



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

(GS-VER-PDD)

For more information, please contact The Gold Standard:

<http://www.cdmgoldstandard.org>
info@cdmgoldstandard.org

phone +41 61 283 09 16
fax +41 61 271 10 10

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Explanatory information on how to complete the PDD and how to obtain Gold Standard registration can be found in the project developer's manual available on the Gold Standard website.

This template of the PDD is applicable for micro-, small- and large-scale projects. Note that the shaded boxes present information on the Gold Standard VER project development procedures. Project developers should delete these shaded boxes when preparing their PDD.

VOLUNTARY OFFSET PROJECTS

PROJECT DESIGN DOCUMENT FORM (GS-VER-PDD)
Version 01 - in effect as of: January 2006)

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SECTION A. General description of project activity

A.1 Title of the project activity

Title: Suzhou Qizi Mountain Landfill Gas Recovery Project

PDD version change history:

PDD Version: 2.0, dated on 08/12/2008, which was registered at GS on date 22/04/2009

PDD Version: 3.0, dated on 30/10/2015, updated version for renewal crediting period to DOE before onsite validation

PDD Version: 3.1, dated on 21/12/2015, revised version according to the validation findings

A.2. Description of the project activity

Summary

The Suzhou Qizi Mountain Landfill Gas Recovery Project, which is developed by Everbright Environment and Energy (Suzhou) Landfill Gas to Energy Co., Ltd., is located at Qizi Mountain Landfill, Suzhou, Jiangsu Province, China. The proposed project applies for Gold Standard VER. The purpose of the proposed project is to utilize landfill gas (LFG) for electricity generation. It is a combination project including LFG collection, LFG processing system and electricity generation. LFG collected will be used for electricity generation with internal combustion engines and generators.

There are 4 units in the project. Each unit has an installation capacity of 1.25 MW. Power generation by proposed project will be supplied to East China Power Grid. These 4 units are separated into two phases. For each phase, there is a respective processing system, whose description is in the following context. Both of phases share a landfill gas collection system, which could guarantee the proper operation of these four units. The first stage, which is not the same as the two phases of the proposed project, of landfill site (15m-80m above sea level) will be closed in 2008, with 15 years operation period. The second stage of landfill gas will be set up vertically above the first phase, with 15 years operation period as well. During the second crediting period, the project is expected to collect 4,755 tonnes CH₄ per year on average. The exported electricity is estimated to be 24,992 MWh a year on average. The electricity generated will replace equivalent amount of electricity from East China Power Grid. In absence of the project, equivalent amount of electricity exported to the grid by the proposed project would have otherwise been supplied by East China Power Grid. Greenhouse gas (GHG) emissions will be reduced by avoiding CO₂ emissions from those fuel-based power plants connected to the grid and by avoiding GHG emissions from releasing LFG into atmosphere at the landfill site. The expected average annual emission reductions are 136,794 tCO₂e during the second crediting period. Emission reductions from steam generation with waste heat are not counted for a conservative approach.

The project is owned by Everbright Environment and Energy (Suzhou) Landfill Gas to Energy Co., Ltd.. The controlling company, China Everbright International Limited, is a company listed in Hong Kong Stock Exchange. Early in 2006, the project failed to apply for CDM LoA from Chinese DNA due to China's not issuing CDM LoAs to Hong Kong listed companies. Hence the project owner continued to develop the project as a Gold Standard VER project with South Pole Carbon Asset Management Ltd.

Technology to be employed by the project activity

Most of the equipment, which is technically very advanced, is imported from Germany and other foreign countries. Therefore, the project activity introduces new technology to the host country. The process works as follows:

Landfill gas collection system

Through an extraction system, the landfill gas is extracted from the landfill site. The extraction technology applied will basically consist of vertical wells, collectors and piping.

- Vertical wells drilled into the waste to extract the LFG with function of extracting pipe;
- The gas extracting pipe consists of pipes that connect groups of gas wells to the manifolds, and each pipe was drilled with loophole to maximize gas collection. The manifolds are primary connected into a main pipe and then into the main header pipe;
- The main header pipe designed with HDPE to prevent air and transfer the LFG to the processing system,

Processing system

For the extracting LFG containing water and impurities, it will be pre-treated by the processing system. This includes:

- Water segregator removes the moisture;
- A high efficiency particular air filter removes the impurities;
- The condensate separator is equipped to ensure that the concentration of methane in the LFG remains high;
- The pressure regulator is installed between processing system and power generation system to make sure the gas flow has a stable pressure.
- The pre-treated LFG will finally fulfill the operation requirements of power generator.

Energy generation system

In the power generator system, the LFG is combusted to produce heat energy, which is converted into electric energy. There are 4 Container engine units installed to generate electricity and the total installed capacity is 5MW. Then the generated electricity is transferred to the distribution and controlling system. Finally it is connected Suzhou City local power grid, which is part of East China Power Grid (ECPG).

Table A.1 Details of electricity generating system

Manufacture	Deutz Power Systems GmhH&Co.,KG
Name	Engine
Type	TBG620V16K
Installed capacity	1294KW
Technical description	Modern stationary 4-stroke Otto gas engine with lean-mix combustion; 16 cylinder V-engine

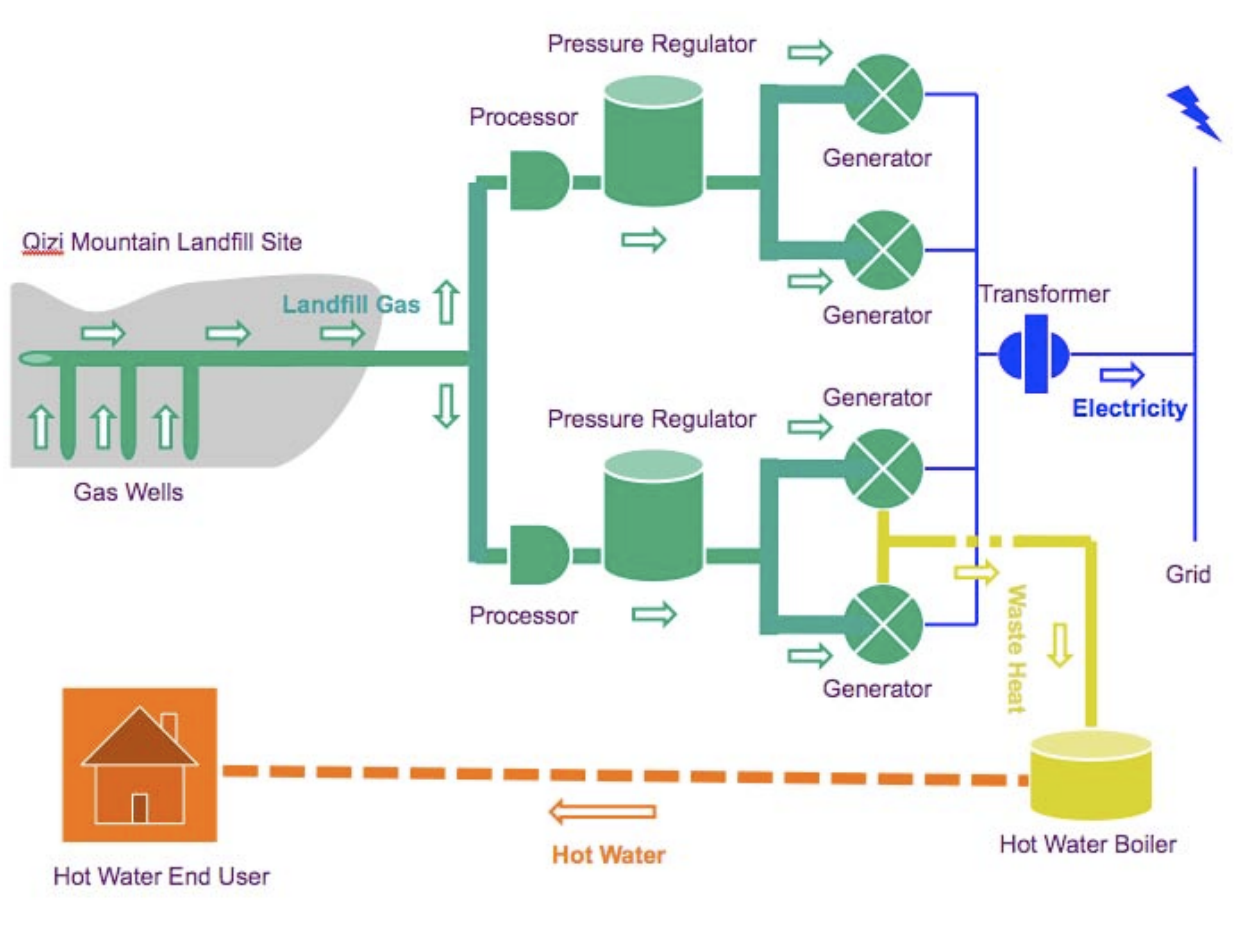
Manufacture	AVK Deutschland GmbH & Co.KG
Name	Generator
Type	DIG 120 i/4
Installed capacity	1250KW
Technical description	Rotary current internal pole synchronous generator. Three phase, brushless, self-exciting, self regulating

Manufacture	Deutz Power Systems GmhH&Co.,KG
Name	TEM EVO System
Technical description	The DEUTZ Total Electronic Management(TEM) system includes the control and monitoring of all functions of a gas engine auxiliary drive in one unit.

In addition, there is a waste heat recovery system connected with the generators in the 2nd phase. The gas vented from generators with 455 °C temperature is recovered to heat water in hot water boiler. Therefore, it is different from the utilization of LFG and heat generation from flaring. No LFG is intended to be used for heat generation. For the proposed project, this part of waste heat will not be calculated in the emission reduction.

Figure A.2 shows the process of the project activity.

Fig A.2 Schematic Diagram of Suzhou Qizi Mountain Landfill Gas Recovery, electricity generation and hot water production



Contribution to sustainable development

The project activity contributes significantly to the region's sustainable development in the following ways:

- In recent years, China has experienced a huge increase in power consumption. Both public and private parties are struggling to meet the demand of electricity. The proposed project will help to bridge the gap between supply and demand of power in a manner on a regional and national level.
- Energy and resources will be saved by the utilization of a waste product to generate electricity. This is in accordance with the national and local industry policies. In China, more than 80% of total electricity is generated from coal-based power plants. With China being so heavily dependant on coal for its energy demand, this project carries environmental benefits to the country's air, soil and water sources. The project activity will replace the generation of fossil fuelled power and reduce CO₂, SO_x and NO_x emissions significantly, as well as mitigate the air pollution and its adverse impacts on human health. The proposed project will contribute in mitigating global warming and climate change by reducing anthropogenic emissions of greenhouse gas that would have otherwise happened in absence of the project activity.
- By utilizing the modern technology of landfill gas recovery, the proposed project will contribute in promoting advanced environmental-friendly technology in the solid waste treatment industry of China. The proposed project will improve the local environment by LFG recovery and processing system.
- The safety situation at the landfill site will be improved, since the combustible LFG will be properly collected and utilized for electricity generation.
- The proposed project activity will bring more employment opportunities for local people. The plant owner estimates that more than 54 people will be engaged in construction period of one year and there will be 20 people engaged on the plant operation on a regular basis.

Sustainable Development Assessment

The project is applying for Gold Standard certification. In order for the project to be eligible for the Gold Standard, the project activity is assessed against a matrix of sustainable development indicators.

Asterisk * marks the indicators that will be monitored in monitoring plan additionally to those monitored for ER calculation.

Component • Indicators	Score (-2 to +2)	Rational
Local / Regional / Global Environment		
• Water quality and quantity	0	The wastewater from proposed project will be properly treated. Therefore, no significant change comparing with baseline, in terms of water quality and quantity. Source: 1 st EIA, page 18; 2 nd EIA, page 32
• Air quality (emissions other than GHG)	+1*	Besides GHG emission reductions, implementation of the project also has other advantages over baseline scenario in terms of impacts on air quality. By installation of the landfill gas processing unit, the emissions of H ₂ S, NH ₃ and other gases will be prevented. Source: 1 st FSR, page 37; 1 st EIA, page 18; 2 nd EIA, page 32; Report of Environment Protection for Check & Accept 1 st Phase.
• Other pollutants (including, where relevant, toxicity, radioactivity, POPs, stratospheric ozone layer depleting gases)	0	No significant change comparing with baseline. Source: 1 st EIA, page 3; Report of Environment Protection for Check & Accept 1 st Phase.
• Soil condition (quality and quantity)	0	Construction of the project's units I and II are on vacant land, which is 800m far from the landfill site. The construction of the project's units III and IV are on vacant land, which is 1000m far from the landfill site. Implementation of the proposed project does not lead to soil pollution. As compared to the baseline, there is no significant change in soil condition, in quality and quantity. Source: 1 st EIA, page 14; 2 nd EIA, page 23; Report of Environment Protection for Check & Accept 1 st Phase.
• Biodiversity (species and habitat conservation)	0	As compared to the baseline, no significant change in biodiversity is expected since the project only takes place within the site boundary. Source: 1 st EIA, page 14 & 16; 2 nd EIA, page 23; Report of Environment Protection for Check & Accept 1 st Phase.
Sub Total	+1	
Social Sustainability and Development		
• Employment (including job quality, fulfilment of labour standards)	+1*	The project leads to employment generation in the landfill gas recovery itself and in the implementation as a GS VER project. These jobs do have a significant impact on job quality since they include technically advanced knowledge

		mostly. It is the first time local employees get to know the concept of carbon emissions. Project manager and operators in the plant will have a chance to learn new knowledge of sophisticated monitoring equipments and computer operations. Source: 2 nd FSR page 6 and 7
Livelihood of the poor (including poverty alleviation, distributional equity, and access to essential services)	+1*	The project will generate additional income to workers involved. Source: 1 st FSR page 43
Access to energy services	+1	Suzhou City has been in lack of power for years due to its fast economy development. The project activity adds new capacity to grid and helps improving electricity availability. Power generation from the project activity will be monitored and reported to verifier. Source: Xinhua News, http://www.js.xinhuanet.com/xin_wen_zhong_xin/2008-07/03/content_13713041.htm
Human and institutional capacity (including empowerment, education, involvement, gender)	+1*	People involved will be trained for operation of the power generation facility and knowledge of Kyoto Protocol. This is the first time local people are organised to work on a project under the Kyoto Protocol. Success of the project will contribute a team with experience of landfill gas recovery technology. In addition, there are five opportunities of overseas training for the local officials every year. Source: 1 st FSR page 41
Sub Total	+4	
Economic and Technological Development		
Employment (numbers)	+2*	The project activity generates employment opportunities during the project's construction and operation period. Operation of the project needs around two dozen people. Source: 1 st FSR page 43; 2 nd FSR page 41
Balance of payments (sustainability)	+1	Implementation of the project activity involves import of advanced engines and equipments from Germany and other countries, which leads to payments in foreign currency equivalent to USD 3,980,500. This will slightly contribute to the relief of trade surplus pressure of Jiangsu province. Source: 1 st FSR page 40; 2 nd FSR page 44
Technological self reliance (including project replicability, hard currency liability, institutional capacity, technology transfer)	+1	Implementation of the proposed project involves imports of advanced generators and equipments from Germany and other countries. The project showcases an innovative way to use landfill gas for power generation in solid waste treatment industry of China. Landfill is a derivate of modern city life. China still has a lot to improve in urban planning. Implementation of the proposed project will encourage more similar practice and hence results in improvement in landfill management.

		Source: 1 st FSR page 5; 2 nd FSR page 13
<i>Sub Total</i>	+4	
<i>Total</i>	+9	

A.3. Project participants:

Name of Party involved (*) ((host) indicates a host Party)	Private and/or public entity(ies) project participants (*) (as applicable)	Kindly indicate if the Party involved wishes to be considered as project participant (Yes/No)
People's Republic of China(host)	Everbright Environment and Energy (Suzhou) Landfill Gas to Energy Co., Ltd.	No
Switzerland	South Pole Carbon Asset Management Ltd. (VER buyer, private entity)	No

A.4. Technical description of the project activity:

A.4.1. Location of the project activity:

A.4.1.1. Host Party(ies):

People's Republic of China

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

Jiangsu Province

A.4.1.3. City/Town/Community etc:

Qizi Mountain, Mudu County, Wuzhong District, Suzhou City

A.4.1.4. Detail of physical location, including information allowing the unique identification of this project activity:

The project is located on Qizi Mountain, Mudu County, Wuzhong District, Suzhou City, Jiangsu Province, P.R.China. It is 13km far from the centre of Suzhou City. The exact location of the project is 31°14'15"N 120°33'9"E. A map indicating the location of the project site is provided in Fig A.1:

Fig A.1. Location of the proposed project



A.4.2. Size of the project:

According to Gold Standard Rules and Procedures Updates and Clarifications, the new threshold is 60'000 VERs p.a. for SSC projects. Therefore, it is counted as a large-scale project.

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

The proposed project falls under following category of Gold Standard:

Renewable Energy (Electricity, Heat): Ecologically sound biomass, biogas and liquid biofuels.

The specific technology falls under "A.1.1.2.1 Landfill gas" of the GS eligible technologies

Per GS rules, for LFG-to-Energy projects, a minimal utilization threshold for methane usage of 65% averaged over one year has been set. Besides electricity generation, there is no other treatment for LFG utilization. Therefore, utilization threshold for methane usage of at nearly 100% averaged over one year has been set is collected methane.

The electricity generation from the proposed project will be finally sent to the East China Power Grid. The monitoring plan of LFG projects cover monitoring of legislative development and monitoring of electricity generation.

The electricity generation from the proposed project will be finally sent to the East China Power Grid.

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:

The proposed GS VER project activity is unlikely to be financially attractive, and the detailed explanation refers to B.3. To make the project financially feasible, the project owner decided to develop it as a CDM project under the Kyoto protocol. Early in 2006, the project failed to apply for CDM LoA from Chinese DNA due to China's not issuing CDM LoAs to Hong Kong listed companies, which is the reason why the project was continued to be developed as a VER project.

The proposed project has already met the financial barriers before construction. In addition, the project activity does not use Official Development Assistance (ODA) funding, directly or indirectly.

The current situation is that LFG is released into the atmosphere directly. It is common practice in Suzhou Province and China and is not against any EB decisions on national and/or sectoral policies and regulations.

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

The specific project activity applies for renewable crediting periods, and the estimation of the emission reductions during the second crediting period (from April 22, 2014 to April 21 2021) is provided in Table A.1. Total estimated emission reductions during the second crediting period amount to 957,562 tCO₂e.

Table A.1. Total estimated emission reductions during the second crediting period

Years	Estimation of annual emission reductions (tCO ₂ e)
2014 (22.4.-31.12)	99,235
2015 (1.1.-31.12)	143,782
2016 (1.1.-31.12)	146,480
2017 (1.1.-31.12)	143,898
2018 (1.1.-31.12)	136,478
2019 (1.1.-31.12)	129,455
2020 (1.1.-31.12)	122,804
2021 (1.1.-21.4)	35,430
Total emission reductions (tonnes of CO₂e)	957,562
Total number of crediting years	7
Annual average over the crediting period of estimated reductions (tonnes of CO₂e)	136,794

SECTION B. Application of a baseline methodology

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

The approved large-scale consolidated methodology ACM0001 *“Flaring or use of landfill gas”* (Version 16.0) is applied to the project activity.

In accordance with the methodology, the project makes use of the following tools:

“Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period” (Version 03.0.1)

“Tool to calculate the emission factor for an electricity system” (Version 05.0)

“Tool for the demonstration and assessment of additionality” (Version 05.2)

“Combined tool to identify the baseline scenario and demonstrate additionality” (Version 06.0)

“Emissions from solid waste disposal sites” (Version 07.0)

“Tool to calculate baseline, project and/or leakage emissions from electricity consumption” (Version 01)

“Tool to determine the remaining lifetime of equipment” (Version 01)

For more information about the methodology and tools please refer to the website:

<http://cdm.unfccc.int/methodologies/PAmethodologies/approved>

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

The methodology referenced above is applicable to this project activity because the following criteria are met:

- The project activity installed a new LFG capture system in an existing SWDS where no LFG capture system was installed prior to the implementation of the project activity;
- The project activity uses the captured LFG for generating electricity;
- No organic waste would be recycled in the absence of the project activity;
- In the absence of the project activity, LFG would be released into the atmosphere, which complies with regulations;
- LFG collected is used for electricity generation with internal combustion engines and generators, and the electricity generated is supplied to East China Power Grid;
- The methodology is not in combination with other approved methodologies;

The management of the SWDS in the project activity is not changed during the crediting period compared to the situation prior to the implementation of the project activity.

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

The baseline scenario identification is not changed from the registered PDD. Please refer the same part of the registered PDD.

The original baseline scenario is:

Atmospheric release of the landfill gas; equivalent amount of electricity is supplied from East China Power Grid.

In line with the methodology ACM0001 (Version 16.0), a stepwise procedure according to the “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period” Version 03.0.1 is applied here to assess the continued validity of the baseline at the renewal of a crediting period:

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

The “Procedures for the renewal of the crediting period of a registered CDM project activity” approved by the CDM Executive Board require assessing the impact of new relevant national and/or sectoral policies and circumstances on the baseline.

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

- 1) The Suzhou Qizi Mountain Landfill in the project activity started construction in 1992, at which the Technical code for municipal solid waste sanitary landfill (CJJ17-88)¹ was available. CJJ17-88 specified concentration limits of methane in the air and measurements should be taken to vent methane. It mainly focuses on safety concerns and has no mandatory requirement on LFG flaring or utilization. The landfill met the national and local standards and regulations during construction and has been in compliance since its operation. LFG from the landfill has directly released to the atmosphere through vertical extraction trenches to meet the landfill safety requirements before the implementation of project activity, which is also the traditional management and operation way of landfills in China. Hence, atmospheric release and no flaring of LFG occurred at Suzhou Qizi Mountain Landfill in the baseline scenario.
- 2) CJJ17-88 was replaced by the most update GB50869-2013². Besides requirements for methane concentration limits and methane venting measurements, GB50869-2013 also states (in clause 11.1.3 and clause 11.5.1) that landfill gas should be utilized (for gas that can be utilized) or flared (for gas that cannot be utilized). This statement can also be seen in the other two national regulations (GB16889-2008³ and CJJ133-2009⁴), which were issued and taken into effective since July 2008 and July 2010 respectively. However, the statement is only a recommendation, not a compulsory requirement. As long as the landfill fulfils the safety requirements, the government must not enforce the utilization of LFG.
- 3) Although China government encouraged the collection and utilization of LFG from waste dumps in the past few years, due to financial and technological difficulties most of the landfills just release LFG directly into the atmosphere without any recovery and flaring system. In February 2007, the Ministry of Construction issued “Circular on the Outcome of Nationwide Inspection on Hazard-free Treatment of Domestic Waste Landfill Sites”⁵. As per this Circular, by the end of year 2005, only 27 landfills of 372 landfills (7.26%) across 31 provinces, autonomous regions

¹ Published by China Ministry of Construction dated on 15, February 1989 (CJJ17-88).

² Published by China Ministry of Housing and Urban-Rural Development on 8, August 2013 (GB50869-2013), and taken into effect in March 2014.

³ Standard for Pollution Control on the Landfill Site of Municipal Solid Waste, published by China Ministry of Environment Protection on 2, April 2008 (GB16889-2008).

⁴ Technical code for projects of landfill gas collection treatment and utilization, published by China Ministry of Housing and Urban-Rural Development on 9, November 2009 (CJJ133-2009).

⁵ <http://www.huanke.com.cn/08/article.asp?articleid=416>

and municipalities in China have landfill gas recovery and utilization facilities. Only the landfills in CDM mode or few with investment from the government count have LFG flaring or utilization systems in operation. Moreover, according to the “Development Report on China Treatment Industry of Urban Domestic Refuse in 2013”⁶, until 2012 there were 795 prefectural and municipal domestic waste landfills in operation, with only 50 landfills having LFG recovery and utilization facilities by the end of year 2013. Therefore, it is obvious that LFG gas flaring or utilization is still exceptional and that under common practice conditions the LFG is not flared in China in baseline conditions. Therefore, it is justifiable to conclude that the specific requirements on LFG recovery and utilization as prescribed in the above mentioned regulations have not been systematically enforced and that non-compliance with those requirements, namely uncontrolled emission of LFG to the atmosphere without any recovery and utilization, has been and is still widespread in China.

Therefore, LFG collection and utilization is not enforced in China, the landfill operator would continue release the LFG from the landfill sites directly to atmosphere without any collection, and this is the zero-cost way for LFG treatment without economically attractive, also without obligatory restriction by the new issued regulations.

In conclusion, on the basis of above evidences, the flaring and utilization of LFG in GB16889-2008, CJJ133-2009 and GB50869-2013 have been systematically not enforced and non-compliance with those policies, namely uncontrolled emission of LFG to the atmosphere without any recovery and utilization, has been and is still widespread in China, which have come into effect after the submission of the project activity for validation or the submission of the previous request for renewal of the crediting period and are applicable at the time of requesting renewal of the crediting period. The LFG directly released into atmosphere is the baseline scenario of the project activity in the second crediting period, which is the same as the first crediting period.

Step 1.2: Assess the impact of circumstances

The baseline scenario identified at the validation of the project activity was the continuation of the current practice without any investment. Baseline emissions are primarily derived from the release of LFG to the atmosphere from the landfill. The project activity recovers and utilises the LFG from an existing landfill, Suzhou Qizi Mountain Landfill. At the time of requesting renewal of the crediting period, the landfill is still in operation⁷. So the release of LFG continues. Market characteristics do not otherwise impact the baseline emissions from the release of LFG.

In conclusion, the conditions used to determine the baseline emissions in the previous crediting period are still valid. The availability of new fuels or raw materials or the level of fuel prices has no impact on the identification of the current practice for the baseline emissions. The current baseline does not need to be updated for the second crediting period.

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.

⁶http://wenku.baidu.com/link?url=dvEeDfgy08N8TfqSTg15ZnU1L715mMagy6TmjK3B9p0duyfHom8axvefDGbuJH_aVV3Ok1HYixJGa9kIJB8M0rL8CWX6usg9q0PsH7zZl_a

⁷In year 2014 the amount of domestic refuse for landfilling in Suzhou Qizi Mountain Landfill is 0.3338 million tons. By January 2015 the remaining capacity of the landfill is 1.10 million tons.
<http://news.subaonet.com/2015/0109/1440761.shtml>

As per “Tool to determine the remaining lifetime of equipment” Version 01, the Option (c) use default values for the technical lifetime and determine the remaining lifetime as the difference of the technical lifetime and the operational time.

This option can only be applied if:

- (i) The project participants can demonstrate that the equipment has been operated and maintained according to the recommendations of the equipment supplier;
- (ii) There are no periodic replacement schedules or scheduled replacement practices specific to the industrial facility, that require early replacement of equipment before the expiry of the technical lifetime; and
- (iii) The equipment has no design fault or defect and did not have any industrial accident due to which the equipment cannot operate at rated performance levels.

The first commissioning of equipment(s) in the project activity is in January 2007, the information on the operational history of the equipment(s) showed that the situation of the project is applied for (i), (ii) and (iii) of this Option.

The main equipment adopted in the project activity is described in table A.1. The design lifetime adopted the default value 25 years from the “Tool to determine the remaining lifetime of equipment” including all the equipment(s) in the extraction system, the processing system and the electricity generation system. As the project activity started commissioning on 01/01/2007, and the first crediting period started on 22/04/2007 with its length of 7 years, so the remaining technical lifetime of the equipment(s) is over 17 years, which exceeds the second crediting period.

Therefore, the continuation of use of current baseline equipment(s) is the most likely scenario for the renewal of the crediting period.

Step 1.4: Assessment of the validity of the data and parameters

The IPCC default value of Model correction factor (ϕ) and Global warming potential of CH₄ (GWP_{CH4}) are updated for the second crediting period as described in Section B.5, which were only determined at the start of the crediting period and not monitored during the crediting period.

The emission factors are updated for the second crediting period as described in Section B.5 and in Section E.4, which were only determined at the start of the crediting period and not monitored during the crediting period.

As in Step 1.4 some data and parameters are not valid for the subsequent crediting period, then the baseline, data and parameters are updated for the second crediting period.

Step 2: Update the current baseline and the data and parameters

This step is only applicable if any of the Steps 1.1, 1.2, 1.3 and/or 1.4 showed that the current baseline needs to be updated.

Step 2.1: Update the current baseline

The current baseline emissions for the second crediting period are updated based on the latest ACM0001 Version 16.0 applicable to the project activity.

Step 2.2: Update the date and parameters

The default value of Model correction factor (ϕ), Global warming potential of CH₄ (GWP_{CH4}) and combined margin CO₂ emission factor for grid connect power generation are updated for the second crediting period as described in Section B.5 and in Section E.4.

Conclusion regarding the assessment of the validity of the original/current baseline

In accordance with the procedures for renewal of crediting period of a registered project activity, the original baseline scenario remains valid taking new relevant national and/or sectoral policies into account; and the baseline emissions are updated in accordance with step 1.2 and 2.2 for the second crediting period.

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:

3.3.1 Previously announced project screen

The project owner was in an early stage aware about the potential of carbon revenues to support the project activity. Project owner has fully considered the revenues from CDM when making the decision to implement the project activity. The main events in the development of the project are shown below:

Table B.4 Overview of key events in the development of the Stage I of the Project

November 26 th , 2005	Start of construction 1 st Stage
June 20 th , 2006—end of 2006	Test period 1 st Stage
October 12 th , 2006	The contract of CDM developing was signed with a CDM developer
December 15 th , 2006	Initial Stakeholder Consultation of CDM held
January 1 st , 2007	Start of operation 1 st Stage

Table B.5 Overview of key events in the development of the Stage II of the Project

August 2007	Start of construction 2 nd Stage
April 10 th , 2008	Gold Standard Initial Stakeholder Consultation held
May 1 st , 2008—now	Test period 2 nd Stage, only with the third generator
September, 2008	Planned start date of construction of 4 th generator

The proposed project is owned by Everbright Environment and Energy (Suzhou) Landfill Gas to Energy Co., Ltd. The controlling company, China Everbright International Limited, is a company listed in Hong Kong Stock Exchange. Stage I of the project was initially developed as a CDM project. Early in 2006, the project got stuck in the CDM process due to China's being reluctant to issue CDM LoAs to Hong Kong listed companies. Hence the Project owner needed to receive the revenues from alternative greenhouse gas reduction programmes and finally decided to implement a Gold Standard VER project with South Pole Carbon Asset Management Ltd. There was no public announcement of the project going ahead

without emission reductions for this proposed project. Revenues from emission reduction programmes were considered and discussed seriously and comprehensively in an early stage of feasibility study.

Therefore, the project participants here confirm that the proposed project has not been a public announcement of the project going ahead without it being a carbon offset project, prior to any payment being made for the implementation of the project.

ODA Additionality Screen

In order to meet the requirements of the Gold Standard, the project participants here confirm that the project activity does not use Official Development Assistance (ODA) funding, directly or indirectly.

A clear and transparent finance plan will be provided on request of DOE so the validator can assess whether the project financing includes ODA. This will be presented as a separate document, and remains in commercial confidence.

3.3.2 Additionality tool

According to the “Gold Standard Procedures for The Renewal of A Crediting Period”, the assessment and demonstration of additionality is NOT required. Therefore, the assessment and demonstration of additionality in the registration PDD is not updated here in the revised PDD for renewal application.

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

As per ACM0001 (Version 16.0), the project boundary of the project activity includes the following:

(a) Sites where the LFG is flared or used (e.g. flare, power plant, boiler, air heater, glass melting furnace, kiln, natural gas distribution network or biogas processing facility);

For this case, it is the landfill site of Qizi Mountain Landfill.

(c) Captive power plant(s) or power generation sources connected to the grid, which are supplying electricity in the baseline that is displaced by electricity generated by captured LFG in the project activity. Here the extended project boundary includes all the power generation sources connected to the grid to which the project activity is connected. For this case, it is the East China Power Grid, to which the electricity will be exported.

According to the methodology, overview of emission sources included in or excluded from the project boundary is provided in the following table:

Table B.9 Summary of Greenhouse Gases and Sources Included in and excluded from the Project Boundary

	Source	Gas	Included/ Excluded	Justification/Explanation
Baseline	Emissions from decomposition of waste at the SWDS site	CH ₄	Yes	The major source of emissions in the baseline
		N ₂ O	No	N ₂ O emissions are small compared to CH ₄ emissions from SWDS. This is conservative.
		CO ₂	No	CO ₂ emissions from decomposition of organic waste are not accounted since the CO ₂ is also released under the project activity.
	Emissions from electricity generation	CO ₂	Yes	Major emission source if power generation is included in the project activity.
		CH ₄	No	Excluded for simplification. This is conservative.
		N ₂ O	No	Excluded for simplification. This is conservative.
	Emissions from heat generation	CO ₂	No	No heat generation from LFG in the project activity
		CH ₄	No	Excluded for simplification. This is conservative.
		N ₂ O	No	Excluded for simplification. This is conservative.

Project Activity	Emissions from the use of natural gas	CO ₂	No	Excluded for simplification. This is conservative.
		CH ₄	No	No LFG supply through natural gas distribution network or using trucks in the project activity
		N ₂ O	No	Excluded for simplification. This is conservative.
	Emissions from fossil fuel consumption for purposes other than electricity generation or transportation due to the project activity	CO ₂	No	There is no fossil fuel used in project activity. Therefore, there is no CO ₂ emission.
		CH ₄	No	Excluded for simplification. This emission source is assumed to be very small.
		N ₂ O	No	Excluded for simplification. This emission source is assumed to be very small.
	Emissions from electricity consumption due to the project activity	CO ₂	No	Excluded for simplification. This emission source is assumed to be very small.
		CH ₄	No	Excluded for simplification. This emission source is assumed to be very small.
		N ₂ O	No	Excluded for simplification. This emission source is assumed to be very small.
	Emissions from flaring	CO ₂	No	Emissions are considered negligible
		CH ₄	Yes	May be an important emission source
		N ₂ O	No	Emissions are considered negligible
	Emissions from distribution of LFG using trucks	CO ₂	No	The project does not include LFG distribution through using trucks. Therefore, there is no CO ₂ emission.
		CH ₄	No	The project does not include LFG distribution through using trucks. Therefore, there is no CH ₄ emission.
		N ₂ O	No	Emissions are considered negligible

B.5. The key parameters and assumptions used in baseline scenario:

Data / Parameter:	Regulatory requirements related to landfill gas projects
Data unit:	--
Description:	Regulatory requirements related to landfill gas projects
Source of data used:	The DNA shall be contacted to provide information regarding host country regulation.
Measurement procedures (if any):	
Any comment:	The information though recorded annually, is used for changes to the adjustment factor (AF) or directly $MD_{BL,y}$ at renewal of the crediting period. Relevant regulations for LFG project activities shall be updated at renewal of each crediting period. Changes to regulation should be converted to the amount of methane that would have been destroyed/combusted during the year in the absence of the project activity ($MD_{BL,y}$). Project participants should explain how regulations are translated into that amount of gas.

Data / Parameter:	GWP_{CH_4}
Data unit:	tCO ₂ e/tCH ₄
Description:	Global warming potential of CH ₄
Source of data used:	IPCC
Measurement procedures (if any):	25
Any comment:	Calculation of baseline emission

Data / Parameter:	D_{CH_4}
Data unit:	tCH ₄ /m ³ CH ₄
Description:	Methane Density
Source of data used:	
Measurement procedures (if any):	At standard temperature and pressure (0 degree Celsius and 1,013 bar) the density of methane is 0.0007168 tCH ₄ /m ³ CH ₄
Any comment:	

Data / Parameter:	$BE_{CH_4,SWDS,y}$
Data unit:	tCO ₂ e
Description:	Methane generation from the landfill in the absence of the project activity at year y
Source of data used:	Calculated as per the "Tool to determine methane emissions avoided from dumping waste at a solid waste disposal site".
Measurement procedures (if any):	As per the "Tool to determine methane emissions avoided from dumping waste at a solid waste disposal site"
Any comment:	Used for ex-ante estimation of the amount of methane that would have been destroyed/combusted during the year

Data / Parameter:	φ
Data unit:	-

Description:	Model correction factor to account for model uncertainties
Value to be applied:	0.75
Any comment:	

Data / Parameter:	OX
Data unit:	-
Description:	Oxidation factor (reflecting the amount of methane from SWDS that is oxidized in the soil or other material covering the waste)
Source of data:	Based on an extensive review of published literature on this subject, including the IPCC 2006 Guidelines for National Greenhouse Gas Inventories
Value to be applied:	0.1
Any comment:	When methane passes through the top-layer, part of it is oxidized by methanotrophic bacteria to produce CO ₂ . The oxidation factor represents the proportion of methane that is oxidized to CO ₂ . This should be distinguished from the methane correction factor (MCF) which is to account for the situation that ambient air might intrude into the SWDS and prevent methane from being formed in the upper layer of SWDS

Data / Parameter:	F
Data unit:	-
Description:	Fraction of methane in the SWDS gas (volume fraction)
Source of data:	IPCC 2006 Guidelines for National Greenhouse Gas Inventories
Value to be applied:	0.5
Any comment:	This factor reflects the fact that some degradable organic carbon does not degrade, or degrades very slowly, under anaerobic conditions in the SWDS. A default value of 0.5 is recommended by IPCC.

Data / Parameter:	DOC_f
Data unit:	Weight fraction
Description:	Default value for the fraction of degradable organic carbon (DOC) in MSW that decomposes in the SWDS
Source of data:	IPCC 2006 Guidelines for National Greenhouse Gas Inventories
Value to be applied:	0.5
Any comment:	This factor reflects the fact that some degradable organic carbon does not degrade, or degrades very slowly, in the SWDS.

Data / Parameter:	MCF
Data unit:	-
Description:	Methane correction factor
Source of data:	IPCC 2006 Guidelines for National Greenhouse Gas Inventories
Value to be applied:	In case that the SWDS does not have a water table above the bottom of the SWDS and in case of application A, then select the applicable value from the following: • 1.0 for anaerobic managed solid waste disposal sites. These must have controlled placement of waste (i.e., waste directed to specific deposition areas, a degree of control of scavenging and a degree of control of fires) and will include at least one of the following: (i) cover material; (ii) mechanical compacting; or (iii) leveling of the waste. • 0.5 for semi-aerobic managed solid waste disposal sites. These must have

	controlled placement of waste and will include all of the following structures for introducing air to waste layer: (i) permeable cover material; (ii) leachate drainage system; (iii) regulating pondage; and (iv) gas ventilation system. • 0.8 for unmanaged solid waste disposal sites – deep. This comprises all SWDS not meeting the criteria of managed SWDS and which have depths of greater than or equal to 5 meters. • 0.4 for unmanaged-shallow solid waste disposal sites or stockpiles that are considered SWDS. This comprises all SWDS not meeting the criteria of managed SWDS and which have depths of less than 5 metres. This includes stockpiles of solid waste that are considered SWDS (according to the definition given for a SWDS).
Any comment:	The methane correction factor (MCF) accounts for the fact that unmanaged SWDS produce less methane from a given amount of waste than managed SWDS, because a larger fraction of waste decomposes aerobically in the top layers of unmanaged SWDS.

Data / Parameter:	DOC_j														
Data unit:	-														
Description:	Fraction of degradable organic carbon in the waste type j (weight fraction)														
Source of data:	IPCC 2006 Guidelines for National Greenhouse Gas Inventories (adapted from Volume 5, Tables 2.4 and 2.5)														
Value to be applied:	For MSW, the following values for the different waste types j should be applied: Default values for DOC_j <table border="1"> <thead> <tr> <th>Waste type j</th><th>DOC_j (% wet waste)</th></tr> </thead> <tbody> <tr> <td>Wood and wood products</td><td>43</td></tr> <tr> <td>Pulp, paper and cardboard (other than sludge)</td><td>40</td></tr> <tr> <td>Food, food waste, beverages and tobacco (other than sludge)</td><td>15</td></tr> <tr> <td>Textiles</td><td>24</td></tr> <tr> <td>Garden, yard and park waste</td><td>20</td></tr> <tr> <td>Glass, plastic, metal, other inert waste</td><td>0</td></tr> </tbody> </table> If a waste type, prevented from disposal by the proposed project activity, can not clearly be attributed to one of the waste types in the table above, project participants should choose among the waste types that have similar characteristics that waste type where the values of DOC_j and k_j result in a conservative estimate (lowest emissions), or request a revision of / deviation from this methodology. For example, in the case of empty fruit bunches (EFB), as their characteristics are similar to wood in terms of cellulose, hemi-cellulose, and lignin content, the parameters correspondent of wood should be used.	Waste type j	DOC _j (% wet waste)	Wood and wood products	43	Pulp, paper and cardboard (other than sludge)	40	Food, food waste, beverages and tobacco (other than sludge)	15	Textiles	24	Garden, yard and park waste	20	Glass, plastic, metal, other inert waste	0
Waste type j	DOC _j (% wet waste)														
Wood and wood products	43														
Pulp, paper and cardboard (other than sludge)	40														
Food, food waste, beverages and tobacco (other than sludge)	15														
Textiles	24														
Garden, yard and park waste	20														
Glass, plastic, metal, other inert waste	0														
Any comment:	According to 2nd FSR, page 10, wet waste is treated in the propose project.														

Data / Parameter:	k_j
Data unit:	-
Description:	Decay rate for the waste type j

Source of data:	IPCC 2006 Guidelines for National Greenhouse Gas Inventories (adapted from Volume 5, Table 3.3)																																					
Value to be applied:	Apply the following default values for the different waste types <i>j</i> <table border="1"> <thead> <tr> <th colspan="2" rowspan="2">Waste type <i>j</i></th><th colspan="2">Boreal and Temperate (MAT ≤ 20°C)</th><th colspan="2">Tropical (MAT > 20°C)</th></tr> <tr> <th>Dry (MAP/PET < 1)</th><th>Wet (MAP/PET > 1)</th><th>Dry (MAP < 1000mm)</th><th>Wet (MAP > 1000mm)</th></tr> </thead> <tbody> <tr> <td rowspan="2">Slowly degrading</td><td>Pulp, paper and cardboard (other than sludge), Textiles</td><td>0.04</td><td>0.06</td><td>0.045</td><td>0.07</td></tr> <tr> <td>Wood, wood products and straw</td><td>0.02</td><td>0.03</td><td>0.025</td><td>0.035</td></tr> <tr> <td>Moderately degrading</td><td>Other (non-food) organic putrescible garden, yard and park waste</td><td>0.05</td><td>0.10</td><td>0.065</td><td>0.17</td></tr> <tr> <td>Rapidly degrading</td><td>Food, food waste, sewage sludge, beverages and tobacco</td><td>0.06</td><td>0.185</td><td>0.085</td><td>0.40</td></tr> </tbody> </table> NB: MAT – mean annual temperature, MAP – Mean annual precipitation, PET – potential evapotranspiration. MAP/PET is the ratio between the mean annual precipitation and the potential evapotranspiration. If a waste type, prevented from disposal by the proposed project activity, can not clearly be attributed to one of the waste types in the table above, project participants should choose among the waste types that have similar characteristics that waste type where the values of DOC_j and k_j result in a conservative estimate (lowest emissions), or request a revision of / deviation from this methodology. For example, in the case of empty fruit bunches (EFB), as their characteristics are similar to wood in terms of cellulose, hemi-cellulose, and lignin content, the parameters correspondent of wood should be used.					Waste type <i>j</i>		Boreal and Temperate (MAT ≤ 20°C)		Tropical (MAT > 20°C)		Dry (MAP/PET < 1)	Wet (MAP/PET > 1)	Dry (MAP < 1000mm)	Wet (MAP > 1000mm)	Slowly degrading	Pulp, paper and cardboard (other than sludge), Textiles	0.04	0.06	0.045	0.07	Wood, wood products and straw	0.02	0.03	0.025	0.035	Moderately degrading	Other (non-food) organic putrescible garden, yard and park waste	0.05	0.10	0.065	0.17	Rapidly degrading	Food, food waste, sewage sludge, beverages and tobacco	0.06	0.185	0.085	0.40
Waste type <i>j</i>		Boreal and Temperate (MAT ≤ 20°C)		Tropical (MAT > 20°C)																																		
		Dry (MAP/PET < 1)	Wet (MAP/PET > 1)	Dry (MAP < 1000mm)	Wet (MAP > 1000mm)																																	
Slowly degrading	Pulp, paper and cardboard (other than sludge), Textiles	0.04	0.06	0.045	0.07																																	
	Wood, wood products and straw	0.02	0.03	0.025	0.035																																	
Moderately degrading	Other (non-food) organic putrescible garden, yard and park waste	0.05	0.10	0.065	0.17																																	
Rapidly degrading	Food, food waste, sewage sludge, beverages and tobacco	0.06	0.185	0.085	0.40																																	
Any comment:	Document in the CDM-PDD the climatic conditions at the SWDS site (temperature, precipitation and, where applicable, evapotranspiration). Use long-term averages based on statistical data, where available. Provide references. The effective reference is not available; therefore the conservative value is determined for each waste type.																																					

Data / Parameter:	$EF_{grid,CM,y}$
Data unit:	tCO ₂ /MWh
Description:	Combined margin CO ₂ emission factor of East China Power Grid in year y
Source of data used:	<i>China Electric Power Yearbook 2011-2013, China Energy Statistics Yearbook 2013, 2006 IPCC Guidelines for National Greenhouse Gas Inventories</i>
Value applied:	0.71694
Measurement procedures (if any):	Officially released statistics; publicly accessible and reliable data source
Any comment:	Based on combined margin calculation of OM and BM of East China Power Grid. Weighting of OM and CM are 0.25 and 0.75 respectively. The project uses fixed ex ante emission factor in the second crediting period. Detailed calculation is provided in Annex 2.

Data / Parameter:	$EF_{grid,OMsimple,y}$
Data unit:	tCO ₂ /MWh
Description:	Simple operating margin CO ₂ emission factor of East China Power Grid in year y
Source of data used:	<i>China Electric Power Yearbook 2011-2013, China Energy Statistics Yearbook 2013, 2006 IPCC Guidelines for National Greenhouse Gas Inventories</i>
Value applied:	0.8095
Measurement procedures (if any):	Officially released statistics; publicly accessible and reliable data source
Any comment:	The proposed project uses fixed ex ante emission factor in the second crediting period. Detailed calculation is provided in Annex 2.

Data / Parameter:	$EF_{grid,BM,y}$
Data unit:	tCO ₂ /MWh
Description:	Build margin of East China Power Grid in year y
Source of data used:	<i>China Electric Power Yearbook 2011-2013, China Energy Statistics Yearbook 2013, 2006 IPCC Guidelines for National Greenhouse Gas Inventories</i>
Value applied:	0.6861
Measurement procedures (if any):	Officially released statistics; publicly accessible and reliable data source
Any comment:	The project used Chinese NDRC method to calculate BM emission factor. This alternative method was accepted by EB in registered projects from China. The project uses fixed ex ante emission factor in the second crediting period. Detailed calculation is provided in Annex 2.

Data / Parameter:	$EG_{m,y}$
Data unit:	MWh
Description:	Electricity delivered to the grid by relevant power sources m in (years) y (2010-2012, East China Power Grid)
Source of data used:	<i>China Electric Power Yearbook 2011-2013</i>
Value applied:	Provided in Annex 2
Measurement procedures (if any):	Officially released statistics; publicly accessible and reliable data source
Any comment:	To calculate the OM and BM

Data / Parameter:	<i>Electricity Imports from Connected Electricity Systems to East China Power Grid</i>
Data unit:	MWh

Description:	Electricity Imports from Connected Electricity Systems to East China Power Gridin (years) y (2010-2012)
Source of data used:	<i>China Electric Power Yearbook 2011-2013</i>
Value applied:	Provided in Annex 2
Measurement procedures (if any):	Officially released statistics; publicly accessible and reliable data source
Any comment:	To calculate the OM

Data / Parameter:	$FC_{i,m,y}$
Data unit:	$10^4\text{t}/10^8\text{m}^3$
Description:	Amount of fuel i consumed by relevant power sources m in (years) y (2010-2012, East China Power Grid)
Source of data used:	<i>China Energy Statistics Yearbook 2011-2013</i>
Value applied:	Provided in Annex 2
Measurement procedures (if any):	Officially released statistics; publicly accessible and reliable data source
Any comment:	To calculate OM and BM

Data / Parameter:	NCV_i
Data unit:	TJ/ 10^3 t
Description:	Net calorific value per mass or volume unit of fuel i
Source of data used:	<i>China Energy Statistics Yearbook 2013</i>
Value applied:	Provided in Annex 2
Measurement procedures (if any):	Officially released statistics; publicly accessible and reliable data source
Any comment:	To calculate OM and BM

Data / Parameter:	$EF_{CO_2,i}$
Data unit:	tCO ₂ /TJ
Description:	CO ₂ emission factor per energy unit of fuel i
Source of data used:	<i>Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories</i>
Value applied:	Provided in Annex 2
Measurement procedures (if any):	IPCC default value
Any comment:	To calculate OM and BM

Data / Parameter:	<i>Efficiency level of best technology commercially available in China for coal-fired power generation</i>
Data unit:	%
Description:	Efficiency level of best technology commercially available in China for coal-fired power generation
Source of data used:	<i>China DNA: Notification on Determining the Regional Grid Emission Factors of China</i>
Value applied:	40.03%
Measurement procedures (if any):	Officially released statistics; publicly accessible and reliable data source
Any comment:	To calculate BM

Data / Parameter:	<i>Efficiency level of best technology commercially available in China for oil and gas-</i>
--------------------------	--

	<i>fired power generation</i>
Data unit:	%
Description:	Efficiency level of best technology commercially available in China for oil and gas-fired power generation
Source of data used:	<i>China DNA: Notification on Determining the Regional Grid Emission Factors of China</i>
Value applied:	52.9%
Measurement procedures (if any):	Officially released statistics; publicly accessible and reliable data source
Any comment:	To calculate BM

Data / Parameter:	$CAP_{v,i}$
Data unit:	MW
Description:	The installed capacity of power generation sources j in (years) y (2010-2012, East China Power Grid)
Source of data used:	<i>China Electric Power Yearbook 2011-2013</i>
Value applied:	Provided in Annex 2
Measurement procedures (if any):	Officially released statistics; publicly accessible and reliable data source
Any comment:	To calculate BM

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:

Date of completion of the baseline study: 24/09/2015

Baseline for electricity production is in line with Chinese DNA's official electricity grid EF data.

Ms. Jane Duan, South Pole Carbon Asset Management Ltd.

Technoparkstrasse 1

8005 Zurich, Switzerland

Phone: +41 43 501 35 50

Fax: +41 43 501 35 50

j.duan@southpolecarbon.com

Mr. Marco Hirsbrunner, South Pole Carbon Asset Management Ltd.

Technoparkstrasse 1

8005 Zurich, Switzerland

Phone: +41 43 501 35 50

Fax: +41 43 501 35 50

m.hirsbrunner@southpolecarbon.com

Mr. Patrick Bürgi, South Pole Carbon Asset Management Ltd.

Technoparkstrasse 1

8005 Zurich, Switzerland

Phone: +41 43 501 35 50

Fax: +41 43 501 35 50

p.burgi@southpolecarbon.com

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:

Unit I and II started construction in November 2005, Unit III started construction in August 2007, Unit IV will start construction in September 2008. Therefore, the starting date of the project activity is in November 2005.

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

18 years

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

C.2.1. Renewable crediting period

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

Starting date of the first crediting period: 22/04/2007

Starting date of the second crediting period: 22/04/2014

C.2.1.2. Length of the first crediting period:

7 years

C.2.2. Fixed crediting period:

C.2.2.1. Starting date:

Not applicable

C.2.2.2. Length:

Not applicable

SECTION D. Application of a monitoring methodology and plan

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

The proposed project applies the approved Large-scale consolidated methodology ACM0001: Flaring or use of landfill gas, Version 16.0 for preparing the monitoring plan.

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

The current situation before the implementation of the project activity is that LFG is released into atmospheric directly. In addition, the project activity will capture the LFG for electricity generation. Therefore methodology (ACM 0001) is applicable.

D.2.1. Monitoring Objective

The baseline emission factor of East China Power is fixed during the second crediting period by ex-ante calculations. Annex 2 of the PDD has details of the calculation. Hence, the monitoring plan provides further monitoring work for baseline emissions.

The monitoring plan provides for continuous measurement of the quantity of methane used to generate electricity ($MD_{electricity,y}$). It is shown in Figure B.1.

In addition, the energy generated by use of LFG ($EL_{LFG,y}$) and energy consumed by the project activity that is produced using fossil fuels are required to measure.

Furthermore, potential mitigation measures from the EIA should be included

D.2.2. Data and parameters monitored

Data / Parameter:	$LFG_{electricity,y}$
Data unit:	m^3
Description:	Amount of landfill gas combusted in power plant at Normal Temperature and Pressure
Source of data to be used:	Project participants
Measurement procedures (if any):	Measured by a flow meter. Data to be aggregated monthly and yearly for each power plant
Monitoring frequency:	Continuous
QA/QC procedures:	Flow meters should be subject to a regular maintenance and testing regime to ensure accuracy.
Any comment:	In proposed project, there is no any other treatment of LFG besides electricity utilization. Therefore LFG electricity equals LFG total _y

Data / Parameter:	WCH_4
Data unit:	$m^3 CH_4 / m^3 LFG$
Description:	Methane fraction in the landfill gas
Source of data to be	To be measured continuously by project participants using certified equipment

used:	
Measurement procedures (if any):	Methane fraction will be measured continuously by gas analyzer mounted in the gas pipe work between the gas pre-treatment package and the generator sets
Monitoring frequency:	Continuous
QA/QC procedures:	The gas analyser should be subject to a regular maintenance and testing regime to ensure accuracy.
Any comment:	

Data / Parameter:	T
Data unit:	°C
Description:	Temperature of the landfill gas
Source of data to be used:	Project participants
Measurement procedures (if any):	Measured to determine the density of methane D _{CH₄} .
Monitoring frequency:	Continuous
QA/QC procedures:	Measuring instruments should be subject to a regular maintenance and testing regime in accordance to appropriate national/international standards.
Any comment:	

Data / Parameter:	P
Data unit:	Pa
Description:	Pressure of the landfill gas
Source of data to be used:	Project participants
Measurement procedures (if any):	Measured to determine the density of methane D _{CH₄} .
Monitoring frequency:	Continuous
QA/QC procedures:	Measuring instruments should be subject to a regular maintenance and testing regime in accordance to appropriate national/international standards.
Any comment:	

Data / Parameter:	EL _{LFG}
Data unit:	MWh
Description:	Net amount of electricity generated using LFG.
Source of data to be used:	Project participants
Measurement procedures (if any):	EL _{LFG} =EL _{generation} - EL _{internal consumption}
Monitoring frequency:	Continuous
QA/QC procedures:	Related Electricity meter will be subject to regular (in accordance with stipulation of the meter supplier) maintenance and testing to ensure accuracy.
Any comment:	Required to estimate the emission reductions from electricity generation from LFG, if credits are claimed.

Data / Parameter:	EL _{internal consumption}
Data unit:	MWh
Description:	Electricity imported from the grid in the year y. It includes the electricity consumption of the gas collection system. (Auxiliary electricity consumption)
Source of data to be used:	Measured by meter

Description of measurement methods and procedures to be applied:	Measured continuously by two kilowatt meter and recorded on a monthly basis using monitoring personnel.
QA/QC procedures to be applied:	▪ The imported electricity from the grid is measured by kilowatt meters, which are controlled by the power grid company ▪ Trained and qualified staff is responsible for recording electricity import data from the kilowatt meter ▪ Meters will be calibrated periodically according to relevant national standards
Any comment:	

Data / Parameter:	EL generation
Data unit:	MWh
Description:	Electricity generation from the generator in the year y
Source of data to be used:	Measured by meter
Description of measurement methods and procedures to be applied:	Measured continuously by four kilowatt meters and recorded on a monthly basis using monitoring personnel.
QA/QC procedures to be applied:	▪ The imported electricity from the grid is measured by kilowatt meters, which are controlled by the power grid company ▪ Trained and qualified staff is responsible for recording electricity generation data from the kilowatt meter ▪ Meters will be calibrated periodically according to relevant national standards
Any comment:	

Data / Parameter:	Operation of the energy plant
Data unit:	Hours
Description:	Operation of the energy plant
Source of data to be used:	Project participants
Measurement procedures (if any):	
Monitoring frequency:	Annually
QA/QC procedures:	
Any comment:	This is monitored to ensure methane destruction is claimed for methane used in electricity plant when it is operational.

Data / Parameter:	Laws and regulations about waste management system in China
Data unit:	-
Description:	Relevant laws and regulations about solid waste management system in China will be monitored yearly. When there are relevant changes, the baseline scenario or monitor plan will change accordingly.
Source of data to be used:	Project participants
QA/QC procedures:	Regular follow-up of law and regulations by project participants (e.g.

This template shall not be altered. It shall be completed without modifying/adding headings or logo, format or font.

	governmental publications, official communications, official journal, conferences)
Any comment:	

Data to be collected in order to monitor the project's performance on the sustainable development indicators:

Data / Parameter:	AQ_y
Data unit:	n/a
Description:	Negative air quality effects (emissions other than GHG) that are prevented by processing units.
Source of data to be used:	Report of Environment Protection for Check & Accept from Local Environment Protection Agency.
Description of measurement methods and procedures to be applied:	Processing units will be maintained periodically according to relevant national standards. Local Environment Protection Agency will publish a report after project starts to operate and check periodically.
QA/QC procedures to be applied:	Report of Environment Protection for Check & Accept from Local Environment Protection Agency will be provided to DOE. The project should meet the relevant environment standards during operation:
Any comment:	

Data / Parameter:	WQ_y
Data unit:	n/a
Description:	Negative water quality effects that are prevented by processing units.
Source of data to be used:	Report of Environment Protection for Check & Accept from Local Environment Protection Agency
Description of measurement methods and procedures to be applied:	The landfill leachate will be collected properly and transported to Suzhou Gaoxin wastewater treatment plant finally. Local Environment Protection Agency will publish a report after project starts to operate and check periodically.
QA/QC procedures to be applied:	Report of Environment Protection for Check & Accept from Local Environment Protection Agency will be provided to DOE. The project should meet the relevant environment standards during operation
Any comment:	

Data / Parameter:	<i>Other Pollutant</i>
Data unit:	n/a
Description:	Noise impacts that are prevented by several approaches.
Source of data to be used:	Report of Environment Protection for Check & Accept from Local Environment Protection Agency.
Description of measurement methods and procedures to be applied:	In order to minimize the noise impacts, few measures are carried out, such as the high dB (A) will be strictly forbidden from 10 pm to 6 am and 12 am to 2pm; enforcement of the onsite management and establishing related bylaws. The noise during the construction period has locality and temporality characteristic; it will disappear when the construction work finished. After the project is put into operation, the major resource of noise pollution is from running of the turbines, generator and valves. Muffler is installed to avoid the noise impact on the local

	citizens and employees. Local Environment Protection Agency will publish a report after project starts to operate and check periodically.
QA/QC procedures to be applied:	Report of Environment Protection for Check & Accept from Local Environment Protection Agency will be provided to DOE. The project should meet the relevant environment standards during operation
Any comment:	

Data / Parameter:	<i>Employment</i>
Data unit:	n/a
Description:	It includes job quality, fulfillment of labour standards. These jobs do have a significant impact on job quality since they include technically advanced knowledge mostly. Project manager and operators in the plant will have a chance to learn new knowledge of sophisticated monitoring equipments and computer operations.
Source of data to be used:	n/a
Description of measurement methods and procedures to be applied:	Fulfillment of labour standards will be checked by local labour authority.
QA/QC procedures to be applied:	Documents of training program will be provided to DOE. Certificates from the local labour authority will be provided to DOE, if possible.
Any comment:	

Data / Parameter:	<i>Livelihood of the poor</i>
Data unit:	n/a
Description:	In the project, wages will be monitored.
Source of data to be used:	Accounting report by human resource office of the plant
Description of measurement methods and procedures to be applied:	People engaged during the fiscal year will be recorded in the accounting system of the plant. The number of people engaged, the gender, the responsibilities of them and the training they take will all be covered in the report.
QA/QC procedures to be applied:	Pay roll of these employees will be provided as evidence for contribution in employment of local people
Any comment:	

Data / Parameter:	<i>Human and institutional capacity</i>
Data unit:	n/a
Description:	Education or training fee and gender will be monitored.
Source of data to be used:	n/a
Description of measurement methods and procedures to be applied:	People engaged during the fiscal year will be recorded in the accounting system of the plant. The number of people engaged, the gender, the responsibilities of them and the training they take will all be covered in the report.

QA/QC procedures to be applied:	Training invoices or documents of these employees or local officials or local people will be provided as evidence for contribution in employment of local people
Any comment:	

Data / Parameter:	<i>Emp_y</i>
Data unit:	n/a
Description:	Number of people engaged will be monitored
Source of data to be used:	Accounting report by human resource office of the plant
Description of measurement methods and procedures to be applied:	People engaged during the fiscal year will be recorded in the accounting system of the plant. The number of people engaged, the gender, the responsibilities of them and the training they take will all be covered in the report.
QA/QC procedures to be applied:	Pay roll of these employees will be provided as evidence for contribution in employment of local people
Any comment:	

Data / Parameter:	<i>RLFG_y</i>
Data unit:	%
Description:	The ratio between the LFG collected and the LFG used within the engines on average each year will be monitored.
Source of data to be used:	The actual layout of the entire collection pipelines, which covers from the well to electricity generator.
Description of measurement methods and procedures to be applied:	If there is no other way, such as flaring or venting, to treat the collected LFG besides generating electricity, this ratio can be nearly closed to 100 %, at least higher than 65%.
QA/QC procedures to be applied:	The actual layout of the entire collection pipelines, which covers from the well to electricity generator will be checked by DOE carefully during each verification.
Any comment:	

Data / Parameter:	<i>Continuous Input & Grievance Expression Methods</i>
Data unit:	n/a
Description:	Methods for continuous input & grievance expression including: • Continuous Input/Grievance Expression Process Book • Telephone access • Internet/email access
Source of data to be used:	Onsite interview records with local stakeholders or photos of the input/grievance expression process book with information of name of contact person, telephone number and email address
Description of measurement methods and procedures to be applied:	People responsible for conducting the interviews with the local stakeholders or for solving the problems raised by the local stakeholders on the Book will conduct the interview or check the Book periodically.
QA/QC procedures to be applied:	Interview records or records on the input/grievance expression process book will be checked by DOE during each verification.
Any comment:	-

D.2.3. Treatment of leakage in the monitoring plan

No leakage effects need to be accounted under this methodology.

D.2.4. Description of formulae used to estimate emission reductions for the project activity (for each gas, source, formulae/algorithm, emissions units of CO₂equ.)

Please refer to section E.4

D.3. 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

Operational and Management Structure

The operational and management structure of the project is summarized within Table D.1 below.

Table D.1 Operational and Management Structure

Name	Organization	Responsibility
Mr. Yunyue Zhang	Everbright Environment and Energy (Suzhou) Landfill Gas to Energy Co., Ltd.	Mr. Zhang is the chairman of Everbright Environment and Energy (Suzhou) Landfill Gas to Energy Co., Ltd. He has extended knowledge about both the Kyoto Protocol and GS VERs and takes the responsibility of overall project management.
Mr. Kai Wu	Everbright Environment and Energy (Suzhou) Landfill Gas to Energy Co., Ltd.	Mr. Wu is the monitoring manager of the plant. He is responsible for the training of the monitoring personnel. Training courses will be held for monitoring staff about basic knowledge and operational procedures of all monitors and the data processing system. Previously, South Pole Carbon Asset Management Ltd. has provided training about GHG, GS VER and requirements.
		Mr. Wu is the monitoring system engineer of Everbright Environment and Energy (Suzhou) Landfill Gas to Energy Co., Ltd. He is in charge of data recording, processing and reporting for the project. The data will be either automatically recorded or manually recorded by operators. All data will be imported to an Excel sheet for validation or verification. Please see Section B.7.1 for more details of procedures of monitoring and recording.
	South Pole Carbon Asset Management Co., Ltd.	South Pole Carbon Asset Management Co., Ltd. Will provide review of reported data before submitting to DOE for verification.
Mr. Kai Wu	Everbright Environment and Energy (Suzhou) Landfill Gas to Energy Co., Ltd.	Mr. Wu is the manager for safety and environment. He is responsible of validation, registration and verification from the plant owner's part under assistance of South Pole Carbon Asset Management Ltd.

Monitoring Equipment and Program

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To determine these variables, the following parameters have to be monitored:

- The amount of landfill gas power plant(s) ($LFG_{electricity,y}$) (in m^3 , using a continuous flow meter).
- The fraction of methane in the landfill gas ($w_{CH_4,y}$) should be measured with a continuous analyzer or, alternatively, with periodical measurements, at a 95% confidence level, using calibrated portable gas meters and taking a statistically valid number of samples and accordingly the amount of landfill gas from $LFG_{electricity,y}$, shall be monitored in the same frequency. The continuous methane analyser should be the preferred option. Methane fraction of the landfill gas to be measured on wet basis;
- Temperature (T) and pressure (p) of the landfill gas are required to determine the density of methane in the landfill gas;
- The quantity of electricity internal consumption, in the baseline and the project situation, to meet the requirements of the project activity, if any;
- Relevant regulations for LFG project activities shall be monitored and updated at renewal of each credit period. Changes to regulation should be converted to the amount of methane that would have been destroyed/combusted during the year in the absence of the project activity ($MD_{BL,y}$). Project participants should explain how regulations are translated into that amount of gas;
- The operating hours of the energy plant(s).
- $RLFG_y$ The ratio between the LFG collected and the LFG used within the engines on average each year must be monitored.

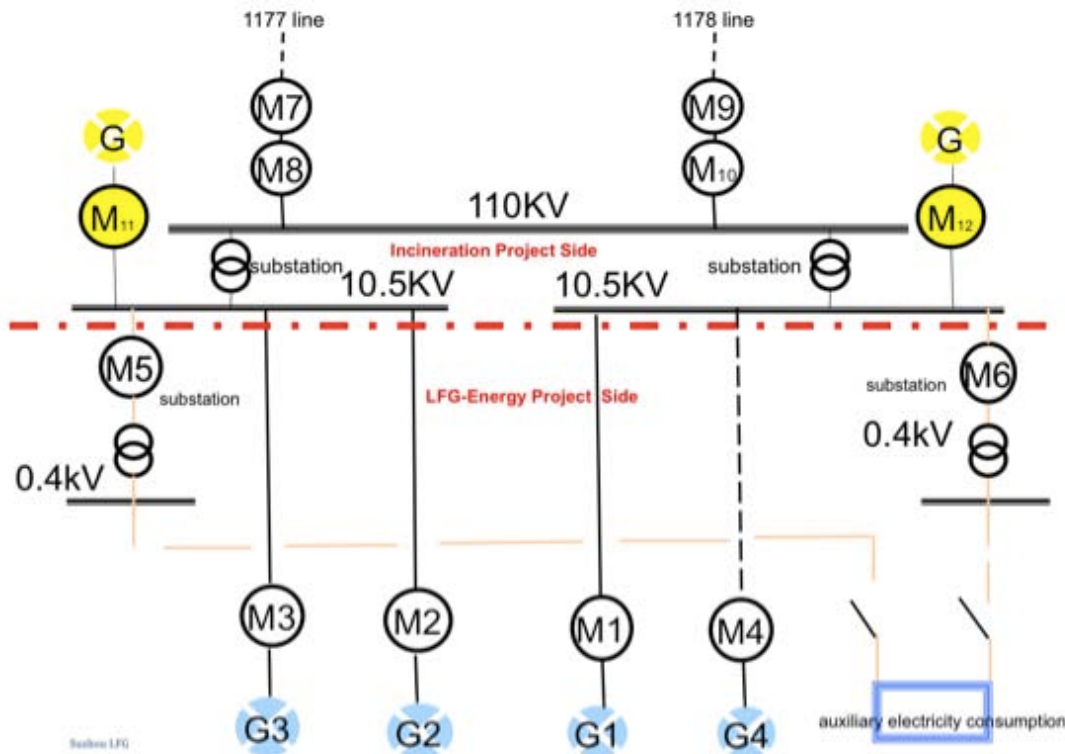
The measurement equipment for gas quality (humidity, particulate, etc.) is sensitive, so a strong QA/QC procedure for the calibration of this equipment is needed.

Electricity Generation

According to the Chinese national standard “*Technical Management Code for Electricity Metering*” (DL/T448-2000), the electricity metering equipment will be properly configured and the metering equipment will be checked by both the project owner and the grid company before the project is in operation.

Meter M1, M2 and M3, which are with an accuracy of 0.5S and bidirectional electronic meters, are installed to measure gross power generation of generators. M4 will be installed to measure power generation of the fourth generator. M5 and M6, which are with an accuracy of 2, measure electricity imported from the grid by the project. M7, M8, M9 and M10 are gateway meters for this project and the incineration project, measuring electricity exported from the project and incineration project to the grid and imported electricity of the project and incineration project from grid. M11 and M12 are the electricity generation meters for the incineration project. M1, M2, M3, M4, M5 and M6 are the key meters for monitoring data and emission reduction calculation. When readings from M1, M2, M3, M4, M5 and M6 are questionable (due to abnormal circumstances) or not possible (due to meter failure or meter reparation), reading of M7, M8, M9, M10 and separated meters (M11 and M12) of incineration project are used for crosscheck. Incineration project and the project share two 10.5 kv transmission lines. Please see Fig. D.1 for the simplified diagram of electric layout.

Fig. D.1 Simplified Diagram of the Electric Layout



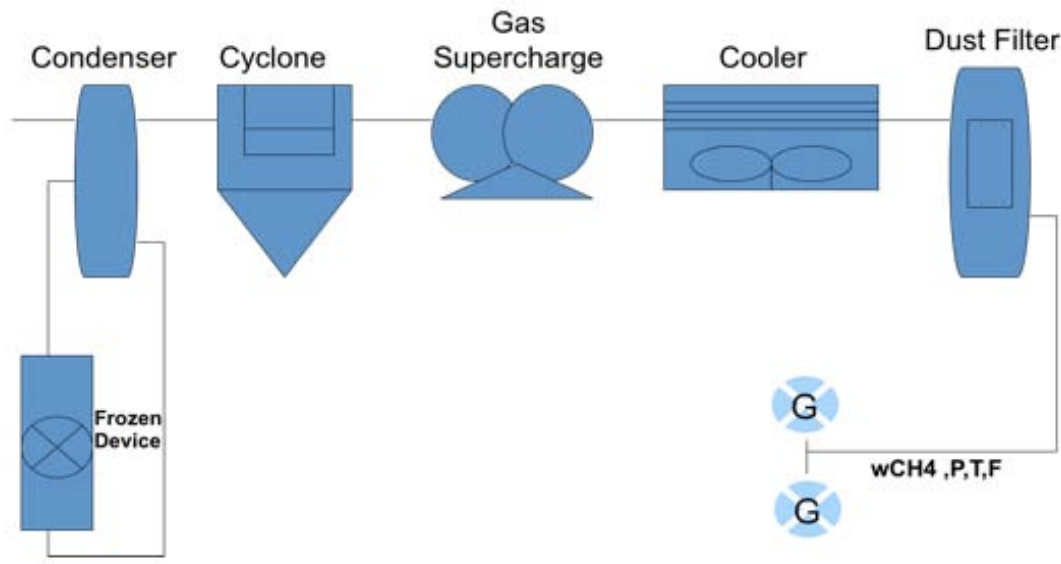
LFG utilization

Temperature (T) and pressure (p) of the landfill gas are required to determine the density of methane in the landfill gas. Therefore temperature and pressure meters are installed between gas treatment package and generator sets. The accuracy of temperature meter is 1.5%; The accuracy of pressure meter is 2.5%. For the purpose of crosscheck, additional temperature and pressure meters will be installed at the same location.

At the same location, flow volume meter, whose accuracy is 0.5%, and methane percentage analyzer, whose accuracy is 0.5%.

Please see Fig. D.2, the simplified diagram of pre-processing treatment layout.

Fig. D.2, the simplified diagram of pre-processing treatment layout.



According to GS requirements , potential mitigation and/or compensation measures from the EIA

In section F of PDD, noise impact and impacts on aquatic environment and air quality can be evaluated. The institute which wrote the EIA, and the Environmental Protection Agency are conducting the reevaluation monitoring for the first phase since the first two generators started operation.

The project should meet the following environment standards during operation:

- Air Quality Standard (GB3095-1996)
- Aquatic Environment standard (GB3838-2002)
- Noise Controlling Standard (GB3096-93)

After that, the local EPA will be responsible for the further monitoring, but this is not conducted annually. As the project's environmental impact will only differ from the outcomes of the first reevaluation if changes in the project design happen. These aspects will be monitored for the first verification, and later only if project design changes happen.

The ratio ($R_{LFG,y}$) between the LFG collected and the LFG used within the engines on average each year must be a monitoring parameter. If there is no other way, such as flaring or venting, to treat the collected LFG besides generating electricity, this ratio can be nearly close to 100 %, at least higher than 65%. The actual layout of the entire collection pipelines, which covers from the wells to electricity generators will be checked by DOE carefully during each verification.

Data Collection:

Data related to LFG

The project owner is responsible for operation monitoring of the main meters and guarantee that the measuring equipments are in good operation and completely sealed.

The main monitoring process is as follows:

- i Methan fraction and flow volume are continuously recorded and measured by project participants

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- using certified equipment. Temperature and pressure are measured continuously and recorded hourly.
- ii The project owner keeps the records of the main meter's data readings for verification by the DOE.

If inaccuracy of the reading data from the main meter exceeds the allowable tolerance, when the meter operates abnormally during a month or any other unexpected problems occur, the amount of LFG generated shall not be counted.

Data related to Electricity Generation

The project owner and the Grid Company are responsible for operation monitoring of the main meters and guarantee that the measuring equipments are in good operation and completely sealed.

The electricity recorded by the main meter alone will suffice for the purpose of billing and emission reduction verification as long as the main meter error is within the allowable tolerance. The main monitoring process is as follows:

- iii The project owner and Grid Company read and check the main meter and record the data at 00:00 am on the second to last day of every month;
- iv The project owner sells the electricity to the Grid Company;
- v The project owner provides an electricity sales invoice to the Grid Company. A copy of the invoice is stored by the project owner, together with a record of the payment by the grid company.
- vi The Grid Company provides an electricity receipt confirmation to the project owner and the confirmation is stored by the project owner.
- vii The project owner records the net electricity supplied to the grid electronically;
- viii The project owner keeps the records of the main meter's data readings for verification by the DOE.

If inaccuracy of the reading data from the main meter exceeds the allowable tolerance, when the meter operates abnormally during a month or any other unexpected problems occur, the net amount of electricity exported to the grid shall be determined by:

- ii Using readings from the backup meter (taking potential transmission losses into consideration), unless a test by either party reveals it is inaccurate;
- iii If the backup system is not within acceptable limits of accuracy or performed improperly, the project owner and the Grid Company shall, based on mutual agreement, determine the amount of supplied electricity to the grid during the period of the occurred distortion or mal-function of backup meters by means of referring to voltage and current data in accordance with relevant rules; and
- iv If the project owner and the Grid Company fail to reach an agreement concerning the amount of supplied electricity to the grid during the period of the occurred distortion or mal-function of backup meter, then the matter will be submitted for arbitration according to agreed procedures.

The meter readings will be readily accessible for the DOE. Calibration test records will be maintained for verification.

Calibration

The verification and calibration of electricity meters will be carried out periodically according to relevant national electric industry standards and regulations. After verification and calibration, meters will be sealed. Meters related to the electricity generation will be jointly inspected and sealed on behalf of the project owner and Grid Company and shall not be accessible by either party except in the presence of the other party or its accredited representatives.

The meters, which is related to the electricity generation, installed will be tested by the qualified metrical

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organization co-authorized by the project owner and the Grid Company within 10 days after:

- i The detection of a difference larger than the allowable tolerance in the readings of the main meter and/or the backup meters;
- ii Repair to the faulty meter caused by improper operation.

In addition, the flow volume meter, temperature meter and pressure meter will be calibrated periodically as well according to relevant national standards and regulations.

Data Management

Data will be archived at the end of each month using electronic spreadsheets. The electronic files will be stored on hard disk and CD-ROM. In addition, a hard copy printout will be archived.

The project owner will also collect sales receipts for the power delivered to the grid as a crosscheck. At the end of each crediting year, a monitoring report will be compiled detailing the metering results backed up by sales receipts.

Physical documentation will be collected and stored by the project owner in a central place, together with the monitoring plan. In order to facilitate the auditor's reference, monitoring results will be indexed. All data records will be kept for a period of 2 years following the end of the crediting period.

D.4 Name of person/entity determining the monitoring methodology:
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Ms. Jane Duan, South Pole Carbon Asset Management Ltd.
Technoparkstrasse 1
8005 Zurich, Switzerland
Phone: +41 43 501 35 50
Fax: +41 43 501 35 50
j.duan@southpolecarbon.com

Mr. Marco Hirsbrunner, South Pole Carbon Asset Management Ltd.
Technoparkstrasse 1
8005 Zurich, Switzerland
Phone: +41 43 501 35 50
Fax: +41 43 501 35 50
m.hirsbrunner@southpolecarbon.com

Mr. Patrick Bürgi, South Pole Carbon Asset Management Ltd.
Technoparkstrasse 1
8005 Zurich, Switzerland
Phone: +41 43 501 35 50
Fax: +41 43 501 35 50
p.buergi@southpolecarbon.com

SECTION E. Estimation of GHG emissions by sources

E.1. Estimate of GHG emissions by sources:

In accordance to methodology ACM0002 (Version 16.0), the project emissions are calculated as follows:

$$PE_y = PE_{EC,y} + PE_{FC,y} + PE_{DT,y}$$

Where:

PE_y	=	Project emissions in year y (tCO ₂ /yr)
$PE_{EC,y}$	=	Emissions from consumption of electricity due to the project activity in year y (tCO ₂ /yr)
$PE_{FC,y}$	=	Emissions from consumption of fossil fuel due to the project activity, for purpose other than electricity generation, in year y (tCO ₂ /yr)
$PE_{DT,y}$	=	Emissions from the distribution of compressed/liquefied LFG using trucks, in year y (tCO ₂ /yr)

The project emissions from consumption of electricity by the project activity ($PE_{EC,y}$) shall be calculated using the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption”. When applying the tool:

- $EC_{PJ,k,y}$ in the tool is equivalent to the amount of electricity consumed by the project activity in year y ($EC_{PJ,y}$); and
- If in the baseline a proportion of LFG is destroyed ($F_{CH4,BL,y} > 0$), then the electricity consumption in the tool ($EC_{PJ,j,y}$) should refer to the net quantity of electricity consumption (i.e. the increase due to the project activity). The determination of the amount of electricity consumed in the baseline shall be transparently documented in the PDD.

Considering when electricity generators will be under regular maintenance and sometimes shut down, the electricity will be purchased from the Ease China Power Grid during this period of time. For ex ante calculation, $EC_{PJ,y} = 0$ as simplified consideration since it is estimated to be small amount in the project implementation and it will be monitored during the crediting period. As per the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption”, emissions from consumption of electricity due to the project activity in year y will be calculated as follows:

$$PE_{EC,y} = \sum_j EC_{PJ,j,y} \times EF_{EL,j,y} \times (1 + TDL_{j,y})$$

Where:

$PE_{EC,y}$	=	Project emissions from electricity consumption in year y (tCO ₂ /yr)
$EC_{PJ,j,y}$	=	Quantity of electricity consumed by the project electricity consumption source j in year y (MWh/yr)
$EF_{EL,j,y}$	=	Emission factor for electricity generation for source j in year y (tCO ₂ /MWh)
$TDL_{j,y}$	=	Average technical transmission and distribution losses for providing electricity to source j in year y
j	=	Sources of electricity consumption in the project

For the determination of $EF_{EL,y}$, Option A1 is chosen as:

Option A1: Calculate the combined margin emission factor of the applicable electricity system, using the procedures in the latest approved version of the “Tool to calculate the emission factor for an electricity system” ($EF_{EL,j,y} = EF_{grid,CM,y}$).

There is no fossil fuel consumption in the project activity, therefore $PE_{FC,y} = 0$.

There is no distribution of compressed/liquefied LFG using trucks involved in the project activity, therefore $PE_{DT,y} = 0$.

Therefore, project emissions can be ex ante calculated as: $PE_y = 0$.

E.2. Estimated leakage:

No leakage effects are accounted for under this methodology.

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

Since there are not any emission in project activity and leakage, the sum of E1 and E2 representing the project activity emissions is zero.

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

Baseline Emissions

As per the methodology, the baseline emissions for the year y shall be determined as follows:

$$BE_y = BE_{CH_4,y} + BE_{EC,y} + BE_{HG,y} + BE_{NG,y} \quad (1)$$

Where:

BE_y	=	Baseline emissions in year y (tCO ₂ e/yr)
$BE_{CH_4,y}$	=	Baseline emissions of methane from the SWDS in year y (tCO ₂ e/yr)
$BE_{EC,y}$	=	Baseline emissions associated with electricity generation in year y (tCO ₂ e/yr)
$BE_{HG,y}$	=	Baseline emissions associated with heat generation in year y (tCO ₂ e/yr)
$BE_{NG,y}$	=	Baseline emissions associated with natural gas use in year y (tCO ₂ e/yr)

Supply of LFG through a natural gas distribution network is not included in the project activity. Moreover, the project participants do not intend to utilize the LFG for heat generation and natural gas use. Therefore, $BE_{HG,y} = 0$ and $BE_{NG,y} = 0$; and baseline emissions shall be calculated as below:

$$BE_y = BE_{CH_4,y} + BE_{EC,y} \quad (2)$$

i) Baseline emissions of methane from the SWDS ($BE_{CH_4,y}$)

Baseline emissions of methane from the SWDS are determined as follows, based on the amount of methane that is captured under the project activity and the amount that would be captured and destroyed in the baseline (such as due to regulations). In addition, the effect of methane oxidation that is present in the baseline and absent in the project is taken into account:

$$BE_{CH_4} = ((1 - OX_{top_layer}) \times F_{CH_4,PJ,y} - F_{CH_4,BL,y}) \times GWP_{CH_4} \quad (3)$$

Where:

$BE_{CH_4,y}$	=	Baseline emissions of methane from the SWDS in year y (tCO ₂ e/yr)
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OX_{top_layer}	=	Fraction of methane in the LFG that would be oxidized in the top layer of the SWDS in the baseline (dimensionless)
$F_{CH_4,PJ,y}$	=	Amount of methane in the LFG which is flared and/or used in the project activity in year y (tCH ₄ /yr)
$F_{CH_4,BL,y}$	=	Amount of methane in the LFG that would be flared in the baseline in year y (tCH ₄ /yr)
GWP_{CH_4}	=	Global warming potential of CH ₄ (tCO ₂ e/tCH ₄)

Ex post determination of $F_{CH_4,PJ,y}$

According to ACM0001, during the crediting period, $F_{CH_4,PJ,y}$ shall be determined ex post as follows:

$$F_{CH_4,PJ,y} = F_{CH_4,flared,y} + F_{CH_4,EL,y} + F_{CH_4,HG,y} + F_{CH_4,NG,y} \quad (4)$$

Where:

$F_{CH_4,PJ,y}$	=	Amount of methane in the LFG which is flared and/or used in the project activity in year y (tCH ₄ /yr)
$F_{CH_4,flared,y}$	=	Amount of methane in the LFG which is destroyed by flaring in year y (tCH ₄ /yr)
$F_{CH_4,EL,y}$	=	Amount of methane in the LFG which is used for electricity generation in year y (tCH ₄ /yr)
$F_{CH_4,HG,y}$	=	Amount of methane in the LFG which is used for heat generation in year y (tCH ₄ /yr)
$F_{CH_4,NG,y}$	=	Amount of methane in the LFG which is sent to the natural gas distribution network and/or to the trucks in year y (tCH ₄ /yr)

As there is no heat generation and natural gas distribution network involved in the project activity, $BE_{HG,y} = 0$ and $BE_{NG,y} = 0$. The equation (4) could be simplified as equation (5):

$$F_{CH_4,PJ,y} = F_{CH_4,flared,y} + F_{CH_4,EL,y} \quad (5)$$

$F_{CH_4,EL,y}$ is determined using the “Tool to determine the mass flow of a greenhouse gas in a gaseous stream” and monitoring the working hours of the power plant(s), boiler(s), air heater(s), glass melting furnace(s) and kiln(s), so that no emission reduction are claimed for methane destruction during non-working hours. This is taken into account by monitoring the hours that the equipment utilizing the LFG is operating in year y ($OP_{j,h,y}$).

$$F_{CH_4,flared,y} = F_{CH_4,sent_flare,y} - PE_{flare,y} / GWP_{CH_4} \quad (6)$$

Where:

$F_{CH_4,flared,y}$	=	Amount of methane in the LFG which is destroyed by flaring in year y (tCH ₄ /yr)
$F_{CH_4,sent_flare,y}$	=	Amount of methane in the LFG which is sent to the flare in year y (tCH ₄ /yr)
$PE_{flare,y}$	=	Project emissions from flaring of the residual gas stream in year y (tCO ₂ e/yr)
GWP_{CH_4}	=	Global warming potential of CH ₄ (tCO ₂ e/tCH ₄)

Ex ante estimation of $F_{CH_4,PJ,y}$

An ex ante estimate of $F_{CH_4,PJ,y}$ is required to estimate baseline emission of methane from the SWDS (according to equation (3) in order to estimate the emission reductions of the proposed project activity. It is determined as follows:

$$F_{CH_4,PJ,y} = \eta_{PJ} \times BE_{CH_4,SWDS,y} / GWP_{CH_4} \quad (7)$$

Where:

$F_{CH_4,PJ,y}$	=	Amount of methane in the LFG which is flared and/or used in the project activity in year y (tCH ₄ /yr)
$BE_{CH_4,SWDS,y}$	=	Amount of methane in the LFG that is generated from the SWDS in the baseline scenario in year y (tCO ₂ e/yr)
η_{PJ}	=	Efficiency of the LFG capture system that will be installed in the project activity
GWP_{CH_4}	=	Global warming potential of CH ₄ (tCO ₂ e/tCH ₄)

$BE_{CH_4,SWDS,y}$ determined using the methodological tool “Emissions from solid waste disposal sites” (version 07.0)

$$BE_{CH_4,SWDS,y} = \phi_y \times (1 - f_y) \times GWP_{CH_4} \times (1 - OX) \times \frac{16}{12} \times F \times DOC_{f,y} \times MCF_y \times \sum_{x=1}^y \sum_j (W_{j,x} \times DOC_j \times e^{-k_j \times (y-x)} \times (1 - e^{-k_j})) \quad (8)$$

Where:

$BE_{CH_4,SWDS,y}$	=	Baseline methane emissions occurring in year y generated from waste disposal at a SWDS during a time period ending in year y (tCO ₂ e/yr)
x	=	Years in the time period in which waste is disposed at the SWDS, extending from the first year in the time period ($x = 1$) to year y ($x = y$)
y	=	Year of the crediting period for which methane emissions are calculated (y is a consecutive period of 12 months)
$DOC_{f,y}$	=	Fraction of degradable organic carbon (DOC) that decomposes under the specific conditions occurring in the SWDS for year y (weight fraction)
$W_{j,x}$	=	Amount of solid waste type j disposed or prevented from disposal in the SWDS in the year x (t)
ϕ_y	=	Model correction factor to account for model uncertainties for year y
f_y	=	Fraction of methane captured at the SWDS and flared, combusted or used in another manner that prevents the emissions of methane to the atmosphere in year y
GWP_{CH_4}	=	Global warming potential of CH ₄ (tCO ₂ e/tCH ₄)
OX	=	Oxidation factor (reflecting the amount of methane from SWDS that is oxidized in the soil or other material covering the waste)
F	=	Fraction of methane in the SWDS gas (volume fraction)
MCF_y	=	Methane correction factor for year y
DOC_j	=	Fraction of degradable organic carbon in the waste type j (weight fraction)
k	=	Decay rate for the waste type j (1 / yr)
j	=	Type of residual waste or types of waste in the MSW

The following guidance has been taken into account when applying the tool:

- f_y in the tool shall be assigned a value of 0 because the amount of LFG that would have been captured and destroyed is already accounted for in equation 3;
- In the tool, x begins with the year that the SWDS started receiving wastes (e.g. the first year of SWDS operation); and
- Sampling to determine the fractions of different waste types is not necessary because the waste composition can be obtained from previous studies.

Determination of $F_{CH_4, BL, y}$

This step provides a procedure to determine the amount of methane that would have been captured and destroyed (by flaring) in the baseline due to regulatory or contractual requirements, to address safety and odour concerns, or for other reasons (collectively referred to as requirement in this step). The four cases in the Table below are distinguished. The appropriate case should be identified and the corresponding instructions followed.

Table E.1 Cases for determining methane captured and destroyed in the baseline

Situation at the start of the project activity	Requirement to destroy methane	Existing LFG capture and destruction system
Case 1	No	No
Case 2	Yes	No
Case 3	No	Yes
Case 4	Yes	Yes

There was no regulation or standard that enforces methane destruction in LFG when Qizi Mountain Landfill began operating. Besides, Qizi Mountain Landfill didn't collect and utilize the LFG prior to the implementation of the project activity, and no landfill gas capture and destruction system existing. Therefore, this project activity is satisfied with the situation of Case 1: No requirement to destroy methane exits and no existing LFG capture and destruction system.

In this situation: $F_{CH_4, BL, y} = 0$

ii) Baseline emissions associated with electricity generation ($BE_{EC, y}$)

The baseline emissions associated with electricity generation in year y ($BE_{EC, y}$) shall be calculated using the "Tool to calculate baseline, project and/or leakage emissions from electricity consumption". When applying the tool:

- The electricity sources k in the tool correspond to the sources of electricity generated identified in the selection of the most plausible baseline scenario; and
- $EC_{BL, k, y}$ in the tool is equivalent to the net amount of electricity generated using LFG in year y ($EG_{PJ, y}$).

$$BE_{EC, y} = \sum_k EC_{BL, k, y} \times EF_{EL, k, y} \times (1 + TDL_{k, y})$$

Where:

$BE_{EC, y}$	=	Baseline emissions from electricity consumption in year y (tCO ₂ /yr)
$EC_{BL, k, y}$	=	Quantity of electricity that would be consumed by the baseline electricity consumption source k in year y (MWh/yr)
$EF_{EL, k, y}$	=	Emission factor for electricity generation for source k in year y (tCO ₂ /MWh)
$TDL_{k, y}$	=	Average technical transmission and distribution losses for providing electricity to source k in year y
k	=	Sources of electricity consumption in the baseline

Due to the fact that the baseline scenario is the LFG from Qizi Mountain Landfill if released directly into atmosphere and equivalent electricity generation by the project activity was supplied by East China Power Grid), Scenario A of the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” applies. $EF_{EL,k,y}$ shall therefore be determined in accordance with Option A1 of the tool, i.e. the applied emission factor shall be the combined margin emission factor of the East China Power Grid, calculated in accordance with the “Tool to calculate the emission factor of an electricity system” Version 05.0 ($EF_{EL,k,y} = EF_{grid,CM,y}$). For details of the calculation please see below.

Emission Reduction from Landfill Gas Recovery

Table E.2 Emission Reduction from Landfill Gas Recovery

Year	Emission Reduction by Methane recovery from the landfill in the absence of the project activity during the second crediting period (tCO ₂ e) ($BE_{CH_4,SWDS,y}$)
2014 (22.4.-31.12)	86,237
2015 (1.1.-31.12)	124,950
2016 (1.1.-31.12)	127,294
2017 (1.1.-31.12)	125,050
2018 (1.1.-31.12)	118,602
2019 (1.1.-31.12)	112,499
2020 (1.1.-31.12)	106,719
2021 (1.1.-21.4)	30,790
Total (tones of CO ₂ e)	832,141

Determination of $EF_{EL,k,y}$

The emission factor ($EF_{EL,k,y}$) is equal to the $EF_{grid,CM,y}$ which is calculated according to “Tool to calculate the emission factor for an electricity system” (Version 05.0). The following steps should be applied:

Step 1: Identify the relevant electricity systems

As per delineation of Chinese national electric system published by *National Development and Reform Commission*, which is also Chinese DNA, the relevant electricity system is *EastChina Power Grid*. The Project’s electricity generation unit is connected to the *Jiangsu Grid* via local grid network, and thus finally to the *EastChina Power Grid*. The *East China Power Grid* is a large regional grid, which consists of five sub-grids: *Shanghai Grid*, *Jiangsu Grid*, *Zhejiang Grid*, *Anhui Grid* and *Fujian Grid*. There is substantial inter-grid power exchange among the above-mentioned sub-grids of the *East China Power Grid*. The *East China Power Grid* can be clearly identified as regional grid and information on the characteristics of this grid is publicly available.⁸

Step 2: Choose whether to include off-grid power plants in the project electricity system (optional)

Project participants may choose between the following two options to calculate the operating margin and build margin emission factor:

Option I: Only grid power plants are included in the calculation.

Option II: Both grid power plants and off-grid power plants are included in the calculation.

No power generation from off-grid was included in the emission factor calculation of China DNA, therefore, Option I is used in this project.

Step3:. Select a method to determine the operating margin (OM)

“Tool to calculate the emission factor for an electricity system” outlines four options for the calculation of the Operating Margin emission factor ($EF_{grid,OM,y}$):

- (a) Simple OM; or
- (b) Simple adjusted OM; or
- (c) Dispatch data analysis OM; or
- (d) Average OM.

Any of the four methods can be used. “Dispatch Data Analysis” method is not selected herein, because dispatch data, let alone detailed dispatch data, are not available to the public or to the project participants. For the same reason, the simple adjusted OM methodology cannot be used.

The Simple OM method has been chosen instead. This is possible because low cost/ must run resources account for less than 50% of the power generation in the grid in most recent years. From 2008 to 2012, according to gross annual power generation statistics for the East China Power Grid, the ratio of power generated by low cost/must run resources was: 11.30% in 2008, 10.21% in 2009, 12.05% in 2010, 9% in 2011, and 11.75% in 2012 respectively, significantly lower than 50%.

The simple OM of the grid for the proposed project is calculated using the Ex ante option: A 3-year generation-weighted average, based on the most recent data available at the time of submission of the

⁸ National Development and Reform Commission of China published delineation of the electricity grid of China. Please visit <http://cdm.ccchina.gov.cn/> for more details.

PDD to the DOE for validation, without requirement to monitor and recalculate the emissions factor during the crediting period.

Step4: Calculate the operating margin emission factor according to the selected method

The simple Operating Margin (OM) emission factor is calculated as the generation-weighted average emissions per electricity unit (tCO₂/MWh) of all generating power plants serving the system, not including low-cost/must-run power plants/units. As per “Tool to calculate the emission factor for an electricity system” (Version 05.0), it may be calculated:

- Option A: Based on the net electricity generation and a CO₂ emission factor of each power unit, or
- Option B: Based 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.

Since neither the data of fuel consumption nor the net electricity generation for every single electricity generation plant/unit is publicly available for East China Power Grid, the proposed project uses Option B for simple OM calculation. The calculation is based on the total net electricity generation and the fuel types and total fuel consumption of each provincial sub-grid of East China Power Grid. A three-year average, based on the most recent fuel consumption statistics available at the time of PDD submission, is used (“ex-ante” approach).

The calculation equation of the Simple OM is as follows:

$$EF_{grid,OMsimple,y} = \frac{\sum_i FC_{i,y} \times NCV_{i,y} \times EF_{CO2,i,y}}{EG_y}$$

Where:

$EF_{grid,OMsimple,y}$	=	Simple operating margin CO ₂ emission factor in year y (tCO ₂ /MWh)
$FC_{i,y}$	=	Amount of fuel type i consumed in the project electricity system in year y (mass or volume unit)
$NCV_{i,y}$	=	Net calorific value (energy content) of fuel type i in year y (GJ/mass or volume unit)
$EF_{CO2,i,y}$	=	CO ₂ emission factor of fuel type i in year y (tCO ₂ /GJ)
EG_y	=	Net 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	=	All fuel types combusted in power sources in the project electricity system in year y
y	=	The relevant year as per the data vintage chosen in Step 3

The Operating Margin emission factors for 2010, 2011 and 2012 are calculated separately and then the three-year average is calculated as a full-generation-weighted average of the emission factors. For details please refer to Annex 2. The result of the Operation Margin Emission Factor calculation is 0.8095tCO₂e/MWh.

The operating margin emission factor of the baseline is calculated as a fixed ex-ante value and will not be renewed within the second crediting period of the project activity.

Step 5: Calculate the build margin (BM) emission factor

In terms of vintage of data, project participants can choose between one of the following two options:

- Option 1.* For the first crediting period, calculate the build margin emission factor ex-ante based on the most recent information available on units already built for sample group *m* at the time of CDM-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.
- Option 2.* For the first crediting period, the build margin emission factor shall be updated annually, ex- post, including those units built up to the year of registration of the project activity or, if information up to the year of registration is not yet available, including those units built up to the latest year for which information is available. For the second crediting period, the build margin emissions factor shall be calculated ex-ante, as described in option 1 above. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used.

Project participants have chosen *Option 1* for BM calculation, and calculate the BM emission factor 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, without requirement to monitor the emission factor during the second crediting period.

According to the tool, the sample group of power units *m* used to calculate the build margin should be determined using six procedures. However, due to the availability of data, this PDD adopted an alternative method proposed by the Chinese NDRC⁹, which was approved by CDM Executive Board¹⁰. Since there is no way to separate the different generation technology capacities based on coal, oil or gas fuel etc from the generic term “thermal power” in the present energy statistics, the following calculation measures will be taken:

First, according to the energy statistics of the selected period in which approximately 20% capacity has been added to the grid, determine the ratio of CO₂ emissions produced by solid, liquid, and gas fuel consumption for power generation; then multiply this ratio by the respective emission factors based on commercially available best practice technology in terms of efficiency. Finally, this emission factor for thermal power is multiplied with the ratio of thermal power identified within the approximation for the latest 20% installed capacity addition to the grid. The result is the BM emission factor of the grid.

Sub-step 1

Calculate the proportion of CO₂ emissions related to consumption of coal, oil and gas fuel used for power generation as compared to total CO₂ emissions from the total fossil fuelled electricity generation (sum of

⁹ The build margin calculations is derived from the "Bulletin on the baseline emission factor of the Chinese Electricity Grid", which has been published by the Chinese DNA (Office of National Coordination Committee on Climate Change) on Oct. 16. 2006.

¹⁰ This is in accordance with the request for guidance: Application of AM0005 and AMS-I.D in China, a letter from DNV to the Executive Board, dated 07/10/2005, available online at: <http://cdm.unfccc.int/UserManagement/FileStorage/6POIAMGYOEDOTKW25TA20EHEKPR4DM>. This approach has been applied by many registered CDM projects using methodology ACM0002 so far.

CO₂ emissions from coal, oil and gas).

$$\lambda_{Coal,y} = \frac{\sum_{i \in Coal,j} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}{\sum_{i,j} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}$$

$$\lambda_{Oil,y} = \frac{\sum_{i \in Oil,j} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}{\sum_{i,j} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}$$

$$\lambda_{Gas,y} = \frac{\sum_{i \in Gas,j} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}{\sum_{i,j} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}$$

Where,

$F_{i,j,y}$ is the amount of fuel i (in a mass or volume unit) consumed by power sources j in year(s) y ,
 $NCV_{i,y}$ is the net calorific value of fuel i in year y (GJ/t for solid and liquid fuels, GJ/m³ for gas fuels),
 $EF_{CO2,i,j,y}$ is the CO₂ emission coefficient of fuel i (tCO₂/GJ)
Coal, *Oil* and *Gas* stands for solid, liquid and gas fuels respectively.

Sub-step 2: Calculate the operating margin emission factor of fuel-based generation.

$$EF_{Thermal,y} = \lambda_{Coal,y} \times EF_{Coal,Adv,y} + \lambda_{Oil,y} \times EF_{Oil,Adv,y} + \lambda_{Gas,y} \times EF_{Gas,Adv,y}$$

Where,

$EF_{Thermal,y}$ is the weighted emissions factor of thermal power generation with the efficiency level of the best commercially available technology in China in the previous three years.
 $EF_{Coal,adv,y}$, $EF_{Oil,Adv,y}$, $EF_{Gas,Adv,y}$ are the emission factors of coal, oil and gas-fired power generation with efficiency levels of the best commercially available technology in China in the previous three years.

A coal-fired power plant with a total installed capacity of 600 MW is assumed to be the best commercially available technology in terms of efficiency, the estimated coal consumption of such a National Sub-critical Power Station with a capacity of 600MW is 307gce/kWh, which corresponds to an efficiency of 40.03% for electricity generation.

For gas and oil power plants a 390MW power plant with a specific fuel consumption of 232.3gce/kWh, which corresponds to an efficiency of 52.9% for electricity generation, is selected as the best commercially available technology in terms of efficiency.

The main parameters used for calculation of the thermal power plant emission factors are provided in Annex2.

Sub-step 3: Calculate the Build Margin emission factor

$$EF_{grid,BM,y} = \frac{CAP_{Thermal,y}}{CAP_{Total,y}} \times EF_{Thermal,y}$$

Where,

$CAP_{Total,y}$ is the total capacity addition of the selected period in which approximately 20% capacity has been added to the grid,

$CAP_{Thermal,y}$ is the total thermal power capacity addition of the selected period in which approximately 20% capacity has been added to the grid.

Detailed calculations are provided in Annex 3.

The result of the Build Margin emission factor calculation is 0.6861 tCO₂/MWh.

The data sources for calculating OM and BM are:

1. Installed capacity, power generation and the rate of internal electricity consumption of thermal power plants for the years 2010 to 2012
Source: *China Electric Power Yearbook* (2011-2013)
2. Fuel consumption and the net caloric value of thermal power plants the years 2010 to 2012
Source: *China Energy Statistics Yearbook* (figures are for 2011-2013)
3. Carbon emission factor and carbon oxidation factor of each fuel
Source: *Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Workbook*, P1.23 and P1.24 in Chapter one.

Step 6: Calculate the combined margin emissions factor

The Baseline Emission Factor is calculated as a Combined Margin, using the weighted average of the Operating Margin and Build Margin.

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

The operating margin emission factor ($EF_{grid,OM,y}$) of East China Power Grid is 0.8095 tCO₂e/MWh and the build margin emission factor ($EF_{grid,BM,y}$) is 0.6861 tCO₂e/MWh. The defaults weights are used as specified in the emission factor tool: $\omega_{OM} = 0.25$ and $\omega_{BM} = 0.75$ for the second crediting period.

The result of the Baseline Emission Factor ($EF_{grid,CM,y}$) calculation is 0.71694 tCO₂e/MWh. Which is the same as $EF_{EL,k,y}$.

Emission Reduction for Electricity Generation

Table E.3 Emission Reduction from Electricity Generation during the second crediting period

Year	Net Electricity Generation $EL_{LFG,y}$ (MWh)	Emission Reduction from Electricity Generation (tCO ₂ e)
2014 (22.4.-31.12)	18,130	12,998
2015 (1.1.-31.12)	26,268	18,832
2016 (1.1.-31.12)	26,761	19,186
2017 (1.1.-31.12)	26,290	18,848
2018 (1.1.-31.12)	24,934	17,876
2019 (1.1.-31.12)	23,651	16,956
2020 (1.1.-31.12)	22,436	16,085
2021 (1.1.-21.4)	6,473	4,640
Total (tones of CO ₂ e)		125,421

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

Since the sum emission of the project activity and leakage are zero in E.3, the difference between E.4 and E.3 representing the emission reductions of the project activity is as follows:

Emission Reduction

$$ER_y = BE_y - PE_y$$

Where:

ER_y Emission reductions in year y (tCO₂e/yr)

BE_y Baseline emissions in year y (tCO₂e/yr)

PE_y Project emissions in year y (tCO₂/yr)

Therefore, the emission reduction in year y is showed in table E.4

Table E.4 Total Emission Reduction during the second crediting period

Year	Quantity of methane destroyed by generation of electricity (tCO ₂ e)	Emission Reduction from Electricity Generation (tCO ₂ e)	Emission Reduction (tCO ₂ e)
2014 (22.4.-31.12)	86,237	12,998	99,235
2015 (1.1.-31.12)	124,950	18,832	143,782
2016 (1.1.-31.12)	127,294	19,186	146,480
2017 (1.1.-31.12)	125,050	18,848	143,898
2018 (1.1.-31.12)	118,602	17,876	136,478
2019 (1.1.-31.12)	112,499	16,956	129,455
2020 (1.1.-31.12)	106,719	16,085	122,804
2021 (1.1.-21.4)	30,790	4,640	35,430
Total (tones of CO ₂ e)	832,141	125,421	957,562

Data and parameters that are available at validation:

Data / Parameter:	OX_{top layer}
Data unit:	Dimensionless
Description:	Fraction of methane that would be oxidized in the top layer of the SWDS in the baseline
Source of data:	Consistent with how oxidation is accounted for in the methodological tool

	“Emissions from solid waste disposal sites”
Value to be applied:	0.1
Monitoring frequency:	-
QA/QC procedures:	-
Any comment:	Used for calculate Baseline Emission

Data / Parameter:	GWP_{CH4}
Data unit:	tCO ₂ e/tCH ₄
Description:	Global warming potential of CH ₄
Source of data:	IPCC
Value to be applied	25
Monitoring frequency:	-
QA/QC procedures:	-
Any comment:	-

Data / Parameter:	NCV_{CH4}
Data unit:	TJ/t CH ₄
Description:	Net calorific value of methane at reference conditions
Source of data:	Technical literature
Value to be applied	0.0504
Monitoring frequency:	-
QA/QC procedures:	-
Any comment:	-

Data / Parameter:	η_{PJ}
Data unit:	Dimensionless
Description:	Efficiency of the LFG capture system that will be installed in the project activity
Source of data:	-
Value to be applied	Technical specifications of the LFG capture system to be installed (if available) or a default value of 50 per cent
Monitoring frequency:	-
QA/QC procedures:	-
Any comment:	Used for calculation of Baseline Emission

Data / Parameter:	D_{CH4}
Data unit:	tCH ₄ /m ³ CH ₄
Description:	Methane Density
Source of data used:	
Measurement procedures (if any):	At standard temperature and pressure (0 degree Celsius and 1.013 bar) the density of methane is 0.0007168 tCH ₄ /m ³ CH ₄
Any comment:	

Data / Parameter:	BE_{CH4,SWDS,y}
Data unit:	tCO ₂ e
Description:	Methane generation from the landfill in the absence of the project activity at

	year y
Source of data used:	Calculated as per the Methodological tool of “Emissions from solid waste disposal sites” (Version 07.0).
Measurement procedures (if any):	As per the “Tool to determine methane emissions avoided from dumping waste at a solid waste disposal site”
Any comment:	Used for ex-ante estimation of the amount of methane that would have been destroyed/combusted during the year

Data / Parameter:	φ
Data unit:	-
Description:	Model correction factor to account for model uncertainties
Value to be applied:	0.75
Any comment:	

Data / Parameter:	F
Data unit:	-
Description:	Fraction of methane in the SWDS gas (volume fraction)
Source of data:	IPCC 2006 Guidelines for National Greenhouse Gas Inventories
Value to be applied:	0.5
Any comment:	This factor reflects the fact that some degradable organic carbon does not degrade, or degrades very slowly, under anaerobic conditions in the SWDS. A default value of 0.5 is recommended by IPCC.

Data / Parameter:	DOC _f
Data unit:	-
Description:	Fraction of degradable organic carbon (DOC) that can decompose in the SWDS
Source of data:	IPCC 2006 Guidelines for National Greenhouse Gas Inventories
Value to be applied:	0.5
Any comment:	This factor reflects the fact that some degradable organic carbon does not degrade, or degrades very slowly, in the SWDS.

Data / Parameter:	MCF
Data unit:	-
Description:	Methane correction factor
Source of data:	IPCC 2006 Guidelines for National Greenhouse Gas Inventories
Value to be applied:	In case that the SWDS does not have a water table above the bottom of the SWDS and in case of application A, then select the applicable value from the following: • 1.0 for anaerobic managed solid waste disposal sites. These must have controlled placement of waste (i.e., waste directed to specific deposition areas, a degree of control of scavenging and a degree of control of fires) and will include at least one of the following: (i) cover material; (ii) mechanical compacting; or (iii) leveling of the waste. • 0.5 for semi-aerobic managed solid waste disposal sites. These must have controlled placement of waste and will include all of the following structures for introducing air to waste layer: (i) permeable cover material; (ii) leachate drainage system; (iii) regulating pondage; and (iv) gas ventilation system.

	• 0.8 for unmanaged solid waste disposal sites – deep. This comprises all SWDS not meeting the criteria of managed SWDS and which have depths of greater than or equal to 5 meters. • 0.4 for unmanaged-shallow solid waste disposal sites or stockpiles that are considered SWDS. This comprises all SWDS not meeting the criteria of managed SWDS and which have depths of less than 5 metres. This includes stockpiles of solid waste that are considered SWDS (according to the definition given for a SWDS).
Any comment:	The methane correction factor (MCF) accounts for the fact that unmanaged SWDS produce less methane from a given amount of waste than managed SWDS, because a larger fraction of waste decomposes aerobically in the top layers of unmanaged SWDS.

Data / Parameter:	DOC_j														
Data unit:	-														
Description:	Fraction of degradable organic carbon (by weight) in the waste type j (weight fraction)														
Source of data:	IPCC 2006 Guidelines for National Greenhouse Gas Inventories (adapted from Volume 5, Tables 2.4 and 2.5)														
Value to be applied:	For MSW, the following values for the different waste types j should be applied: Default values for DOC_j <table border="1"> <thead> <tr> <th>Waste type j</th><th>DOC_j (% wet waste)</th></tr> </thead> <tbody> <tr> <td>Wood and wood products</td><td>43</td></tr> <tr> <td>Pulp, paper and cardboard (other than sludge)</td><td>40</td></tr> <tr> <td>Food, food waste, beverages and tobacco (other than sludge)</td><td>15</td></tr> <tr> <td>Textiles</td><td>24</td></tr> <tr> <td>Garden, yard and park waste</td><td>20</td></tr> <tr> <td>Glass, plastic, metal, other inert waste</td><td>0</td></tr> </tbody> </table> If a waste type, prevented from disposal by the proposed project activity, can not clearly be attributed to one of the waste types in the table above, project participants should choose among the waste types that have similar characteristics that waste type where the values of DOC_j and k_j result in a conservative estimate (lowest emissions), or request a revision of / deviation from this methodology. For example, in the case of empty fruit bunches (EFB), as their characteristics are similar to wood in terms of cellulose, hemi-cellulose, and lignin content, the parameters correspondent of wood should be used.	Waste type j	DOC _j (% wet waste)	Wood and wood products	43	Pulp, paper and cardboard (other than sludge)	40	Food, food waste, beverages and tobacco (other than sludge)	15	Textiles	24	Garden, yard and park waste	20	Glass, plastic, metal, other inert waste	0
Waste type j	DOC _j (% wet waste)														
Wood and wood products	43														
Pulp, paper and cardboard (other than sludge)	40														
Food, food waste, beverages and tobacco (other than sludge)	15														
Textiles	24														
Garden, yard and park waste	20														
Glass, plastic, metal, other inert waste	0														
Any comment:	According to 2nd FSR, page 10, wet waste is treated in the proposed project.														

Data / Parameter:	k_j
Data unit:	1/yr
Description:	Decay rate for the waste type j

Source of data:	IPCC 2006 Guidelines for National Greenhouse Gas Inventories (adapted from Volume 5, Table 3.3)																																					
Value to be applied:	Apply the following default values for the different waste types <i>j</i>: Default values for the decay rate (kj) <table border="1"> <thead> <tr> <th colspan="2" rowspan="2">Waste type <i>j</i></th><th colspan="2">Boreal and Temperate (MAT ≤ 20°C)</th><th colspan="2">Tropical (MAT > 20°C)</th></tr> <tr> <th>Dry (MAP/PET < 1)</th><th>Wet (MAP/PET > 1)</th><th>Dry (MAP < 1000mm)</th><th>Wet (MAP > 1000mm)</th></tr> </thead> <tbody> <tr> <td rowspan="2">Slowly degrading</td><td>Pulp, paper and cardboard (other than sludge), Textiles</td><td>0.04</td><td>0.06</td><td>0.045</td><td>0.07</td></tr> <tr> <td>Wood, wood products and straw</td><td>0.02</td><td>0.03</td><td>0.025</td><td>0.035</td></tr> <tr> <td>Moderately degrading</td><td>Other (non-food) organic putrescible garden, yard and park waste</td><td>0.05</td><td>0.10</td><td>0.065</td><td>0.17</td></tr> <tr> <td>Rapidly degrading</td><td>Food, food waste, sewage sludge, beverages and tobacco</td><td>0.06</td><td>0.185</td><td>0.085</td><td>0.40</td></tr> </tbody> </table> NB: MAT – mean annual temperature, MAP – Mean annual precipitation, PET – potential evapotranspiration. MAP/PET is the ratio between the mean annual precipitation and the potential evapotranspiration. If a waste type disposed in a SWDS can not clearly be attributed to one of the waste types in the table above, project participants should choose, among the waste types that have similar characteristics, the waste type where the values of DOC_j and k_j result in a conservative estimate (lowest emissions), or request a revision of / deviation from this methodology. In the case of empty fruit bunches (EFB), as their characteristics are similar to garden waste, the parameter values correspondent of garden waste shall be used. In case of sludge from pulp and paper industry, a conservative value of 0.03 shall be used for all precipitation and temperature combinations					Waste type <i>j</i>		Boreal and Temperate (MAT ≤ 20°C)		Tropical (MAT > 20°C)		Dry (MAP/PET < 1)	Wet (MAP/PET > 1)	Dry (MAP < 1000mm)	Wet (MAP > 1000mm)	Slowly degrading	Pulp, paper and cardboard (other than sludge), Textiles	0.04	0.06	0.045	0.07	Wood, wood products and straw	0.02	0.03	0.025	0.035	Moderately degrading	Other (non-food) organic putrescible garden, yard and park waste	0.05	0.10	0.065	0.17	Rapidly degrading	Food, food waste, sewage sludge, beverages and tobacco	0.06	0.185	0.085	0.40
Waste type <i>j</i>		Boreal and Temperate (MAT ≤ 20°C)		Tropical (MAT > 20°C)																																		
		Dry (MAP/PET < 1)	Wet (MAP/PET > 1)	Dry (MAP < 1000mm)	Wet (MAP > 1000mm)																																	
Slowly degrading	Pulp, paper and cardboard (other than sludge), Textiles	0.04	0.06	0.045	0.07																																	
	Wood, wood products and straw	0.02	0.03	0.025	0.035																																	
Moderately degrading	Other (non-food) organic putrescible garden, yard and park waste	0.05	0.10	0.065	0.17																																	
Rapidly degrading	Food, food waste, sewage sludge, beverages and tobacco	0.06	0.185	0.085	0.40																																	
Any comment:	Document in the CDM-PDD the climatic conditions at the SWDS site (temperature, precipitation and, where applicable, evapotranspiration). Use long-term averages based on statistical data, where available. Provide references.																																					

	The effective reference is not available; therefore the conservative value is determined for each waste type.
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Data / Parameter:	$EF_{grid,CM,y}$
Data unit:	tCO ₂ /MWh
Description:	Combined margin CO ₂ emission factor of East China Power Grid in year <i>y</i>
Source of data used:	<i>China Electric Power Yearbook 2011-2013, China Energy Statistics Yearbook 2013, 2006 IPCC Guidelines for National Greenhouse Gas Inventories</i>
Value applied:	0.71694
Measurement procedures (if any):	Officially released statistics; publicly accessible and reliable data source
Any comment:	Based on combined margin calculation of OM and BM of East China Power Grid. Weighting of OM and CM are 25% and 75% respectively. The proposed project uses fixed ex ante emission factor in the second crediting period. Detailed calculation is provided in Annex 2.

Data / Parameter:	$EF_{grid,OM,y}$
Data unit:	tCO ₂ /MWh
Description:	Simple operating margin CO ₂ emission factor of East China Power Grid in year <i>y</i>
Source of data used:	<i>China Electric Power Yearbook 2011-2013, China Energy Statistics Yearbook 2013, 2006 IPCC Guidelines for National Greenhouse Gas Inventories</i>
Value applied:	0.8095
Measurement procedures (if any):	Officially released statistics; publicly accessible and reliable data source
Any comment:	The proposed project uses fixed ex ante emission factor in the second crediting period. Detailed calculation is provided in Annex 2.

Data / Parameter:	$EF_{grid,BM,y}$
Data unit:	tCO ₂ /MWh
Description:	Build margin of East China Power Grid in year <i>y</i>
Source of data used:	<i>China Electric Power Yearbook 2011-2013, China Energy Statistics Yearbook 2013, 2006 IPCC Guidelines for National Greenhouse Gas Inventories</i>
Value applied:	0.6861
Measurement procedures (if any):	Officially released statistics; publicly accessible and reliable data source
Any comment:	The proposed project used Chinese NDRC method to calculate BM emission factor. This alternative method was accepted by EB in registered projects from China. The proposed project uses fixed ex ante emission factor in the second crediting period. Detailed calculation is provided in Annex 2.

Data / Parameter:	EG_y
Data unit:	MWh
Description:	Net 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 <i>y</i> (2011-2013, East China Power Grid)
Source of data used:	<i>China Electric Power Yearbook 2011-2013</i>
Value applied:	Provided in Annex 2
Measurement procedures (if any):	Officially released statistics; publicly accessible and reliable data source

Any comment:	To calculate the OM and BM
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Data / Parameter:	<i>Electricity Imports from Connected Electricity Systems to East China Power Grid</i>
Data unit:	MWh
Description:	Electricity Imports from Connected Electricity Systems to East China Power Grid in (years) y (2011-2013)
Source of data used:	<i>China Electric Power Yearbook 2011-2013</i>
Value applied:	Provided in Annex 2
Measurement procedures (if any):	Officially released statistics; publicly accessible and reliable data source
Any comment:	To calculate the OM

Data / Parameter:	$FC_{i,y}$
Data unit:	$10^4 \text{ t} / 10^8 \text{ m}^3$
Description:	Amount of fuel type i consumed in the project electricity system in year y (2011-2013, East China Power Grid)
Source of data used:	<i>China Energy Statistics Yearbook 2011-2013</i>
Value applied:	Provided in Annex 2
Measurement procedures (if any):	Officially released statistics; publicly accessible and reliable data source
Any comment:	To calculate OM and BM

Data / Parameter:	$NCV_{i,y}$
Data unit:	TJ/ 10^3 t
Description:	Net calorific value per mass or volume unit of fuel type i in year y
Source of data used:	<i>China Energy Statistics Yearbook 2013</i>
Value applied:	Provided in Annex 2
Measurement procedures (if any):	Officially released statistics; publicly accessible and reliable data source
Any comment:	To calculate OM and BM

Data / Parameter:	$EF_{CO_2,i,y}$
Data unit:	tCO ₂ /TJ
Description:	CO ₂ emission factor per energy unit of fuel type i in year y
Source of data used:	<i>Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories</i>
Value applied:	Provided in Annex 2
Measurement procedures (if any):	IPCC default value
Any comment:	To calculate OM and BM

Data / Parameter:	<i>Efficiency level of best technology commercially available in China for coal-fired power generation</i>
Data unit:	%
Description:	Efficiency level of best technology commercially available in China for coal-fired power generation
Source of data used:	<i>China DNA: Notification on Determining the Regional Grid Emission Factors of China</i>
Value applied:	40.03%
Measurement	Officially released statistics; publicly accessible and reliable data source

procedures (if any):	
Any comment:	To calculate BM

Data / Parameter:	<i>Efficiency level of best technology commercially available in China for oil and gas-fired power generation</i>
Data unit:	%
Description:	Efficiency level of best technology commercially available in China for oil and gas-fired power generation
Source of data used:	<i>China DNA: Notification on Determining the Regional Grid Emission Factors of China</i>
Value applied:	52.9%
Measurement procedures (if any):	Officially released statistics; publicly accessible and reliable data source
Any comment:	To calculate BM

Data / Parameter:	CAP
Data unit:	MW
Description:	The installed capacity of power generation sources j in (years) y (2010-2012, East China Power Grid)
Source of data used:	<i>China Electric Power Yearbook 2011-2013</i>
Value applied:	Provided in Annex 2
Measurement procedures (if any):	Officially released statistics; publicly accessible and reliable data source
Any comment:	To calculate BM

Data / Parameter:	<i>RLFG_y</i>
Data unit:	%
Description:	The ratio between the LFG collected and the LFG used within the engines on average each year.
Source of data to be used:	The actual layout of the entire collection pipelines, which covers from the well to electricity generator.
Value applied:	Higher than 65%. It is close to 100%
Measurement procedures (if any):	The actual layout of the entire collection pipelines, which covers from the well to electricity generator will be checked by DOE carefully.
Any comment:	

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

Table E.5 Summary of the ex-ante estimation of emission reductions during the second crediting period

Year	Estimation of project activity emissions (tonnes of CO ₂ e)	Estimation of baseline emissions (tonnes of CO ₂ e)	Estimation of leakage (tonnes of CO ₂ e)	Estimation of overall emission reductions (tonnes of CO ₂ e)
2014 (22.4.-31.12)	0	99,235	0	99,235
2015 (1.1.-31.12)	0	143,782	0	143,782

2016 (1.1.-31.12)	0	146,480	0	146,480
2017 (1.1.-31.12)	0	143,898	0	143,898
2018 (1.1.-31.12)	0	136,478	0	136,478
2019 (1.1.-31.12)	0	129,455	0	129,455
2020 (1.1.-31.12)	0	122,804	0	122,804
2021 (1.1.-21.4)		35,430		35,430
Total (tCO₂e)	0	957,562	0	957,562

SECTION F. Environmental impacts

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

According to the relevant environmental law and regulations, an Environmental Impact Assessment Form has been prepared for each phases. The one of 1st phase was approved by the Jiangsu EPA on 23rd January, 2006. The one of 2nd phase was approved by the Jiangsu EPA on 9th May, 2008. The main assessment conclusions are provided below:

1. Impact on the air quality

Dust will be considered as the main impact on the air quality during the construction period. The project owner has already planed several approaches to solve this problem. Therefore, the dust generated during the construction period will effectively controlled through effective onsite management and related bylaws which will have less impact on the environment. After the project put into operation, the project activity will generate NOx in tail gas. However, by utilizing the advanced low NOx combustion facility, the Emission Limits of Atmospheric Pollutants (GB16297-1996) shall be met. The limit by this standard is $\text{NOx} \leq 500 \text{mg/Nm}^3$. The implementation of the project will only has very light impact on the regional air quality. The height of tail gas pipe shall be not lower than 15 meters.

2. Noise impact

The major noise resources during the construction period are the operating equipments, the transportation and so on, and the noise impacts the builders and the residents nearby. In order to minimize the noise impacts, few measures are carried out, such as the high dB (A) will be strictly forbidden from 10 pm to 6 am and 12 am to 2pm; enforcement of the onsite management and establishing related bylaws. The noise during the construction period has locality and temporality characteristic; it will disappear when the construction work finished. After the project is put into operation, the major resource of noise pollution is from running of the turbines, generator and valves. Muffler is installed to avoid the noise impact on the local citizens and employees. During construction, Limited Noise on Construction Site (GB12523-1990) shall be meet. During operation, Noise Control Standard in Industrial Plant (GB12348-90) shall be meet.

3. Impact on the aquatic environment

In the proposed project, the landfill leachate will be collected properly and transported to Suzhou Gaoxin wastewater treatment plant finally. In fact, it is not an additional discharge, compared to the baseline scenario. Moreover, the Discharge Limits of Wastewater Pollutants (GB8978-1996) will be fully met after the treatment. Hence, the implementation of the project will not influence the aquatic environment.

4. Impact of solid waste on the environment

There is no additional solid waste generated to baseline scenario.

5. Impact on water and soil loss

Construction of the project will not lead to any water and soil loss.

6. Impact on the ecological environment

All construction activity will take place on vacant factory land. Therefore, the project has little impact on the local eco-environment.

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 considered to be insignificant. Enough consideration has been given to possible impacts on the environment of the Project. The project participants have an environmental friendly system for the implementation of the Project.

SECTION G. Stakeholders' comments

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

Since the proposed project is located in an existing landfill site, according to the regulation of EIA in China, it is not necessary to hold a stakeholder consultation for EIA in this case. However, being concerned about the interests of the local stakeholders, the project owner still collected opinions from them in various occasions and forms. Early in 2006, an initial stakeholder consultation for CDM was held by project owner and another CDM developer.

Initial Stakeholder Consultation for GS VER

The invitations of the GS initial stakeholder consultation were sent on 28th March 2008. South Pole Carbon Asset Management Co., Ltd. invited international stakeholders through emails. Recipients of invitation included Gold Standard, local supporters of Gold Standard, Greenpeace and WWF in China. Meanwhile, plant owner invited representatives of local habitants, plant employees, policy makers and local media. Public hearing was held on 10th April 2008, introduction of the project was made and comments were collected.

Internet Stakeholder Consultation

South Pole Carbon Asset Management Co., Ltd. made public the non-technical descriptions of the project design document and potential environmental impacts through its website on http://www.southpolecarbon.com/goldstandard_consultations.htm. Comments from stakeholders through the Internet were invited.

2nd Stakeholder Consultation for GS VER

Before the oral hearing for local stakeholders, an invitation was prepared for the 2nd Round Local Stakeholder Consultation including basic information and procedures of the meeting. This invitation, along with the non-technical description of the project, the non-technical description of the project EIA and the Appendix E of Gold standard (the checklist in both English and Chinese) and the Gold Standard Sustainable Development Assessment Matrix, in both English and Chinese, were attached for comments. The plant owner invited head of county, head of village, representative of villagers committee, and representatives of plant staff by phone call. The local residents near plant site were invited by invitations, which were posted on the billboard of villagers committee and the billboard along the main street of the village.

Meanwhile, South Pole Carbon sent invitations via email on 25th September 2008, to Gold Standard supporting organizations in China, with a copy to the Gold Standard. In addition, South Pole Carbon sent invitations via email again to some of supporting organizations in China on 6th October 2008, in order to receive more confirmations and comments before the oral hearing for local stakeholders. In the end, South Pole Carbon received manual email reply from Gold Standard, auto-reply message from Greenpeace China and phone call from GEI China. Due to limited resources, Greenpeace China and GEI China are not able to participate in this consultation.

The meeting was held at Landfill field of Qizi Mountain on 15th October 2008

Internet Stakeholder Consultation

South Pole Carbon Asset Management Co., Ltd. made public the non-technical descriptions of the project design document and potential environmental impacts through its website on http://www.southpolecarbon.com/goldstandard_consultations.htm. Comments from stakeholders through the Internet were invited.

Main Stakeholder Consultation

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It took 2 months on website http://www.southpolecarbon.com/goldstandard_consultations.htm. South Pole Carbon Asset Management Co., Ltd was responsible for replying comments and questions by interested stakeholders via email (info@southpolecarbon.com). Interested stakeholders could review PDD, non-technical summary, local stakeholders report and so on. They could send their comments to South Pole Carbon Asset Mgt. freely.

GS Stakeholder Consultation for the renewal of the crediting period

The GS Stakeholder Consultation for the renewal of the crediting period started on October 8, 2015 and ended on November 8, 2015. Some invitations were sent via email by South Pole Carbon Asset Management Ltd. to collect comments from NGOs, and some invitations were conducted through posting announcement or making phone calls by the project owner to collect comments from the local stakeholders. The local stakeholders include not only the ones who attended the last stakeholder consultation meeting, but also the other local villagers. Documents related to the project were published on South Pole Carbon Asset Management Ltd. official website:

<http://www.thesouthpolegroup.com/gold-standard-and-other-stakeholder-consultations>

The documents that were posted on the invitation email and website were: the updated PDD and a non-technical summary of the project in local language.

Following NGOs are specifically invited by email to comment on the project:

NGO Invited	Email address
Gold Standard	info@goldstandard.org
WWF	Bella.Roscher@wwf.ch
Climate Group	lhe@theclimategroup.org
Helio International	helio@helio-international.org
Mercy Corps	dnicholson@dc.mercycorps.org
REEEP	Katrin.harvey@reeep.org

G.2. Summary of the comments received:

Initial Stakeholder Consultation for GS VER

Hearing of the initial stakeholder consultation for the project applying for a GS VER project was conducted on 10th April 2008. 17 questionnaires were collected and no negative comments and opinions were found from them. Officer from EPA Ms. Zhou said that this project was in compliance with the Nation Environment Protection Index; she hoped that the project owner could continue to strengthen the monitoring of the environment, and control the situation at anytime. Several villagers live in Gusu and Mudu said that this project shows excellent economical and environmental benefits. Since the construction of Everbright EP industrial park, the atmospheric pollution apparently decreased. They extremely support this project. A workers' representative said that the noise control of this project is good and work place can be kept silent; the odor of the site can be well monitored and controlled; domestic sewage is the main discharge in this project, but with regular control, the amount of water is small. The government will support the project.

Internet Stakeholder Consultation

No comment has been received from internet.

2nd Stakeholder Consultation for GS VER

Mr. Chen from Everbright said this project changes waste to valuable, not only improves the environment but also generates electricity and heat. However, they are sourcing additional revenue to keep the operation of the plant properly, due to the increasing operation and maintenance cost and low electricity. This template shall not be altered. It shall be completed without modifying/adding headings or logo, format or font.

tariff. The VER project application is the only way, which they can find out, to get rid of the financial problem.

Head of Mudu County Mr. Qian said that this project obviously improves the surrounding environment, especially the air quality; From the county government prospective, they will continue to support this project and take responsibility to monitor the relevant criteria of sustainable development.

A worker's representative said they are completely in line with health and safety standard during operation. The noise control of this project is good and work place can keep silence; the odor of site place can be well monitored and controlled;

Many villagers said that this project environment benefit and create some employment positions. Since the construction of Everbright EP industrial park, the atmospheric pollution apparently decreased. They have no reason to against this project.

Internet Stakeholder Consultation

No comment has been received from internet.

Main Stakeholder Consultation

No comment has been received from internet.

GS Stakeholder Consultation for the renewal of the crediting period

There have been no comments received up to the date of the completion of the consultation for the renewal of the crediting period.

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

No negative comments were received.

No comments received up to the date of the completion of the consultation for the renewal of the crediting period.

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY

The Project Owner

Organization:	Everbright Environment and Energy (Suzhou) Landfill Gas to Energy Co., Ltd.,
Street/P.O.Box:	Qizi Mountain, Mudu County, Wuzhong District, Suzhou City
Building:	/
City:	Suzhou
State/Region:	Jiangsu Province
Postfix/ZIP:	
Country:	China
Telephone:	+86 10 62498838
FAX:	+86 62498688
E-Mail:	N/A
URL:	N/A
Represented by:	Zhang Yunyue
Title:	Chairman
Salutation:	Mr.
Last Name:	Zhang
Middle Name:	N/A
First Name:	Yunyue
Department:	Office
Mobile:	+86 13911671286
Direct FAX:	+86 62498688
Direct tel:	+86 10 62498838
Personal E-Mail:	zhangyy@ebep.com.cn

The Buyer

Organization:	South Pole Carbon Asset Management Ltd.
Street/P.O.Box:	Technoparkstr. 1
Building:	/
City:	Zurich
State/Region:	Zurich
Postfix/ZIP:	8005
Country:	Switzerland
Telephone:	+41 44 633 78 70
FAX:	+41 44 633 14 23
E-Mail:	info@southpolecarbon.com
URL:	www.southpolecarbon.com
Represented by:	RenatHeuberger
Title:	/
Salutation:	Mr.
Last Name:	Heuberger
Middle Name:	/
First Name:	Renat
Department:	/
Mobile:	/
Direct FAX:	+41 44 633 14 23
Direct tel:	+41 44 633 78 70
Personal E-Mail:	r.heuberger@southpolecarbon.com

ANNEX 2

BASELINE INFORMATION

Table 1–Power Supply data for ECPG, 2010 (not including low operating cost and must-run power plants)

	Shanghai	Jiangsu	Zhejiang	Anhui	Fujian
Thermal Power Generation (MWh)	94,200,000	330,500,000	208,200,000	142,600,000	89,100,000
Rate of Electricity Consumption of the Power Plant (%)	4.98	5.27	5.34	5.37	5.17
Power Supplied to the Grid(MWh)	89,508,840	313,082,650	197,082,120	134,942,380	84,493,530
Total Supplied to Grid of the Thermal Power (MWh)	819,109,520				
Net import Power from CCPG (MWh)	40,113,670				
Net import Power from NCPG (MWh)	16,547,520				
The total Power for ECPG (MWh)	875,770,710				

Data Source: China Electric Power Yearbook 2011

Table 2–Power Supply data for ECPG, 2011 (not including low operating cost and must-run power plants)

	Shanghai	Jiangsu	Zhejiang	Anhui	Fujian
Thermal Power Generation (MWh)	102,200,000	373,100,000	234,300,000	162,400,000	127,200,000
Rate of Electricity Consumption of the Power Plant (%)	4.6	5.1	4.9	5	4.7
Power Supplied to the Grid(MWh)	97,498,800	354,071,900	222,819,300	154,280,000	121,221,600
Total Supplied to Grid of the Thermal Power (MWh)	949,891,600				
Net import Power from CCPG (MWh)	33,792,550				
Net import Power from Shanxi Province (MWh)	15,769,540				
The total Power for ECPG (MWh)	999,453,690				

Data Source: China Electric Power Yearbook 2012

Table 3–Power Supply data for ECPG, 2012 (not including low operating cost and must-run power plants)

	Shanghai	Jiangsu	Zhejiang	Anhui	Fujian
Thermal Power Generation (MWh)	96,700,000	394,300,000	227,300,000	176,700,000	111,800,000
Rate of Electricity Consumption of the Power Plant (%)	4.5	5	4.9	4.9	4.7
Power Supplied to the Grid (MWh)	92,348,500	374,585,000	216,162,300	168,041,700	106,545,400
Total Supplied to Grid of the Thermal Power (MWh)	957,682,900				
Net import Power from CCPG (MWh)	52,287,240				
Net import Power from NCPG (MWh)	16,980,330				
The total Power for ECPG (MWh)	1,026,950,470				

Data Source: China Electric Power Yearbook 2013

Table 4–Energy Consumption Statistics of Power Generation of ECPG in 2010

Fuel	Unit	Shanghai A	Jiangsu B	Zhejiang C	Anhui D	Fujian E	Total F=A+B+C+D+E
Raw coal	10000tones	3421.2	12612.92	8254.08	5230.09	3371.11	32889.4
Washed coal	10000tones						0
other washed coal	10000tones		230.14	2.25	1301.82		1534.21
coke	10000tones						0
coal gangue	10000tones		20.69	1.04	236.33	34.67	292.73
coke oven gas	0.1billion m3	0.67	10.8	0.26	5.28	0.19	17.2
blast furnace gas	0.1billion m3	106.03	108.95	14.19	76.22	6.21	311.6
converter gas	0.1billion m3	12.19	4.31	0.95	1.09	0.46	19
other gas	0.1billion m3						0
crude oil	10000tones			3.23			3.23
Gasoline	10000tones						0
Diesel	10000tones	0.9	1.98	1.04		3.19	7.11
Fuel oil	10000tones	17.53	0.06	5.14		0.73	23.46
petroleum naphtha	10000tones						0
lubricating oil	10000tones						0
paraffin	10000tones						0
solvent naphtha	10000tones						0
petroleum pitch	10000tones						0

petroleum coke	10000tones	23.49		37.5			60.99
LPG	10000tones						0
Refinery gas	10000tones	0.76	0.16		1.18	42.17	44.27
Liquefied natural gas	10000tones			2.76			2.76
Natural gas	0.1billion m3	7.47	24.39	17.53		19.09	68.48
other petroleum products	10000tones	0.05	1.22				1.27
other coking products	10000tones						0
other energy	10000tCe	15.59	112.68	49.33	28.77	1.1	207.47

Data Source: China Energy Statistical Yearbook 2011

Table 5- The Operation Margin Emission Factor Calculation of ECPG in 2010

Fuel	Unit	Fuel Consumption in the ECPG (F)	Oxidation Rate (%) H	Fuel Emission Factor (kgCO ₂ /TJ) I	Average NCV (MJ/t,km ³) J	CO ₂ Emission (tCO ₂ e) M=F*H*I*J/100000 (in mass) M=F*H*I*J/10000 (in volume)
Raw coal	10000tones	32889.4	100	87,300	20,908	600,319,825
Washed coal	10000tones	0	100	87,300	26,344	0
other washed coal	10000tones	1534.21	100	87,300	8,363	11,201,112
coke	10000tones	0	100	95,700	28,435	0
coal gangue	10000tones	292.73	100	87,300	8,363	2,137,192
coke oven gas	0.1billion m3	17.2	100	37,300	16,726	1,073,073
blast furnace gas	0.1billion m3	311.6	100	219,000	3,763	25,678,863
converter gas	0.1billion m3	19	100	145,000	7,945	2,188,848
other gas	0.1billion m3	0	100	37,300	5,227	0
crude oil	10000tones	3.23	100	71,100	41,816	96,032

Gasoline	10000tones	0	100	67,500	43,070	0
Diesel	10000tones	7.11	100	72,600	42,652	220,164
Fuel oil	10000tones	23.46	100	75,500	41,816	740,658
petroleum naphtha	10000tones	0	100	72,600	43,906	0
lubricating oil	10000tones	0	100	71,900	41,398	0
paraffin	10000tones	0	100	72,200	39,934	0
solvent naphtha	10000tones	0	100	72,200	42,945	0
petroleum pitch	10000tones	0	100	69,300	38,931	0
petroleum coke	10000tones	60.99	100	82,900	31,947	1,615,263
LPG	10000tones	0	100	61,600	50,179	0
Refinery gas	10000tones	44.27	100	48,200	46,055	982,728
Liquefied natural gas	10000tones	2.76	100	54,300	51,434	77,083
Natural gas	0.1billion m3	68.48	100	54,300	38,931	14,476,352
other petroleum products	10000tones	1.27	100	72,200	41,816	38,343
other coking products	10000tones	0	100	95,700	28,435	0
other energy	10000tCe	207.47	0	0	0	0
Total						660,845,535
Power import from NCPG (MWh)		16,547,520				
NCPG simple Emission Factor (tCO2/MWh)		1.0333				
Power import from CCPG (MWh)		40,113,670				
CCPG simple Emission Factor (tCO2/MWh)		0.9923				
Total Emission (Q)		717,748,882				
Total Power Supplied (P)		875,770,710				
OM Emission Factor (=Q/P)		0.8196				

Data sources: China Energy Statistical Yearbook 2011

Table 6– Energy Consumption Statistics of Power Generation of ECPG in 2011

Fuel	Unit	Shanghai A	Jiangsu B	Zhejiang C	Anhui D	Fujian E	Total F=A+B+C+D+E
Raw coal	10000tones	3667.6	15074.21	9033.56	5690.22	5160	38625.59
Washed coal	10000tones						0
other washed coal	10000tones		192.29		1555.03		1747.32
coke	10000tones						0
coal gangue	10000tones		186.46	1	185.19		372.65
coke oven gas	0.1billion m3	0.77	10.49	0.34	5.73	0.19	17.52
blast furnace gas	0.1billion m3			25.32		7.29	32.61
converter gas	0.1billion m3			1.16		0.44	1.6
other gas	0.1billion m3	32.18					32.18
crude oil	10000tones			2.03			2.03
Gasoline	10000tones						0
Diesel	10000tones	0.87	2.2	1.01	0.31	1.28	5.67
Fuel oil	10000tones	14.15	0.2	7.05		0.44	21.84
petroleum naphtha	10000tones						0
lubricating oil	10000tones						0
paraffin	10000tones						0
solvent naphtha	10000tones						0
petroleum pitch	10000tones						0

petroleum coke	10000tones	21.22	1.29	40.77			63.28
Liquefied natural gas	10000tones			1.65			1.65
LPG	10000tones						0
Refinery gas	10000tones	0.46	0.21		1.2	41.55	43.42
Natural gas	0.1billion m3	10.24	35.96	25.49		22.39	94.08
other petroleum products	10000tones	0.05	1.14				1.19
other coking products	10000tones						0
other energy	10000tCe	16.34	122.66	74.06	213.74	1.28	428.08

Data Source: China Energy Statistical Yearbook 2012

Table 7– The Operation Margin Emission Factor Calculation of ECPG in 2011

Fuel	Unit	Fuel Consumption in the ECPG (F)	Oxidation Rate (%) H	Fuel Emission Factor (kgCO ₂ /TJ) I	Average NCV (MJ/t,km ³) J	CO ₂ Emission (tCO ₂ e) M=F*H*I*J/100000 (in mass) M=F*H*I*J/10000 (in volume)
Raw coal	10000tones	38625.59	100	87,300	20,908	705,020,689
Washed coal	10000tones	0	100	87,300	26,344	0
other washed coal	10000tones	1747.32	100	87,300	8,363	12,757,007
coke	10000tones	0	100	95,700	28,435	0
coal gangue	10000tones	372.65	100	87,300	8,363	2,720,680
coke oven gas	0.1billion m3	17.52	100	37,300	16,726	1,093,037
blast furnace gas	0.1billion m3	32.61	100	219,000	3,763	2,687,380
converter gas	0.1billion m3	1.6	100	145,000	7,945	184,324
other gas	0.1billion m3	32.18	100	37,300	5,227	627,404
crude oil	10000tones	2.03	100	71,100	41,816	60,354
Gasoline	10000tones	0	100	67,500	43,070	0

Diesel	10000tones	5.67	100	72,600	42,652	175,574
Fuel oil	10000tones	21.84	100	75,500	41,816	689,512
petroleum naphtha	10000tones	0	100	72,600	43,906	0
lubricating oil	10000tones	0	100	71,900	41,398	0
paraffin	10000tones	0	100	72,200	39,934	0
solvent naphtha	10000tones	0	100	72,200	42,945	0
petroleum pitch	10000tones	0	100	69,300	38,931	0
petroleum coke	10000tones	63.28	100	82,900	31,947	1,675,912
Liquefied natural gas	10000tones	1.65	100	54,300	51,434	46,082
LPG	10000tones	0	100	61,600	50,179	0
Refinery gas	10000tones	43.42	100	48,200	46,055	963,859
Natural gas	0.1billion m3	94.08	100	54,300	38,931	19,888,073
other petroleum products	10000tones	1.19	100	72,200	41,816	35,927
other coking products	10000tones	0	100	95,700	28,435	0
other energy	10000tCe	428.08	0	0	0	0
Total						748,625,815
Net Electricity Import from CCPG (MWh)		33,792,550				
Simple EF of CCPG (tCO2/MWh)		0.9827				
Net Electricity import from Shanxi (MWh)		15,769,540				
Simple EF of NCPG (tCO2/MWh)		1.0798				
Total Emission (Q)		798,861,703				
Thermal Power supplied to ECPG (P)		999,453,690				
OM Emission Factor [= Q/P]		0.7993				

Data sources: China Energy Statistical Yearbook 2012

Table 8– Energy Consumption Statistics of Power Generation of ECPG in 2012

Fuel	Unit	Shanghai A	Jiangsu B	Zhejiang C	Anhui D	Fujian E	Total F=A+B+C+D+E
Raw coal	10000tones	3397.31	15723.65	8633.73	7539.89	4501.98	39796.56
Washed coal	10000tones						0
other washed coal	10000tones		242.09		298.74		540.83
briquette coal	10000tones						0
coal gangue	10000tones		22.08	0.8	297.08		319.96
coke	0.1billion m3						0
coke oven gas	0.1billion m3	1.18	10.38	0.69	5.56	0.28	18.09
blast furnace gas	0.1billion m3			33.19	18.24	9.67	61.1
converter gas	0.1billion m3			1.52	3.47	1.11	6.1
other gas	0.1billion m3	25.7					25.7
other coking products	10000tones						0
crude oil	10000tones			2.25			2.25
Gasoline	10000tones						0
kerosene	10000tones						0
Diesel	10000tones	0.75	1.7	0.86	0.41	1.02	4.74
Fuel oil	10000tones	7.58	0.19	1.29		0.62	9.68
petroleum naphtha	10000tones						0
lubricating oil	10000tones						0

paraffin	10000tones						0
solvent naphtha	10000tones						0
petroleum pitch	10000tones						0
petroleum coke	10000tones	17.84	0.27	36.15			54.26
LPG	10000tones						0
Refinery gas	10000tones	0.44	0.44		0.99	42.02	43.89
other petroleum products	10000tones	0.02	1.11				1.13
Natural gas	0.1billion m3	14.54	43.95	25.31		21.41	105.21
Liquefied natural gas	10000tones			0.03			0.03
other energy	10000tCe	18.97	185.57	60.95	210.58	0.67	476.74

Data Source: China Energy Statistical Yearbook 2013

Table 9– The Operation Margin Emission Factor Calculation of ECPG in 2012

Fuel	Unit	Fuel Consumption in the ECPG (F)	Oxidation Rate (%) H	Fuel Emission Factor (kgCO ₂ /TJ) I	Average NCV (MJ/t,km ³) J	CO ₂ Emission (tCO ₂ e) M=F*H*I*J/100000 (in mass) M=F*H*I*J/10000(in volume)
Raw coal	10000tones	39796.56	100	87,300	20,908	726,394,034
Washed coal	10000tones	0	100	87,300	26,344	0
other washed coal	10000tones	540.83	100	87,300	8,363	3,948,545
briquette coal	10000tones	0	100	87,300	20,908	0
coal gangue	10000tones	319.96	100	87,300	8,363	2,335,996
coke	0.1billion m3	0	100	95,700	28,435	0
coke oven gas	0.1billion m3	18.09	100	37,300	16,726	1,128,599
blast furnace gas	0.1billion m3	61.1	100	219,000	3,763	5,035,233

converter gas	0.1billion m3	6.1	100	145,000	7,945	702,735
other gas	0.1billion m3	25.7	100	37,300	5,227	501,065
other coking products	10000tones	0	100	95,700	28,435	0
crude oil	10000tones	2.25	100	71,100	41,816	66,895
Gasoline	10000tones	0	100	67,500	43,070	0
kerosene	10000tones	0	100	71,900	43,070	0
Diesel	10000tones	4.74	100	72,600	42,652	146,776
Fuel oil	10000tones	9.68	100	75,500	41,816	305,608
petroleum naphtha	10000tones	0	100	72,600	43,906	0
lubricating oil	10000tones	0	100	71,900	41,398	0
paraffin	10000tones	0	100	72,200	39,934	0
solvent naphtha	10000tones	0	100	72,200	42,945	0
petroleum pitch	10000tones	0	100	69,300	38,931	0
petroleum coke	10000tones	54.26	100	82,900	31,947	1,437,025
LPG	10000tones	0	100	61,600	50,179	0
Refinery gas	10000tones	43.89	100	48,200	46,055	974,293
other petroleum products	10000tones	1.13	100	72,200	41,816	34,116
Natural gas	0.1billion m3	105.21	100	54,300	38,931	22,240,903
Liquefied natural gas	10000tones	0.03	100	54,300	51,434	838
other energy	10000tCe	476.74	0	0	0	0
Total						765,252,660
Net electricity import from CCPG (MWh)		52,287,240				
Simple EF of CCPG (tCO2/MWh)		0.9437				
Net electricity import from NCPG (MWh)		16,980,330				
Simple EF of NCPG (tCO2/MWh)		1.0583				
Total Emission (Q)		832,566,412				
Thermal Power supplied to ECPG (P)		1,026,950,470				
OM Emission Factor [=Q/P]		0.8107				

Data sources: China Energy Statistical Yearbook 2013

Table 10- Calculation of average Operation Margin Emission Factor for ECPG in recent 3 years

Years	2010	2011	2012
Total CO ₂ Emission (tCO ₂ e)	717,748,882	798,861,703	832,566,412
Total power supply (MWh)	875,770,710	999,453,690	1,026,950,470
Full-weighted average OM	$EF_{OM,y} = 0.8095 \text{ tCO}_2\text{e/MWh}$		

Table 11–Calculation of Ratio of Solid, Liquid and Gas fuel in total CO₂ Emission

Fuel	Unit	Shanghai A	Jiangsu B	Zhejiang C	Anhui D	Fujian E	Total F=A+B+ C+D+E	NCV G	Emission Factor H	OXID I	CO ₂ emission (tCO ₂ e) J	Percent age
Raw coal	10000t	3397.31	15723.65	8633.73	7539.89	4501.98	39796.56	20,908	87,300	1	726,394,034	-
Washed coal	10000t	0	0	0	0	0	0	26,344	87,300	1	0	-
Other washed coal	10000t	0	242.09	0	298.74	0	540.83	8,363	87,300	1	3,948,545	-
Briquette coal	10000t	0	0	0	0	0	0	20,908	87,300	1	0	-
Coal gangue	10000t	0	22.08	0.80	297.08	0	319.96	8,363	87,300	1	2,335,996	-
Coke	10000t	0	0	0	0	0	0	28,435	95,700	1	0	-
Other coke products	10000t	0	0	0	0	0	0	28,435	95,700	1	0	-
Subtotal	-	-	-	-	-	-	-	-	-	-	732,678,575	95.74%
Crude oil	10000t	0	0	2.25	0	0	2.25	41,816	71,100	1	66,895	-
Gasoline	10000t	0	0	0	0	0	0	43,070	67,500	1	0	-
Kerosene oil	10000t	0	0	0	0	0	0	43,070	71,900	1	0	-
Diesel oil	10000t	0.75	1.7	0.86	0.41	1.02	4.74	42,652	72,600	1	146,776	-
Fuel oil	10000t	7.58	0.19	1.29	0	0.62	9.68	41,816	75,500	1	305,608	-
Petroleum coke	10000t	17.84	0.27	36.15	0	0	54.26	31,947	82,900	1	1,437,025	-
Other petroleum products	10000t	0.02	1.11	0	0	0	1.13	41,816	72,200	1	34,116	-

Subtotal	-	-	-	-	-	-	-	-	-	-	1,990,420	0.26%
Natural gas	0.01 billion m3	145.40	439.50	253.10	0	214.10	1052.1	38,931	54,300	1	22,240,903	-
Liquefied natural gas	10000t	0	0	0.03	0	0	0.03	51,434	54,300	1	838	-
Coke oven gas	0.01 billion m3	11.80	103.80	6.90	55.60	2.80	180.9	16,726	37,300	1	1,128,599	-
Blast oven gas	0.01 billion m3	0	0	331.90	182.40	96.70	611.00	3,763	219,000	1	5,035,233	-
Converter gas	0.01 billion m3	0	0	15.20	34.70	11.10	61.00	7,945	145,000	1	702,735	-
Other gas	0.01 billion m3	257.00	0	0	0	0	257.00	5,227	37,300	1	501,065	-
LPG	10000t	0	0	0	0	0	0	50,179	61,600	1	0	-
Refinery gas	10000t	0.44	0.44	0	0.99	42.02	43.89	46,055	48,200	1	974,293	-
Subtotal	-	-	-	-	-	-	-	-	-	-	30,583,665	4.00%
Total	-	-	-	-	-	-	-	-	-	-	765,252,660	100%

Data Source: China Energy Statistical Yearbook 2013

Table12–Calculation of the Emission Factor for Coal-fired, oil-fired and Gas-fired Power

	Variable	Supply Efficiency A	Emission Factor of fuel (kgCO ₂ /TJ) B	Oxidation Rate C	Emission Factor (tCO ₂ /MWh) D=3.6/A/10,000*B*C
Coal-fired	$EF_{Coal,Adv}$	40.03%	87,300	1	0.7851
Gas-fired	$EF_{Gas,Adv}$	52.9%	75,500	1	0.5138
Oil-fired	$EF_{Oil,Adv}$	52.9%	54,300	1	0.3695

The emission factor of thermal power is:

$$EF_{thermal} = 95.74\% \times 0.7851 + 0.26\% \times 0.5138 + 4.00\% \times 0.3695 = 0.7678 \text{ tCO}_2\text{e/MWh.}$$

Table 13–The Calculation of BM Emission Factor for ECPG

Unit: MW	Installed capacity 2009	Installed capacity 2010	Installed capacity 2011	Installed capacity 2012	Newly added 2009-2012	Newly added 2010-2012	Newly added 2011-2012	The Ratio in new addition
Thermal power	157,970	172,710	185,180	196,600	48,292	27,732	11,420	89.36%
Hydropower	23,300	23,630	24,100	25,160	1,610	1,280	1,060	2.98%
Nuclear power	5,130	5,790	6,450	6,450	1,320	660	0	2.44%
Wind power and other	1,689	2,421	3,552	4,507	2,818	2,086	955	5.21%
Total	188,089	204,551	219,282	232,717	54,040	31,758	13,435	100.00%
Ratio of installed capacity in 2012					23.22%	13.65%	5.77%	

$$EF_{BM,y} = 0.7678 \times 89.36\% = 0.6861 \text{ tCO}_2\text{e/MWh.}$$

The operating margin emission factor ($EF_{OM,y}$) of East China Power Grid is 0.8095 tCO₂e/MWh and the build margin emission factor ($EF_{BM,y}$) is 0.6861 tCO₂e/MWh. The default weights are used as specified in the emission factor tool $W_{OM} = 0.25$ and $W_{BM} = 0.75$.

The result of the Baseline Emission Factor ($EF_{CM,y}$) calculation is 0.71694 tCO₂e/MWh

Annex 3**MONITORING Plan****ADDITIONAL REQUIREMENTS FOR THE GOLD STANDARD:**

The actual project performance must be assessed against the projected outcomes of the sustainable development assessment as defined in Gold Standard Project Developer's Manual, on an annual basis. Where quantitative measurements are required information on the relevant data to be collected should be noted in the table presented below. For those indicators where a qualitative assessment is to be made a narrative explanation should be provided.

If an EIA has been conducted, then the table needs to be extended to allow:

- 1) Assessment of the implementation and effectiveness of the identified mitigation measures.
- 2) Assessment of the implementation and effectiveness of the identified compensation measures.
- 3) Monitoring of the impacts.

The information requirements for the sustainable development indicators and Environmental Impact Assessment are fully detailed in the Gold Standard Project Developer's Manual
