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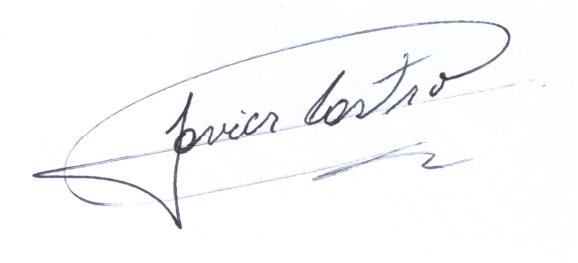
	Paula Auer	Paula.Auer@tuev-sued.de			

Request for Review

Dear Sirs,

Please find below the response to the review formulated for the CDM project with the registration number 1658. In case you have any further inquiries please let us know how we can kindly assist you.

Yours sincerely,



Javier Castro
Carbon Management Service

Industrie Service

Response to the CDM Executive Board

Question 1

Further clarification is required on (a) how the DOE has validated the investment barriers and (b) the common practice analysis, in particular the identification of the similar project activity.

Response by PP

a. Response for the investment barrier

The IRR of the project (4.87%) is lower than the benchmark of 13%. Therefore, without CDM revenue, the project faces obvious financial barriers.

In addition, in recent years, the Chinese economic continues to develop and grow rapidly, and the demand for iron and steel is increasing dramatically, thus the overriding task of Laigang at this stage is to expand and strengthen its core field. However, this project is not the core field of Laigang, also the implementation of this project will need large amount of initial investment. Laigang would have preferred to invest on the enlargement of production scale and the improvement of manufacture technology capability, rather than the investment on the project as using waste heat for power generation. Therefore, even till now the project owner still cannot acquire loan from bank, because it is not the core business of Laigang, the bank was not willing to support this project.

In addition, the investment analysis can prove the additionality sufficiently, so the barrier analysis is only as supplementary and additional information to prove additionality. As such barrier analysis will not be applied; the project participant agrees to remove this section.

b. Response for the common practice analysis

According to the *Tool for the Demonstration and Assessment of Additionally (version 5.0)*, projects are considered "similar" in case they are located in the "same county/region", are of "similar scale", and "take place in a comparable environment with respect to regulatory framework, investment climate, access to technology, access to financing, etc".

The criteria for selecting similar plants follow this guidance. We have selected all power generating facilities utilizing waste gas from iron & steel enterprises located in Shandong province in PDD. Because the similar projects located in different provinces have different investment conditions and natural conditions in China. Hence, it is reasonable to consider Shandong province as the same region in PDD.

Regarding to "similar scale", it is preferred that projects with similar installed capacity should be analyzed. However, waste gas power generation project is not the core business of iron & steel enterprise. Therefore, the information of these projects, even installed capacities, is hardly to be founded. Normally, in iron & steel industry, the steel production capacities are usually used to layout and levelize iron & steel enterprises. According to the policies on the development of the iron and steel industry, only the

company with annual steel production capacity of more than 5 million tons[1] is licensed to implement a trans-regional investment. The annual steel production capacity of the project owner (Laigang) is 10 million tons. Therefore, iron & steel enterprises with annual production capacity of more than 5 million tons of steel are similar with Laigang in policy and investment environment.

Therefore, in order to further demonstrate additionality of the project, all power generating facilities utilizing waste gas in iron & steel enterprises with a production capacity of more than 5 million tons in the North China Power Grid will be selected to analyze.

According to the statistical data of National Bureau of Statistics of China in 2005[2], 44 iron & steel enterprises located in the North China Power Grid area, where Laigang is located, have been listed in the top 1000 Chinese industrial enterprises. Within the scale of the steel production capacity of more than 5 million tons, 10 iron & steel enterprises are similar to Laigang.

Table 1 Similar iron & steel enterprises

No.	Iron & steel Enterprise	Production Capacity
1	Shougang Group	15.4 million tons/year
2	Taiyuan Iron & Steel (Group) Company Ltd	9.29 million tons/year
3	Jigang Group Co., Ltd.	12.12 million tons/year
4	Hangang Group	9 million tons/year
5	Tangshan Iron & Steel Co., Ltd.	12 million tons/year
6	Tianjin Tiantie Metallurgical Group	8 million tons/year
7	Baotou Iron & Steel (Group) Co., Ltd.	7.5 million tons/year
8	Xuanhua Iron & Steel (Group) Liability Co.,Ltd.	6 million tons/year
9	Tangshan Guofeng Iron & Steel Co., Ltd	5 million tons/year
10	Qingdao Iron and steel group Co., Ltd	5.4 million tons/year

Note: The data is from the website of each iron & steel enterprise

There are three the similar projects found among above 10 iron & steel enterprises. Besides, two similar projects in NCPG area are found from UNFCCC, and they are applying for CDM revenues to overcome their barriers. All similar projects are listed as follows.

Table 2 Similar projects to the project (25MW)

Project Name	Capacity	Iron & steel Enterprise	CDM or not
Waste gas power generation captive station of Laigang	24MW	Laiwu Iron & Steel Group	Not CDM
12MWwaste gas power plant of Xuanhua Iron & Steel (Group) Liability Co., Ltd.	12MW	Xuanhua Iron & Steel (Group) Liability Co., Ltd.	CDM[3]
Laiwu Iron & Steel Group Laigang Inc. 25MW Waste Gas	25MW	Laiwu Iron & Steel Group	CDM

[1] http://www.aa.gov.cn/dongtai/ShowArticle.asp?ArticleID=510&Page=2
[2] http://tieba.baidu.com/f?kz=36038711
[3] http://cdm.ccchina.gov.cn/website/cdm/pdf/Item/Item3051.pdf

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Power Generation Project			
48MW Waste Gases Recovery and Power Generation Project of Shandong Weifang Iron & Steel Group Corporation, China	48MW	Shandong Weifang Iron & Steel Group Corporation	CDM[4]
Waste Gas Power Generation Project of Shandong Shiheng Special Steel Group Co., Ltd.	48MW	Shandong Shiheng Special Steel Group Co., Ltd.	CDM[5]

Source: http://cdm.unfccc.int/Projects/Validation/index.html
http://cdm.ccchina.gov.cn/web/index.asp

Only one project is undertaken without CDM, the waste gas power generation captive station of Laigang, which was in operation in 1998[6] as a demonstration project. The captive station got support of foreign capital. The actual investment of the waste gas power generation captive station was only 74.4506 million Yuan RMB corresponding to unit cost of 3,102 Yuan RMB/kW, which is much lower than that of the project(4,192Yuan RMB/kW). Moreover the captive station was approved as integration utilization unit by local DRC[7], which demonstrate the support of local government. Therefore, it was more attractive than the project.

However, other similar projects are all facing some barriers like the project and they are applying CDM projects for overcoming these barriers. Moreover, in order to further demonstrate additionally of the project, all power generating facilities utilizing waste gas from iron & steel enterprises with a production capacity of more than 5 million tons in the North China Power Grid will be selected to analysis. The criteria for selecting similar plants are as following:

According to the above analysis, few similar projects could be implemented without CDM. Therefore, it can be concluded that the project is not belong to common practice and satisfies the additionality requirement.

Response by DOE

a) The additionality of the project has been demonstrated through Investment analysis. Earlier the barriers were validated through anecdotal evidence. Further since the additionality is convincingly demonstrated through investment analysis, the PP agrees to remove the barrier analysis from the revised PDD.

b) The common practice analysis was limited to the Shandong province as the price of electricity in each province is different; as well as the investment environment (e.g. tax policies).

Still, the common practice has been revised and has been extended for North China Grid. The list of the plants presented has been validated based on the following:

1. Web-links provided
2. Financial Accounting Report
3. Integration Utilization Unit Certificate issued by local DRC

[4] http://cdm.unfccc.int/Projects/Validation/DB/AOYEFPP7NKDXCUBXVK6L9CHAWHXQWD/view.html
[5] http://cdm.unfccc.int/Projects/Validation/DB/VWJ9UVUGE3UXQ36YO29PNO4GXEUDK9/view.html
[6] The Final Accounting Report
[7] Approval of local DRC

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The assessment shows, that five projects have been constructed in the North China Grid. Four of them are applying CDM and one operated by the same project participant was approved as integration utilization unit by the local DRC. Further from the financial accounting report it can be confirmed that investment for this project was 74.4506 million RMB. This investment is very likely to have made the project financially attractive.

Question 2

Further clarification is required on how the DOE has validated the suitability of the input values, as per the guidance of EB 38 paragraph 54 (c).

Response by PP

The Pre-assessment Report (PR) of the project, which was developed in July 2004 by *Shandong Province Metallurgical Design Institute*. This entity is an independent organization which is qualified to compile design reports for Iron & Steel projects (it has obtained the "Engineering Consulting Design Certificate" issued by the National Development and Reform Commission). The IRR in the PR is 4.34%, so the project faces high investment risk. Due to high investment and low IRR in PR, the project owner decided to implement CDM application to overcome the barrier. Therefore, the Technology and Resource Department of Laiwu Iron & Steel Group Corp. submitted a CDM application letter to Laiwu Iron & Steel Group Corp. (hereafter referred as "Laigang") on July 15, 2004. Then on August 9, 2004 Laigang adopted the documentation submitted by the Technology and Resource Department of Laigang to develop this project as CDM support. And then, Laigang submitted CDM application to the local Government on August 24, 2004 and on September 16, 2004 the local Government approved the CDM application. Later on April 8, 2005 Laigang consigned Beijing Tianqing Power International CDM Consulting Co., Ltd ("**Consultant Company**") to develop the CDM application. The above dates are all earlier than the earliest starting date of the project, i.e. January 19, 2006 (Equipment Purchase Agreement date). At the same time, Laigang consigned *Shandong Province Metallurgical Design Institute* to compile the Feasibility Study Report (FSR), which was completed in March 2006, and approved by the local DRC (Development and Reform Commission). The IRR in FSR was only 4.87%, but the IRR will be improved by CDM revenue. Considering FSR and CDM income, the project owner decided to proceed with the investment in the project. Therefore, construction of the project started on April 3, 2006. It can be concluded that: the project owner taken consider seriously the potential revenue of CDM to proceed with the project. CDM has played a very important and crucial role in the successful implementation of the project. Therefore the project is consistent with the requirement of EB (EB41, Annex 46, Para5(b)).

After signed cooperation contract with project owner, the Consultant Company began to write PIN and seek for potential buyers. In 2006, the Consultant contacted RWE Power AG and recommended the project to RWE. After market research and project study, RWE signed a LoI with the project owner on May 22, 2007.

And then, in June 2007 the Consultant and the project owner submitted the application letter of CDM to China DNA. And in July 2007 the project was listed on China DNA official website as approved and the LoA (paper version) was issued in August 2007. And then, on September 19, 2007 TÜV SÜD performed on-site interviews. Please see the detailed time line in the table below.

Table 3 Key Events of the Project

Date (dd-mm-yyyy)	Key Event
7-2004	The PR of the project was developed by *Shandong Province Metallurgical Design Institute.*
15-7- 2004	Due to the high investment and low IRR in PR, the Technology and Resource Department of Laigang submitted a CDM application letter to Laigang.
9-8-2004	Laigang adopted the documentation submitted by the Technology and Resource Department of Laigang to develop this project as CDM project.
24-8-2004	Laigang submitted a CDM application letter to the local Government.
16-9-2004	Local Government approved the application.
8-4-2005	Laigang consigned Beijing Tianqing Power International CDM Consulting Co., Ltd to develop the CDM application.
3-2006	Feasibility Study Report (FSR) was completed by *Shandong Province Metallurgical Design Institute* and approved by the local DRC.
19-1-2006	Equipment Purchase Agreement (the earliest starting date of the project activity[8])
3-4-2006	The project started to construction
22-5-2007	The project owner and RWE signed LoI.
6-2007	The Consultant Company and the project owner submitted application letter of CDM to Chinese DNA.
7-2007	The project was listed on the China DNA's official website as approved.
26-8-2007	The Chinese LoA (paper version) was issued.
19-9-2007	TÜV SÜD performed on-site interviews.
4-2007	The project started operation.
22-2-2008	The final validation report was issued by TÜV SÜD.
3-3-2008	The project was submitted to registration by TÜV SÜD.

The events in the above table clearly demonstrate that the project owner seriously consider the potential of CDM revenues before the starting activities of the project activity. CDM played a crucial role in overcoming the barriers towards the implementation of the project activity.

The project is consistent with the guidance of EB 38:

The project received the final validation report on February 22, 2008. The project was submitted to registration on March 3, 2008. But, on March 14, 2008 the guidance of EB 38 Meeting report was issued.

According to above description, it can be concluded that the project owner seriously consider CDM before the start of the construction of the project based on PR. PR is the basis of the decision to investment the project for the project owner. In order to show the latest situation of the project into PDD (also based on conservative purpose), the Consultant completed the PDD based on FSR. According to the guidance of EB 38 paragraph 54, the data in FSR are still employed to calculate the IRR in PDD.

[8] In PDD, we used the date of construction (April 3, 2006) as the starting date of the project activity, but according to the requirement of EB 41, the starting date of a CDM project activity is the earliest of the date(s) on which the implementation or construction or real action of a project activity begins/has begun (PDD guideline). Therefore, we revised the starting date to the signature date of the Equipment Purchase Agreement.

In addition, in order to cross-check the reasonability of the main parameters for IRR calculation, we made below clarification:

To prove the conservative of the assumption from FSR, the assumption from FSR can be compared with the actual data.

Table 4 the Estimated Data in FSR and Actual Data

	Value in FSR	Actual Value	Comment
Annual utilization hours	7,000 h	7,009 h (The project has been operation since March 2007 and the actual average annual utilization hours are 7,009 h.)	The actual annual utilization hour is almost the same with the data in FSR. So it is reasonable to employ annual utilization hour of 7,000h in investment analysis. Besides, even if the annual utilization hour of 7,009h used in investment analysis, the IRR is 4.93%, still lower than the benchmark.
Electricity price	0.35 Yuan/kWh (internal settlement price, without VAT)	0.305612 Yuan/kWh Without VAT(power purchase invoice)	The price used in FSR is more conservative than the price for purchase from grid
Total investment	104,810,900Yuan RMB	The actual investment is 117,384,461.03 Yuan RMB	In PDD, the lower total investment of 104,810,900Yuan RMB in FSR has been used, it is conservative.
Annual Operation Cost	41,940,000 Yuan RMB	70,130,985.951 Yuan RMB	The actual operating cost is higher than cost in PDD, it is conservative.

Annual operation cost in FSR

In Table 4, the annual operation cost includes fuel & power costs, employ's expenses (including salary and welfare), and other O&M costs (other operational and maintenance costs, management cost and financial cost).

- Fuel cost[9]

Fuel cost is mainly for the pre-treatment of blast furnace gas (BFG), which consists of collecting, cleaning (purifying) and management (distributing), etc. to ensure the safe utilization of BFG[10]. It is estimated at 25,872,000Yuan RMB /year.

- Power cost

All power cost used in the IRR calculation are taken from approved FSR. The power cost is the cost of some key material, which should be invested yearly, like desalinating water, circulate water, and lube, which are used for ongoing operation safely so that comparatively decrease the cost of maintenance. Hence, the total power cost is calculated as 8,544,000 Yuan RMB/year.

- Employees' expenses (including salary and welfare)

The number of employees is 72, and salary and welfare per capita per year is 40,000 Yuan RMB. Hence, total employees' expenses 2,880,000 Yuan RMB/year.

- Other O&M costs

Other O&M costs consist of overhaul cost, material cost, subproject maintenance expenses, Management cost and insurance for fixed assets. Hence, the total other O&M cost is 7,591,883 Yuan RMB/year.

In conclusion, the above input values of annual operation cost employed in IRR calculation sheet are conservative. In a word, in accordance with the guidance of EB 38 paragraph 54, the project is an eligible and high quality CDM project activity.

Therefore, it can be concluded that the input values used in the financial analysis are more conservative than the actual operation situation. In a word, in accordance with the guidance of EB 38 paragraph 54, the project is an eligible and high quality CDM project activity.

Response by DOE

The input values used in the investment analysis are consistent with the Financial Evaluation report.

The chronology of the key events related to the project is as follows:

Description	**Date**	**Remarks**
Pre-assessment Report (PR)	July 2004	IRR – 4.34%
Feasibility Study Report (FSR)	January 2006	IRR – 4.87%
Equipment Purchase Agreement	January 2006	

9 According to Effective Utilization of Secondary Energy and Accelerate the Development of Technology Improvement for Energy Conservation and Emission Reduction, equipments must be installed for utilization of BFG, such as, dust collection equipment, desulfurization equipment, pressure equipment etc. These treatment processes will also consume power and manpower. Therefore, these costs must be accounted and it is common to be applied in iron and steel companies of China.
See details at the website: http://www.steelplanning.cn/ShowArticle.asp?ArticleID=231

10 According to Cost Accounting of the Coking and Chemicals industry, before utilization, BFG must be collected, purified and distributed, so there are costs to these treatment processes for operation and maintenance.
See details at P17 and P18, the Regulation for Cost Accounting Regulation in Coking and Chemistry Industry

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Construction start date	April 2006	
Validation start	September 2007	
Final Validation Report (VR)	February 2008	
EB-38 Guidance	March 2008	

As per EB 38 paragraph 54:

"where project participants rely on values from Feasibility Study Reports (FSR) that are approved by national authorities for proposed project activities, DOEs are required to ensure that:

1. The FSR has been the basis of the decision to proceed with the investment in the project, i.e. that the period of time between the finalization of the FSR and the investment decision is sufficiently short for the DOE to confirm that it is unlikely in the context of the underlying project activity that the input values would have materially changed.
2. The values used in the PDD and associated annexes are fully consistent with the FSR, and where inconsistencies occur the DOE should validate the appropriateness of the values.
3. On the basis of its specific local and sectoral expertise, confirmation is provided, by cross-checking or other appropriate manner, that the input values from the FSR are valid and applicable at the time of the investment decision."

We hereby confirm the following:

1. The PR has been the basis of decision making taking CDM revenues into account. The values used in the PDD have been taken from FSR and are fully consistent. It is appropriate to use the FSR as the source for the input values. The financial analysis' are nearly the same, only that the FSR value is a little bit higher.
2. The FSR has been accepted as the basis of investment analysis in the PDD.
3. Further the input values (annual operational hours, electricity price, total investment) have also been validated based on the invoices, grid power purchase price, local regulations and have found to be reasonable and acceptable. The values assumed in the FSR are reasonable and plausible.

   The actual O&M costs of 70,130,985.951 RMB have been checked from the internal document of the project owner by the DOE. They are higher than the value assumed in the FSR.

The documents supporting CDM consideration and input values are being submitted as follows:

1. Approval of CDM Projects Application from Laigang dated 08-09-2004 as Annexure-1
2. Approval of CDM Projects Application by the Government- English and Chinese version dated 16-9-2004 as Annexure-2
3. Feasibility Study Report dated March 2006 as Annexure-3

Question 3

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If the barriers to the project activity cannot be further substantiated, an economic comparison of the proposed baseline and the project activity without the CDM must be conducted to determine the baseline scenario.

Response by PP

As discussed in the PDD, scenarios (c), (d), (e) and (f) have been excluded. Therefore, the only remaining baseline options are scenarios (a) and (b). We will continue to compare baseline scenarios (a) with (b) as follows.

According to Tool for the Demonstration and Assessment of Additionality (version 03, because the project has been uploaded in March, 2008, so at that time, we use the additionality tool version 03, which can lead to the same conclusion as version 05), this Tool provides three investment analysis methods: Simple cost analysis (Option I), investment comparison analysis (Option II) and benchmark analysis (Option III).

Option I: simple cost analysis

In the PDD, we excluded simple cost analysis first. So here, we only discuss the investment comparison analysis (Option II) or the benchmark analysis (Option III).

Option II: investment comparison analysis and Option III: benchmark analysis

Although the project has been submitted in March 2008, the EB now underlined our point of view that investment comparison is not appropriate in this project. According to Annex 45 Guidance on the Assessment of Investment Analysis (Version 02), the paragraph 15 states "*if the proposed baseline scenario leaves the project participant no other choice than to make an investment to supply the same (or substitute) products or services, a benchmark analysis is not appropriate and an investment comparison analysis shall be used. If the alternative to the project activity is the supply of electricity from a grid this is not to be considered an investment and a benchmark approach is considered appropriate" and "the benchmark approach is therefore suited to circumstances where the baseline does not require investment or is outside the direct control of the project developer, i.e. cases where the choice of the developer is to invest or not to invest"*.

Therefore, investment comparison analysis (Option II) is not applicable because the alternative to the project activity is the importing electricity from a grid.

Therefore, benchmark analysis (Option III) is applicable and employed in the PDD.

The project is additional as per the benchmark analysis (IRR):
According to calculations in PDD, the equity IRR of the project without CDM revenue is 4.87% which is much lower than the benchmark of 13%. Based on the benchmark of the financial evaluation of the iron & steel industry of China, the Equity IRR of a steel industry project should not be lower than the benchmark of 13%. Therefore, the continuation of grid electricity import and venting waste gas into the atmosphere is a more economically attractive alternative than the project activity undertaken without CDM.

The project is also additional as per the comparison analysis (NPV):
However, in order to further demonstrate that the continuation of grid electricity is a more economically attractive alternative, these **two scenarios** by the comparative analysis of NPV and subsequent levelized cost has been compared. As for NPV analysis, the cost of the continuation of grid electricity import (sce-

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nario I) has been compared with the cost of the project activity undertaken without CDM (scenario II). To provide equivalent amount of electricity as scenario I, the following components of the costs in scenario II has to be included: initial investment cost, annual operation cost and tax saving. The tax saving in two scenarios are different because of different pre-tax deduction (depreciation has been considered in scenario II for tax saving calculation). Meanwhile, the levelized cost has also been calculated to further compare the above two scenarios.

The discounting rate in the both scenarios is the benchmark rate of 13%. Please find below comparative NPV and levelized cost

Table 5 NPV and Levelized Cost of Two Scenarios

Scenarios	NPV (Unit: 10,000 Yuan RMB)	Levelized Cost(Yuan RMB/kWh)
The continuation of grid electricity import	-26,233.33	0.2345
Project activity undertaken without CDM	-26,955.16	0.2678

Note: More detail could be found in IRR calculation sheets.

By the comparative analysis of NPV, it can be concluded that NPV for scenario I is greater than that for scenario II. Also for levelized cost, it could be seen in the above table that the levelized cost of scenario I is much lower than that of scenario II.

It can be concluded that the continuation of grid electricity import and venting waste heat into the atmosphere (scenario I) is a more economically attractive alternative than the project activity undertaken without CDM (scenario II). Therefore, it can be confirmed that the continuation of grid electricity import is indeed the baseline scenario.

In order to further demonstrate the above conclusion, the fluctuation of grid price and O&M cost has been considered.

- For grid price, the maximum increasing rate of 2% from 2000 to 2006 (Shandong Province Electricity Supply Sector) has been adopted for conservative purpose.
- For O&M cost, the average increasing rates of coal ,water, N_2 and salary are 9%, 7.26%, 4.43%, and 14.36% respectively from 2000 to 2006 (Shandong Province Electricity Supply Sector). The minimum average increasing rate of 4.43% has been adopted for conservative purpose.

It can be found that if the grid price increases, the other price indexes of O&M costs would increase further.
All the above data come from public official website of local government. (http://www.stats-sd.gov.cn).

Table 6 Various Price Indexes Fluctuations (Last Year=100)

Item	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**Average**	**Max**
Grid Price	100.4	100.7	99.9	100.2	100.1	102	101.6	0.70%	2.00%
Coal	97.3	115	115.2	102.1	124.8	111	97.6	9.00%	24.80%
Water	118.3	108.4	104.5	105.5	104.6	104.9	104.6	7.26%	18.30%
N_2	104.2	100.1	96.7	106.5	114.3	108.4	100.8	4.43%	14.30%
Salary	113.7	113.4	117	108.6	111.6	122.3	113.9	14.36%	22.30%

Information source: http://www.stats-sd.gov.cn/2007/tjsj/tjsj.asp?lbbm=1

The NPV and levelized cost of two scenarios with price fluctuations has been calculated as follows:

Table 7 NPV and Levelized Cost of Two Scenarios with Price Fluctuations

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Scenarios	Increasing rate	NPV (Unit: 10,000 Yuan RMB)	Levelized Cost(Yuan RMB/kWh)
The continuation of grid electricity import	Increasing rate of grid price is 2%	-29,556.54	0.2642
Project activity under-taken without CDM	Increasing rate of O&M cost is 4.43%	-36,662.22	0.3277

Note: More detail could be found in IRR calculation sheets.

It can be found in the above table, even with the fluctuation of grid price and O&M cost, scenario I is more economically attractive than scenario II.

It is clear that scenario I is the most economically attractive; therefore, the baseline is indeed the continuation of grid electricity import.

Response by DOE

According to "Tool for the demonstration and assessment of additionality /Version 03", benchmark analysis was used for the investment analysis of this project. As far as alternatives 2, the IRR without CDM revenues is 4.87% only, which is much lower than the benchmark value (13%). Thus it was concluded that the project is not attractive from a financial point of view.

Alternative 2 is the continued situation of the present state. It needs no additional investment and faces no prohibitive barrier and is also most economically attractive, so it is considered as the baseline scenario.

Further the levelized cost analysis has also been submitted by the PP for the two alternatives. Input values to this analysis are similar to the IRR analysis presented earlier. The analysis has been validated and shows that buying power from grid is cheaper than the project activity based power. Thus the baseline scenario would be grid based power. The levelized cost analysis is being submitted (Annexure-4)

Furthermore a sensitivity analysis of grid price and O&M costs has been considered. This analysis has been validated and the sources of the input values have been checked by the presented web pages.

Based on these evidences presented, the O&M costs will raise faster than the electricity price.

Question 4

Further clarification is required on why the combined margin emission factor in the PDD for request for registration is not consistent with the PDD published for global stakeholder process.

Response by PP

According to the *Bulletin on Baseline Emission Factors of China Grid* renewed by the Director Office of National Climate Change Coordination of NDRC (China DNA) on December 15, 2006, the Operating Margin emission factor of the North China Power Grid (NCPG) is 1.0585tCO_2e/MWh and the Build Margin emission factor is 0.9066tCO_2e/MWh. Hence, the Combined Baseline Emission Factor of the

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NCPG corresponds to 0.98255tCO_2e/MWh. Therefore, the emission factor issued by China DNA on December 15, 2006 was employed in the GSP PDD (global stakeholder process from July 2, 2007, at that time, the emission factor used in the final PDD was not published).

However, the *Bulletin on Baseline Emission Factors of China Grid* was renewed by the Director Office of National Climate Change Coordination of NDRC (China DNA) on August 9, 2007 (after the PDD for global stakeholder process starting date), the Operating Margin emission factor of the North China Power Grid (NCPG) is 1.1208tCO_2e/MWh and the Build Margin emission factor is 0.9397tCO_2e/MWh. Therefore, the published Combined Baseline Emission Factor of the NCPG corresponds to 1.03025tCO_2e/MWh. The PDD refers to the Operating Margin (OM) Emission Factor and the Build Margin (BM) Emission Factor published by the Chinese DNA on 09 August 2007, but deviate at some points by using data published in the China Electric Power Yearbook and 2006 IPCC. (Please see details in Table 8).

Table 8 the difference of input data

	The data employed by the China DNA	**The data in the Electricity Yearbook 2006and IPCC 2006**
The emission factor of coke	25.8 tC/TJ	29.2 tC/TJ in IPCC 2006
The emission factor of refinery gas	18.2 tC/TJ	15.7 tC/TJ in IPCC 2006
The import electricity from Northeast China Grid in 2005	23,432,000MWh	3,929,000 MWh in Electricity Yearbook(P351)

According to the above revision, the calculated OM factor is 1.1205tCO_2e/MWh, instead of 1.1208tCO_2e/MWh published by China DNA and the calculated BM factor of 0.93978tCO_2e/MWh, instead of 0.9397tCO_2e/MWh published by China DNA, so the Baseline Emission Factor of the NCPG corresponds to 1.030015tCO_2e/MWh.

Therefore, the Combined Baseline Emission Factor of the NCPG corresponds to 1.030015tCO_2e/MWh has been employed for conservative purpose. Therefore, the lower emission factor of 1.030015tCO_2e/MWh was employed in the PDD for request for registration.

Response by DOE

The DOE can confirm the explanation given by the project participant.

The values in the PDD submitted for registration are the published values from the NDRC on 9th August 2007 and applicable for this project.

Question 5

Further clarification is required on how the DOE has validated the electricity consumption in pre project scenario from both grid and captive power plant and current status of the waste gas based captive power plant, which produce 4.25% of the total electricity requirement in the pre-project.

Response by PP

In 2006, the electricity consumption of Laigang mainly imports from the North China Power Grid and the rest electricity sources from captive power plants. By far, there is not any thermal captive power plant

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in Laigang, one waste gas captive power plant and a TRT power plant are in operation. From 2004 to 2006, about 90.38% (minimum value) electricity consumed by the project owner is supplied from the North China Power Grid, and 9.62% (maximum) electricity consumed by the project owner is supplied from the captive power plants. Regarding to the project, its electricity totally replace the electricity from the grid. Before the implementation of the project, this part of electricity was totally imported from the grid. Therefore, as the project perspective, the pre project scenario for the project should be equivalent electricity imported from the grid, and the baseline scenario is also the equivalent electricity imported from the grid.

As per Issue 5, the pre project scenario is equivalent electricity from both the grid and captive power plant. If so, the pre project scenario is clarified further as follows: The project started operation in 2007. Therefore, the pre project scenario is shown as the share of electricity consumption by Laigang from the grid and captive power plants from 2004 to 2006. According to the statistical data of the electricity consumption from 2004 to 2006 provided by Laigang, the electricity consumption in Laigang is from the grid and the captive power plants.

In PDD, it described as, among these three years (2004, 2005 and 2006), the 95.75% electricity of the total consumption (the maximum) in Laigang was purchased from the NCPG, while the rest 4.25% electricity demand is from the waste gas power generation captive plants of Laigang.

The statistical data of the electricity consumption from 2004 to 2006 had been checked by local auditor during on site-visit validation. Please see the detailed data in the Table 9.

Table 9 the ratio of electricity purchasing from grid and electricity generated by existing captive power plants from 2004 to2006

	2004	**2005**	**2006**
Total electricity consumption(10^4kWh)	242,652	319,157	369,423
electricity purchasing from grid(10^4kWh)	225,408	305,593	333,868
electricity generated by existing captive power plants(10^4kWh)	17,244	13,564	35,555
The ration of electricity generated by existing captive power plants	7.11%	4.25%	9.62%

Note: the minimum 4.25% electricity demand that from the waste gas power generation captive station of Laigang has been employed in PDD. Even if the average 6.99% or maximum 9.62% employed, based on the above explanation, the power generated by the project still does not replace the electricity generated by the existing captive power plants.

Moreover, the project operation will not make any impact on the existing captive power plants, namely, the power generated by the project does not replace the electricity generated by the existing captive power plants, but only replace the electricity imported by the NCPG. Therefore, the baseline of the project is identified as follows, without the CDM project, annual equivalent electricity is imported from the NCPG.
The waste gas captive power plant (24MW) was in operation in 1998 and has been operated for 10 years successfully. The power plant was approved as integration utilization unit by local DRC every year. 30MW TRT project was in operation in 2006. All electricity generated by these projects only took less than 10% of the total electricity consumption of Laigang. Therefore, the power supplied by the project, which is $17,500\times10^4$kWh, only can replace little electricity purchasing from the grid.

Industrie Service

Response by DOE

The production scale of the Waste Gas Power Plant has been evidenced by the "Generation of 24 MW waste gas power generation captive power station of Laigang (2003-2007)" and "the ratio of self generation power" (2004-2006). TÜV can confirm the values shown by the project participant.

The total electricity consumption of the steel company is much higher than the electricity produced by the existing waste gas power plant (please see table 9).

In the submitted levelized costs calculation, if the investment costs of the old waste heat recovery project is included, the NPV is lower than the grid. That means electricity generated by the existing power plant is financially more attractive than the grid. Hence the electricity generated by the CDM project is always going to replace the electricity imported from the grid.

The existing captive power plant is operating since 1998 and the lifetime of the project is determined to be 22 years. This has been checked and verified by TÜV SÜD. Hence the possibility, that the project will replace electricity generated by the existing power plant is not given.

TÜV SÜD has checked the waste gas balances of the steel plant. We can confirm that there is enough waste gas available, for the CDM project and the existing waste gas power plant.