capacity of the North China Grid in 2005

	Beijing	Tianjin	Hebei	Shanxi	Inner Mongolia	Shandong	Total
Thermal power (MW)	3,834	6,150	22,333	22,247	19,173	37,332	111,069
Hydro power (MW)	1,025	5	785	783	568	51	3216
Wind power and Other (MW)	24	24	48	0	209	31	336
Total (MW)	4,883	6,179	23,166	23,030	19,950	37,413	**114,620**

Data source: China Electric Power Yearbook 2006.

Table A11. Installed capacity of the North China Grid in 2004

	Beijing	Tianjin	Hebei	Shanxi	Inner Mongolia	Shandong	Total
Thermal power (MW)	3458.5	6008.5	19932.7	17693.3	13641.5	32860.4	93594.9
Hydro power (MW)	1055.9	5	783.8	787.3	567.9	50.8	3250.7
Wind power and Other (MW)	0	0	13.5	0	111.8	12.4	137.7
Total (MW)	4514.4	6013.5	20730	18480.5	14321.2	32923.6	**96983.2**

Data source: China Electric Power Yearbook 2005

Table A12. Calculation of BM emission factor of the North China Grid

	Installed capacity in 2004 (MW) A	Installed capacity in 2005 (MW) B	Installed capacity in 2006 (MW) C	Capacity additions from 2005 to 2006 (MW) D=C-B	Share in total capacity additions
Thermal power	93594.9	111068.7	141538	30469.3	95.64%
Hydro power	3250.7	3216.2	4004	787.8	2.47%
Wind power and Other	137.5	335.5	937	601.5	1.89%
Total	**96983.1**	**114620.4**	**146479**	31858.6	100.00%
Share in total installed capacity of 2005	66.21%	78.25%	100%		

$EF_{BM,y}$ =0.9083×95.64%=**0.8687**tCO_2/MWh

Annex 3
SUSTAINABLE DEVELOPMENT ASSESSMENT MATRIX

During the first crediting period, there are no material changes regarding the type, scale and operation mode of the project. The project has been operated in accordance with relevant GS standards. Thus the Sustainable Development Assessment matrix remains effective for the second crediting period in addition to an update to parameter "Livelihood of the poor".

Indications	Score (-2 to 2)	PROVIDE explanation and source
Environmental impacts during construction / operation		**subtotal score: +1**
Water (quantity and quality)	0	• No production waste water will be expelled. Sewage from daily living (during construction) will be treated to meet water quality standards and the expelled water will be used for watering vegetation. Source:EIA P9, P13
Air quality (emissions other than GHGs)	1	• No air pollutants; • Wind power generation will offset largely coal-fired power generation which has negative impacts on air quality; Source:EIA P9
Other pollutants (including where relevant toxicity, radioactivity, POPs, ozone gases etc.)	0	• Noise can be generated but owing to the long distance from local residential areas, it is has no influence on human health. Noise is within national standards. Source:EIA P9
Soil condition (quantity and quality)	0	• 10.95hm2 grassland will be used permanently; 8.58hm2 will be used temporarily (1y or 2y, at most 3 y). • The project owner has asked some certificated institute to do the EIA including a special ecological subject which was done much earlier before construction. During construction, the surface of the occupied earth will be disturbed, but the EIA shows that the project has insignificant impact on soil. • The project owner has clear requirement to restore the soil written on the EPC contract and the turbine contract. • .The Local authorities checked and accepted the soil projection during construction and gave positive comments on what Honiton has done to protect the soil.

		• .During the consultations, none of the stakeholder gave negative opinion on the soil. • .Remediation measurements will be taken after the all the construction work is finished. Source: EIA Subject Ecology EIA P20-21,29-30; EPC contract P11
Biodiversity (species and habitat conservation)	0	• Status quo condition: the main plant in this area is psammophytic vegetation and there are no rare or endangered species in the evaluation area. • The proposed project site is not in the migration channels of any bird. There is a little chance of bird collisions with wind turbines in the area. • Hunting is prohibited. Source: EIA Subject Ecology P20-21
Social impacts during construction / operation		**subtotal score: +5**
Employment (including job quality, fulfilment of labour standards)*	2	• Staff requirements are approximately 20 people, for high quality, generally white collar jobs. • In addition to the regular staff, training will take place over 5 years to ensure correct and optimal operation and maintenance. Source: Project Owner
Livelihood of the poor (including poverty alleviation, distributional equity and access to essential services)	1	~~• Some local residents have considered entrepreneurial opportunities associated with the wind farm as a potential tourism attraction (a restaurant, horseback riding to tour turbines).~~ ~~• The project owner will provide a English teacher to the local school in the near future.~~ In 2013, the English teacher was employed as formal employee by the school. Since no support for the English teacher is needed, the project owner chooses to enter into a long term supporting program with Damaoqi Mongolian School by sponsoring a dedicated teacher. Currently, a mathematics teacher is supported by this program Source: Project Owner

Access to energy services	0	• The project will enhance access to green electricity. All power generated will be sent to the power grid so the project will not increases access for residents that are not connected to the grid, but the electricity generated can be used in Damao locally which will reduce the electricity loss during transmission. Source: EIA Subject Ecology P30
Human and institutional capacity (including empowerment, education, involvement and gender) *	2	• The workers will get professional training for the project • One stakeholder meeting was held to enable local residents to participate in project decision-making. • ~~Honiton has undertaken detailed planning efforts since year 2006, seeking to develop its own Charity Program to give back to the communities whose wind resource supports the Company's business activities. Giving the significance of education in local development, Honiton desires to implement its sustainable strategy by providing free and high quality English education to local children. However due to the complication in approval procedures and limited by local laws, Honiton chose to collaborate with local government to work on a joint program. During several negotiations with Baotou Damaoqi Education Bureau and Damaoqi Mongolian School, Honiton state that they desire to offer funds to hire a qualified English teacher of their choosing for the Damaoqi Mongolian school with which to provide the local children with free English Education. After the agreement is signed, the students in Damaoqi Mongolian School will have free and high quality English Courses provided by Honiton.~~ In 2013, the English teacher was employed as formal employee by the school. Since no support for the English teacher is needed, the project owner chooses to enter into a long term supporting program with Damaoqi Mongolian School by sponsoring a dedicated teacher. Currently, a mathematics teacher is supported by this program.. Source: Project Owner
Economic impacts during construction / operation		**subtotal score: +2**

Employment (numbers)*	2	• About 20 permanent employees. • During the construction, more than 100 local people were hired as temporary employees. Source: Project Owner
Balance of payments (sustainability)	0	• The fossil fuel in baseline to generate electricity would be purchased domestically. • Chinese law requires 70% minimum local content which reduces the need for foreign currency expenditures and increases replicability and technological self-reliance. Source: Project Owner
Technological self-reliance (including project replicability, hard currency liability, skills development, institutional capacity, technology transfer)	0	• Suzlon turbines employ European technology but are assembled in Tianjin, China. As required by Chinese law, there is a minimum of 70% domestic content which contributes to the development and expansion of the Chinese wind energy market. Source: Project Owner
Total Score : +8		

Annex 4

MONITORING PLAN

1 . Introduction

This document outlines the procedures that Honiton Energy (Baotou) Co., Ltd. proposes to follow to ensure that the operation of the project complies with the Gold Standard and methodology requirements.

2. Responsibility

The figure below outlines the operational and management structure that the project operator will implement for the GS-VER Project Activity. It will be used to monitor emissions reductions and any leakage effects, generated by the project activity.

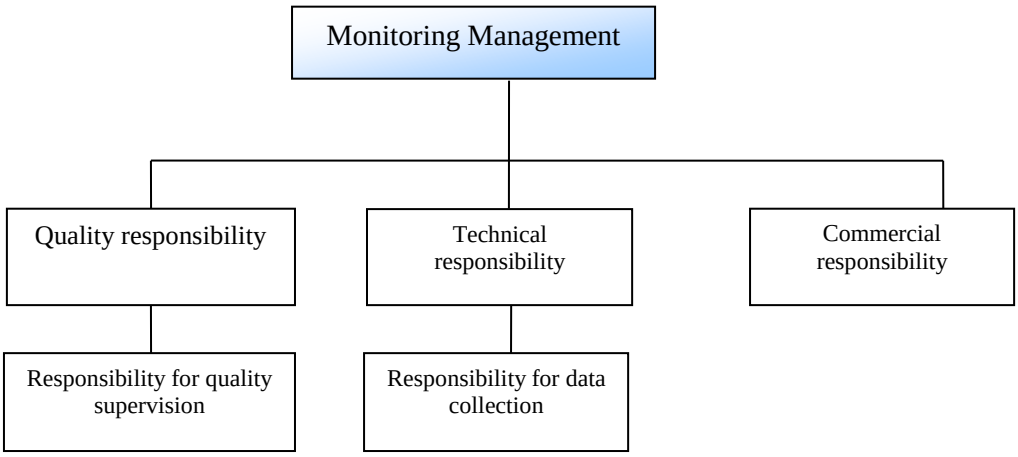


Figure 3 Operational and Management Structure for Monitoring the Project Activity

3. Installation of meters

The current situation is that:

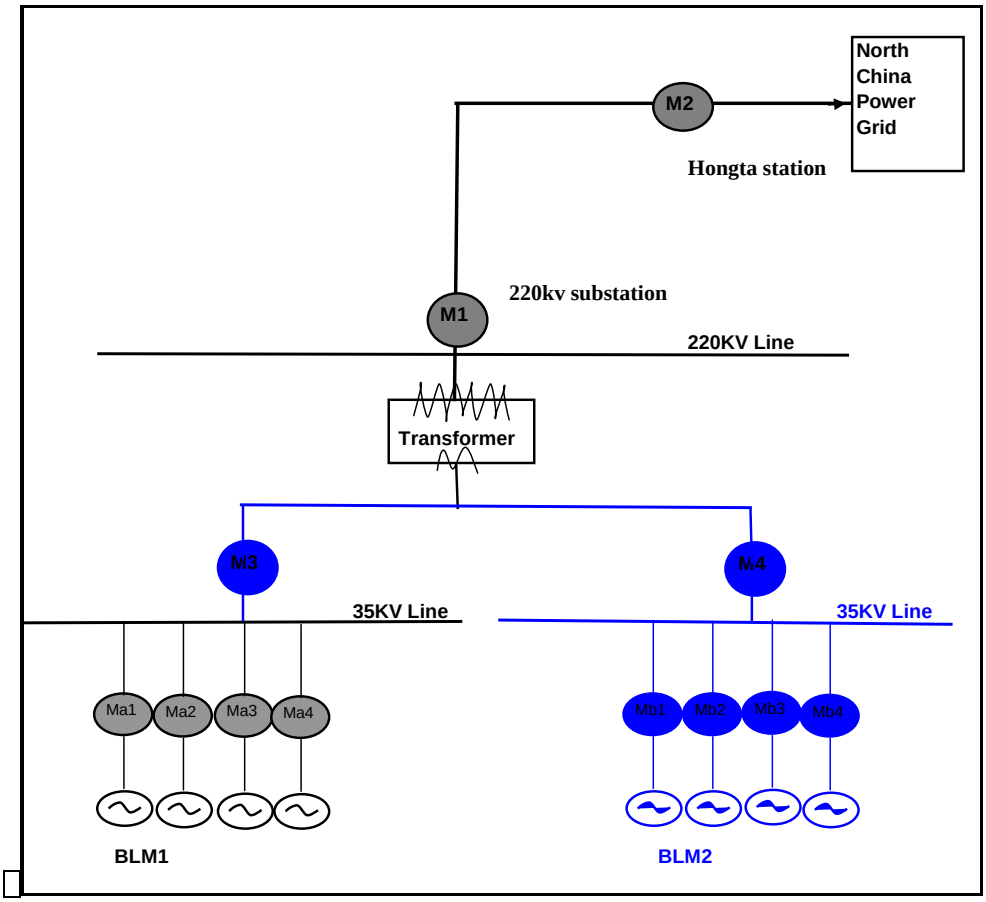
The meter M1 installed in Honiton Bailingmiao Phase One Plant 220kv substation is used for monitoring the electricity supplied by the project activity to the grid and the electricity purchased from the grid. The meter M2 is the gateway meter in Hongta station. The data of electricity supplied to the grid and purchased from the grid will be cross-checked by the invoices and the power transaction slip. All the meters are 0.2S ~~double-way~~2-directional meters .The uncertainties of the meters are all less than 0.2% and the meters will be calibrated less than every three years according to national standard to ensure its accuracy.

In addition, a 10KV backup power supply will be available in site in the early time of the proposed project and the amount of electricity imported through this line will be checked by the invoice.

When Honiton Energy Bailingmiao Phase Two Wind Farm Project which is adjacent to the proposed project and belongs to the same project owner and shares the same main transformer and substation and also deliver the electricity generated to North China Power Grid begins, the monitoring system of the proposed project will change to the following situation possibly (the new meters installations needs to be permitted by Inner Mongolian Power Company):

The electricity generated from the wind turbines before it comes into the transformer will be monitored by the 35KV site meters M3, which is also 0.2S double-way meter.

The data of electricity supplied to the grid and purchased from the grid will also be cross-checked by the invoices and power transaction slip.



Note:
1. The gray and black are the current situation which includes only BLM1
2. The blue are the future situation which includes only BLM2.

Figure 4 Meters installation

4. Calibration

Calibration for the meters will be carried out by an authorized party as per related national or local guidelines.

All the meters installed shall be tested by NCPG within 10 days after: the detection of a difference larger than the allowable error in the readings of both meters; the repair of all or part of meter caused by the failure of one or more parts to operate in accordance with the specifications.

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 generation output shall be determined by (a) first, by reading backup meter, unless a test by either party reveals it is inaccurate; (b) if the backup system is not with

acceptable limits of accuracy or operation is performed improperly the project owner and NCPG shall jointly prepare an reasonable and conservative estimate of the correct reading, and provide sufficient evidence that this estimation is reasonable and conservative when DOE undertakes verification; and (c) if NCPG and the project owner fail to agree then the matter will be referred for arbitration according to agreed procedures.

5. Monitored data

All the other parameters for the calculation of the baseline emission factor are fixed throughout the crediting period and the grid emission factor of the Project is determined ex ante.
The net electricity supplied to the grid by the project (EG_y) will be monitored and recorded following the procedures above.

For the sustainable development, other 7 parameters will also be recorded, which are Employment (number), Employment (quality), Soil Condition, Human and institutional capacity, Water quality, Noise and Grassland owner compensation fees;
Their detailed monitoring plans are as follows:

Parameter	**Employment (number)**
Description	Number of employment created by the project
Monitoring Method	Monitored by the salary payment sheet
Monitoring Frequency	Annually
QA measures	Salary payment sheet is third party's evidence

Parameter	**Employment(quality)**
Description	Qualitative value of the employment
Monitoring Method	Monitored by Training record and the welfare which can be shown on the salary payment sheet
Monitoring Frequency	Annually
QA measures	Salary payment sheet is third party's evidence

Parameter	**Soil Condition**
Description	The remediation measurements taken and the outcome produced for the area surrounding the excavation in the project site
Monitoring Method	Monitored by independent institute or consulting company's report in which the re-seeding measurement taken and outcome produced for the area surrounding the excavation will be discussed
Monitoring Frequency	This parameter will be monitored annually until the project has obtained the final acceptance on environment protection issued by the local authorities (Normally the local Environmental Protection Bureau) officially which means that the remediation outcome is satisfactory and accepted and thus the monitoring of this parameter is finished. *The issue was closed during the first verification. Therefore, the parameter needs not being monitored during the second crediting period.*
QA measures	The report and the final acceptance are all third party's evidence

Parameter	Human and institutional capacity
Description	~~Number of English teachers provide by the project owner and how many children get benefit from this~~Continued support to local middle school by sponsoring a dedicated teacher.
Monitoring Method	Monitored by contract from Honiton and Damaoqi Mongolian School~~the Teacher~~ and salary payment sheet and the attendance ~~or the roll in list of the children~~.
Monitoring Frequency	Annually(if the teacher is recruited successfully in the monitoring year)
QA measures	Salary payment sheet ~~and the attendance or the roll in list of the children are~~ is a third party's evidence

Parameter	Water quality
Description	Whether the waste caused by personnel is properly treated
Monitoring Method	Checked by independent institute or consulting company whether the waster water treatment facility is on site and in operation. Monitored by independent institute or consulting company about the quality of the effluent, eg: the COD value
Monitoring Frequency	As the water quality is not an issue raised in the EIA and to cut unnecessary cost for this financial unattractive project, this monitoring data for this parameter can only be available for the first verification as long as the monitoring data shows that water quality is below relevant nation standards. *The issue was closed during the first verification. Therefore, the parameter needs not being monitored during the second crediting period.*
QA measures	The institute or consulting company to monitoring the quality of the effluent will have the relevant qualifications.

Parameter	Noise Pollution
Description	Whether the project will generate Noise that is above the national standards
Monitoring Method	Monitored by independent institute or consulting company about the noise level when the proposed project is in full operation.
Monitoring Frequency	As the noise is not an issue raised in the EIA and to cut unnecessary cost for this financial unattractive project, this monitoring data for this parameter can be only available for the first verification as long as the monitoring data shows that the noise level is below relevant nation standards. *The issue was closed during the first verification. Therefore, the parameter needs not being monitored during the second crediting period.*
QA measures	The institute or consulting company to monitoring the noise level will have the relevant qualifications.

Parameter	Grassland owner compensation fees
Description	Whether the project owner has paid the compensation fees to the Grassland owner who grassland is taken by the project

Monitoring Method	Checked by independent institute or consulting company whether the grassland compensation fees are paid through the individual compensation agreements signed between the individual grassland owner and the project owner
Monitoring Frequency	When it is verified that all the compensation fees are paid to the individuals for the loss of their grazing land , the monitoring of this parameter is finished; *The issue was closed during the first verification. Therefore, the parameter needs not being monitored during the second crediting period.*
QA measures	The local officials can be consulted for the compensation fees payment issue.

6. Quality control

Monthly data will be approved and signed off by the operational manager before it is accepted and stored.

There is a back-up meter in the proposed project will be used for cross check.

This internal audit will also identify potential improvements to procedures to improve monitoring and reporting in future years. If such improvements are proposed these will be reported to the DOE and GS-TAC and only put in application after approval from the GS-TAC.

7. Data management system

Physical documents such as paper-based maps, diagrams and environmental assessments will be collated in a central place, together with this monitoring plan. In order to facilitate auditors' reference of relevant literature relating to the proposed project, the project material and monitoring results will be indexed. All paper-based information will be stored by the technology department of the proposed project and all the material will have a copy for backup.

And all data including calibration records is kept until 2 years after the end of the total crediting period of the GS –VER project.

8. Error Handling Procedure

In the event that a meter has lost calibration over the allowable error limit then this shall be corrected at the earliest opportunity and re-calibrated and the data recorded from this meter since the last successful calibration shall be ignored, the electricity generation during this period will be checked by the invoice.

In the event that a there is uncertainty over the accuracy of the data set from the main meter (e.g. the meter has lost calibration over the acceptable error limit) then the data from the second meter shall be used. In the event that a there is uncertainty over the accuracy of the data set from the first and from the second meters then power generated and delivered to the grid as evidenced by invoices and/or sales receipts shall then be used to evaluate the power generation necessary to determine the VER generation.

The check of the internal auditor and then the third party verifier prior to issuance of the GS-VERs is considered adequate for errors in the calculations. Where errors in the calculations are discovered by either of these Parties, the monitoring report shall be modified and the corrected version shall be resubmitted to the verifier.

9. Standard Template for Reporting of Data for Verification of VERs
Name of Project: Honiton Energy Bailingmiao Phase one Wind Farm Project
Crediting Period for which ERs are claimed: From [January 7, 2008] to January 6, 2015]

Author of this Report: [Insert Name]

Date of Issuance of this Report to Verifier: [---Insert Date---]

Version No.:

Name and contact Details of Verifier: [Insert]

Number of ER's claimed during period: [Insert Number] t CO_2e

Baseline emissions Factor: ~~**1.0548**~~**0.92875** t CO_2e per MWh

Generated Electricity (auxiliary power): [insert number] MWh

Calculation and Data:

Month	Generation Period Start Date/End Date	Total Generation (MWh)	Grid Emissions Factor (tCO2e/MWh)	VERs Claimed
X		x	~~**1.0548**~~**0.92875**	X
			0.92875~~**1.0548**~~	
			0.92875~~**1.0548**~~	
……	……	……	**0.92875**~~**1.0548**~~	…….
Total				

Comments:
Signed: _____ (Wang Zengli) Date:_____

Signed: _____ (Board Representative) Date:_____

Attachments Checklist:
Monthly Power Generation Reports from Production Department
Calibration certification of the meters
Power Sales Invoices/Receipts (if required)