TÜV SÜD Industrie Service GmbH · 80684 Munich · Germany

Industrie Service

Choose certainty.
Add value.

DAP-PL-2885.99
DAP-IS-2886.00
DAP-PL-3089.00
DAP-PL-2722
DAP-IS-3516.01
DPT-ZE-3510.02
ZLS-ZE-219/99
ZLS-ZE-246/99

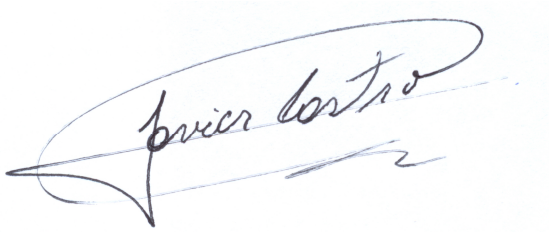
Your reference/letter of	Our reference/name	Tel. extension/E-mail	Fax extension	Date/Document	Page
	IS-CMS-MUC/ Paula Auer	+49 89 5791-2526 paula.auer@tuev-sued.de	+49 89 5791-2756	2008-06-10	1 of 16

Request for Review

Dear Sirs,

Please find below the response to the review formulated for the CDM project with the registration number 1669. In case you have any further inquiries please let us know as we kindly assist you.

Yours sincerely,



Javier Castro
Carbon Management Service

Industrie Service

Response to the CDM Executive Board

Issue 1

Issue 1. The DOE should establish the legal and financial relationship between the PP and the Iron & Steel Plant entity i.e. is the project owner separate enterprise from the Iron & Steel Plant .

AND

Issue 2

In the financial analysis in the PDD the benchmark value for Steel & Iron industry is used as oppose to power generation industry IRR benchmark.

AND

Issue 3

The PP should perform investment analysis with power industry generation IRR benchmark and the DOE should validate this investment analysis.

AND

Issue 4
DOE should validate the price paid by the project owner for the waste gas (compare this to market price)

AND

Issue 5
The DOE is requested to clarify if the project participant and two BFG suppliers have fully separate ownership and whether the transfer price for the BFG reflects the real or market price of the gas.

AND

Issue 6
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, and that the benchmark reflects the risk profile of this project activity as the investment being made is in the power industry.

AND

Issue 7
Further clarification is required on how the DOE has validated the common practice analysis, including the criteria for selecting the five similar BFG power plants.

AND

Issue 8
Further clarification is required on how the DOE has validated that the starting date of the project activity is in accordance with the CDM glossary and terms.

Industrie Service

AND

Issue 9
Further clarification is required on how the DOE has validated the baseline determination, in particular that the import of electricity from the grid and flaring and/or venting of surplus gases more economically attractive alternative than the project activity undertaken without the CDM

Referring to Issue 1

Response by Project Participant

The relationship between the two iron and steel plants, Tangshan Guofeng Iron & Steel Co., Ltd ("Guofeng") and Tangshan Bainite Iron and Steel Group Co., Ltd ("Bainite"), and Xinfeng is a purely commercial relationship and does not involve an ownership interrelationship of any kind.

The shareholders in the Project are two private investors, Mr Yuqing Liu and Mr Yueqing Wang, who respectively own 90% and 10% of Xinfeng and are both in no way related to the iron and steel plant entities. This can be proven with the Articles of Association. The articles of Association have been reviewed and verified by the DOE.

The commercial relationship referred to above is a combined gas/electricity sale and purchase agreement between the project entity and Guofeng and a gas sale and purchase agreement between the project entity and Bainite. The agreements are commercial contracts which involve a transfer of goods and corresponding payment, without any sharing of profits from the project (in other words, straight sale & purchase contracts). The agreements have been reviewed and verified by the DOE.

Response by TÜV SÜD

TÜV SÜD can confirm the statement of the project proponent. The articles of Association and the commercial contracts between the project entity and Guofeng and Bainite have been checked and verified by the audit team. It can be confirmed that project owner is a separate enterprise from Iron and Steel Plant.

Referring to issue 2

Response by Project Participant

This is correct, the Iron and Steel benchmark is the appropriate benchmark rate for a project of this type. The Project is very closely associated with the iron and steel industry, and in particular the two iron and steel enterprises referenced in the Project Design Document (i.e. Guofeng and Bainite), given both the physical and contractual nature of the Project.

The Project obtains its key input, the waste gas from the two iron and steel enterprises and provides its only product (electricity) to one of the two iron and steel companies. The Project will succeed or fail depending on the success of the two iron and steel companies. The Project is not exposed to uncertainties that apply to the power sector in general, such as developments

in coal prices, but is exposed to a different set of uncertainties inherent to the iron & steel sector. We elaborate on these points below.

-Exposure to risks and uncertainties inherent to the iron and steel sector

The project activity is supplied by physical gas pipes from two iron and steel plants and if fuel were not provided by these plants it would not have any source of fuel (note that besides Bainite and Guofeng, no other iron and steel facilities or BFG producers are located near the project site).

The same applies to the Project's product, because the Project can only sell its power generated to Guofeng Steel (this is a condition in the combined gas/electricity sale and purchase agreement between Xinfeng and Guofeng):

- The similarity of the risks facing the project with the iron and steel industry in general are also mentioned in the FSR of the project activity, where on page 3, it is clearly stated that the actual operations and success of the project activity are dependent on the operation of the blast furnaces and actual supply of Blast Furnace Gas ("BFG") by the iron and steel entities to the project activity.

- The contractual relationship of the transaction dictates that the Project is taking substantive commercial risk on both fuel supply and electricity off-take because it has limited protection within the relevant agreements.

  The combined gas/electricity sale and purchase agreement between the project entity and Guofeng contains amongst others the following two clauses:

  Clause 4.2.3. Party B (i.e. Xinfeng) should consider that it is difficult for Party A (i.e. Guofeng) to guarantee a long-term stable gas supply to Party B, and Party B should account for this when constructing the power plant.
  Clause 4.2.4. The BFG utilization by Party A must adjust to the amount of BFG produced by Guofeng.

  The gas supply agreement between Xinfeng and Bainite list similar provisions:

  Clause 5&6. Under special circumstances or following an expansion of capacity of Bainite, the internal BFG requirement of Party A (i.e. Bainite) should be satisfied before any BFG is supplied to Xinfeng.
  Clause 10. The BFG utilization by the project entity must adjust to the produced amount of BFG by Bainite.

  Also note that neither of the agreements makes a provision for a minimum gas delivery volume or compensation (i.e. penalties) for low deliveries and there are no gas storage facilities to compensate for this.

- The risks can additionally be substantiated by the actual gas purchases of the plant which vary depending on the gas supply/availability (evidenced by actual gas purchase invoices). Actual daily gas supply and utilization since the start of operations of the project activity was 4,250 thousand m³/day, which compared to the expected daily supply of BFG in the FSR (i.e 4,442 thousand m³/day) is significantly lower then expec-

tation. It should be further noted that with a decrease of 10% in gas supply the IRR of the proposed project activity would be significantly impacted.

The risks (and IRR) of the proposed project activity are closely related to the risks incurred by the iron and steel companies and therefore the iron and steel benchmark (which is intrinsically based on those sector specific risk) is the appropriate benchmark to be used in the financial analysis of the project activity.

-Lack of similarity between risks facing the project and the power generation industry

The power generation industry providing power to the grid does not have one single benchmark that applies sector-wide. For example, small-scale hydropower projects have a hurdle rate that is different from large scale coal-fired power plants, because the risks are different, and the type of project owners are different. However, the main benchmark for the power sector is the 8% project IRR benchmark for investments in coal-fired power plants by public entities (i.e. the "Methods and Parameters for Financial Evaluation of Construction projects" 3rd Edition). This benchmark states that the benchmark is not always applicable to private investors and that private investors can determine their own benchmark based on the specific risks they are facing.[1] Therefore the abovementioned benchmark is not relevant for the proposed project activity, because:

- The risks the proposed project faces on the input side are significantly different from the risks that the power sector faces – uncertainty of the supply of BFG as the sole fuel, which is related to the fluctuations in production of iron & steel in Guofeng and Bainite in the case of the proposed project activity, versus for example uncertainty in the price of coal in the case of coal-fired power.
- The difference in risks at the demand side – the proposed project activity has one industrial buyer, and faces uncertainty in demand (e.g. Guofeng, the company receiving the power, could go bankrupt), while coal-fired power plants only face some limited price risk.
- The difference in ownership structure - the benchmark is meant for public entities, while the project entity is in the private sector.

We therefore conclude that the Iron and Steel benchmark is the appropriate hurdle rate for a project of this type which is closely linked to the Iron and Steel industry and shares the risks of this industry.

As a result of the Request for Review process and dialogue with the DOE it was discovered that the Project IRR did not necessarily comply with the stated benchmark. However, as stated in the PDD the equity IRR remains unchanged and does comply with the benchmark. We have therefore in dialogue with the DOE amended the PDD to utilize the equity IRR. Throughout the decision making process the project owner has assessed the project from an equity perspective given he is a private investor. The equity IRR benchmark is 13% and the equity IRR is 9.86%.

Response by TÜV SÜD

[1] This argument has been more extensively explained in the recent response to the request for review to the "Waste Heat Recovery and Utilisation for Power Generation Project of Chizhou Conch Cement Company Limited". This response contains a detailed and accurate description of the entities for which the benchmark is meant.

Industrie Service

A benchmark contains two parts. One part is the returns from standard investment and the second part is the risk that is connected to these kind of projects.
The benchmark used is taken from “the Methodology and Parameters for Financial Evaluation of Construction projects (3rd Edition)”, hereafter referred to as “the Methods and Parameters”. This book is published by the National Development and Reform Commission and Ministry of Construction in China and is widely used by the relevant authorities in China for assessing the financial viability of potential new projects.

The project will generate power by utilizing waste gas from Steel Production in the Iron and Steel Industry that is currently vented. The uncertainty relating to volumes of waste gas generated from the steel plants will lead to high risks for power generation, which are generally out of the control of the power generation facility operator. Although the Project is a power generation project, the sectoral benchmark of the Iron and Steel industry is adopted. The reasons are as follows:

- The operation of the Steel production will affect the proposed project. The risk in the operation and production of the Steel production line are transferred to the proposed project. The steel plant is off-taker of electricity in place of grid. Furthermore, there exists no specific benchmark for “waste gas usage” projects and the benchmark of electricity generation does not include the risk factor connected to the project.

Therefore, using the sectoral benchmark of the Iron and Steel industry rather than benchmark of the power sector is reasonable.

There are two benchmarks for the IRR of the Iron and Steel sector available: one is the project IRR of 12% (before tax), another is equity IRR of 13% (equity IRR after tax). In the investment analysis that was submitted for registration, the ’project IRR’ benchmark of 12% is used. We observed that there was mistake in the ‘project IRR’ calculations because cash flows were calculated after tax and interest was taken as negative cash flow in project cash flows. These corrections were leading to ‘project IRR value which was equal to benchmark.
In the version that is submitted to the answer for request for review, the ‘equity IRR’ has been calculated and corresponding ‘equity benchmark’ is used.
Version 3 of the tool for demonstration and assessment of additionality required to use project IRR if benchmark analysis was chosen, as in this project case. However, this requirement has been removed in version 4 and project proponent have choice to use project or equity IRR. Version 4 was already available during requesting registration and we are of the opinion that this fundamental change in the tool can be accepted for this project case too.

TÜV SÜD has assessed and validated the appropriateness of the benchmark by checking the reference document.
For the reasons mentioned above, the DOE can confirm that the chosen benchmark is applicable and suitable. Further, the equity IRR calculations have been validated by us and are found to be correct.

Referring to issue 3

Response by Project Participant

Industrie Service

We do not believe it is appropriate to apply the power industry benchmark given the commercial nature of the transaction and the corresponding risk profile, which makes the Project closely interlinked with the iron & steel sector.

Please see also our more detailed response to Question 2 above.

Response by TÜV SÜD

According to the "the Methods and Parameters" no general power generation benchmark is given. There are several benchmarks existing for different kinds of power generation (biogas, hydro), they vary between 5-9 % project IRR before tax and from 8-12% equity after tax, but no benchmark for waste gas usage.
In former times the interim rules were applied to use a benchmark of 8% for power industries.
In our opinion, since the publication of "the Methods and Parameters" vers. 3, it is more relevant than interim rules.
However, the additionality tool mentions that government bond rates, increased by a suitable risk premium to reflect private investment and/ or the project type shall be used. The risk connected to this project is reflected by the iron and steel sector. For that reason a benchmark for power generation is not applicable for this project.

Referring to issue 4

Response by Project Participant

The cost of the gas is based on a commercial contract based on commercial negotiations between the parties (note that the relationship between the project entity and the iron and steel facilities is a commercial one as explained above in Issue 1). You will note that the cost for Guofeng is RMB 0.045 per m^3 and the cost for Bainite is 0.04 per m^3, which can be evidenced by the gas purchase agreements and the actual gas purchase invoices.

Besides the fact that the gas prices have been fixed in commercial contracts between independent entities, the price can also be confirmed to lead to a conservative interpretation of the additionality requirements: The Net Calorific Value of the BFG from Guofeng Steel is 3.14 MJ/m^3 and based on this NCV, the price per unit energy for the BFG can be calculated as 0.013 RMB/MJ. In contrast to BFG utilization, residential and industrial use of coke oven gas (COG) in Tangshan Region (the region which includes the proposed project activity), is popular and commercialized. The price of coke oven gas in the project region is RMB 1.00 per m^3 according to the most recent data published by the Tangshan Pricing Bureau and based on a NCV of 16.723 MJ/m^3 (China Energy Yearbook 2004, p.302), the price per unit energy for COG can be calculated as 0.0598 RMB/MJ. We therefore confirm that the price determined through commercial negotiations between independent entities could be considered favorable to Xinfeng as the price is low based on its calorific value.

Had the project and the iron and steel facilities negotiated a price of 0.163 RMB/m^3 BFG, which would equate the price per unit energy contained in the BFG to the price per unit of energy of COG, the IRR would be impossible to calculate because the project would not have any period

Industrie Service

with positive cash flows. Hence our above statement that the actual price of BFG used leads to a conservative [2] interpretation of the additionality argument.

Response by TÜV SÜD

The gas price is based on commercial negotiations of the project proponent and the two Iron and Steel plants, Guofeng and Bainite.
The prices can be confirmed. TÜV SÜD has checked and verified the gas purchase agreements and the actual gas purchase invoices.
The net calorific value of the BFG gas comes from the FSR and is appropriate.
There are no official prices available for BFG gas. By comparing the published data for COG gas (1RMB/m³ assuming an NCV of 16.723 MJ/m³, which has been checked and verified by TÜV SÜD), the price assumed by the project proponent can be considered as appropriate and conservative.

Referring to issue 5

Response by Project Participant

We have outlined the ownership structure of the project and the BFG price in our response to Issues 1 and 4 (Request for Review 1 and 2 above) respectively. The BFG cost reflects a contractual and commercial relationship between Xinfeng and the iron and steel companies. This is evidenced by the gas purchase agreements and the gas purchase invoices provided to the DOE for review.

Response by TÜV SÜD

TÜV SÜD confirms the answer of the Project Participant.

Referring to issue 6

The input values used in the financial analysis have been taken from the Feasibility Study Report (FSR), the combined gas/electricity sale and purchase agreement between the project entity and Guofeng, the gas purchase agreement between the project entity and Bainite,, and the loan agreements. All these data have been confirmed to be appropriate to use in the financial analysis of the project activity.

The FSR has been prepared by the Norindar International Design Institute. This entity is an independent organization which is qualified to compile design FSR's for thermal power and construction material projects (it has obtained the appropriate license). The FSR can be considered an independent and realistic assessment of the proposed project activity, including the parameters listed therein which are used as input values in the investment analysis.

The assumptions that were used as input variables for the financial analysis of the project activity were not only taken from the appropriate sources as explained above. Comparing the assumption to the actual data which is currently available confirms the conservativeness of the

[2] Conservative but also appropriate, as the price used reflects the actual negotiated price for the BFG, according to the two contracts.

Industrie Service

assumptions used; the assumptions systematically lead to a precise or overestimation of the IRR, which provides for a conservative implementation of the additionality argument":

- Annual Generation – FS value 360 GWh – Actual value 354.2 GWh (electricity supply invoices). Note that a lower actual generation further reduces the calculated IRR and financial feasibility of Xinfeng.
- Electricity price – FS value 0.45 RMB/kWh including VAT – Actual value 0.40 RMB/kWh including VAT (invoice between Xinfeng and Guofeng). Note that a lower actual generation further reduces the calculated IRR and financial feasibility of Xinfeng.
- Total investment – FS value 211.5 million RMB – Actual value 211.48 million RMB (construction and purchase contracts).
- Annual staff salary and welfare cost – FS value 1.53 million RMB – Actual value 2.88 million RMB (salary payments). Note that a higher actual annual cost for salary and welfare further reduces the calculated IRR and financial feasibility of Xinfeng.

Please see our response to Issues 2 and 3 (Request for Review 1 and 2 above) as to why we believe the iron and steel benchmark is the appropriate benchmark reflecting the risks associated with the project.

Response by TÜV SÜD

In assessing the input values used in the investment, TÜV SÜD has followed following approach:

Assessment of the sources of the input parameters used in the investment analyses:
a) All the input parameters used in the financial analysis are taken from the feasibility study report (FSR), which was developed by the Norindar Design Institute, and approved by Hebei development and reform commission. Norindar Design Institute is accredited by relevant national authorities and has based its assumptions in line with national guidance.
The input parameters used in the financial analysis can thus be considered information provided by an independent and recognized source.

Confirmation that the values used in the PDD and investment analysis are fully consistent with the FSR
TÜV SÜD compared the input parameters for the financial analysis included in the PDD and investment analysis with the parameters stated in the FSR, and was able to confirm that the values applied are fully consistent with the sources.

Cross-check of the parameters used in the financial analysis with the parameters used by other similar projects
The input parameters used in the financial analyses were compared with the data reported for other similar proposed CDM projects, i.e. two other Waste Heat Recovery projects
in Liaoning province.
The total investment has been crosschecked with the actual invoices of the project. The actual investment is the same rage as the assumed value in the FSR.
The annual power supply is based on an assumption of 7200 operational hours per year. This is equal to 300 days a year. Considering emergency shout downs and a need for cleaning a none operation of 65 days a year is reasonable. The operational hours and hence the electricity production assumed is reasonable and plausible.

Industrie Service

The O&M costs have been crosschecked with actual invoices. The Salary and welfare costs are actually higher, than expected.
The applicability of the fuel price was discussed above.
The tariff has been crosschecked with the electricity purchase invoices from Xinfeng to Guofeng. The invoices from 28th November 2007 show the price of electricity the steel plant bought is 0.342 Yuan/kWh (excluding VAT) which is the same value taken in the IRR calculation. The tariff and fuel prices were already finalised by contract between Xinfeng and Guofeng in June 2006.
Taxes have been crosschecked with government requirements and can be considered as valid and applicable.
By additionally applying our sectoral competence and local expertise, TÜV SÜD was able to confirm that the input parameters used in the financial analysis are reasonable and adequately represent the economic situation of the project at the time of the final investment decision.

Referring to issue 7

Response by Project Participant

Version 03 of the Tool for the Demonstration and Assessment of Additionality (which was applicable at the time of uploading the PDD for GSP and has been used in the PDD to demonstrate additionality) states that an analysis of similar projects should be conducted, and that "projects are considered similar if they are in the same country/region and/or rely on a broadly similar technology, are of a 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 and steel facilities that started operations after 2002 or are still under construction in the North China Power Grid with an installed capacity between 25 and 100MW. The selected geographical area, the North China Grid, is relatively large. Note that the area covered by the North China Grid is considerably larger than most countries (The North China Grid covers approximately 1.63 million km² with a population of 0.23 billion individuals. Were it to be ranked as a separate country it would rank the 18th largest in the world in terms of size and 5th largest the in terms of population.) and includes a number of similar projects which we have listed in the PDD. The selected range (i.e 25 MW to 100 MW) is large and considering the installed capacity of the proposed project activity (50 MW) appropriate. Projects that started operations in the year 2002 or before are excluded because they were developed under a different market environment which is substantially different from the current market environment.

We conducted a detailed exercise to determine all similar projects through the "China Steel Yearbook 2007" and internet research using Google, Yahoo, Sohu, and Baidu (the latter two leading Chinese search engines), reviewed other PDDs on the website of UNFCCC and the National Development and Reform Commission website, and discussed with local experts and leading design institutes. We have conducted an extensive due diligence and collected all the projects we are aware of that are in the public domain.

After an additional due diligence and again considering para 60 of EB38, we found that although the "50MW Iron and Steel BFG generation Project" (one of the "similar projects" in the common practice analysis) is considering to apply for CDM, it has not yet been uploaded for GSP. This project is however developed by a public entity and can therefore be excluded on

Industrie Service

this basis. The PDD has been corrected for this and will be uploaded together with this response.

Response by TÜV SÜD

There are three criteria to evaluate a common practice.

1. Projects that fall within the same geographical boundary of the North China Grid. This is due to the fact that this area is already covering a huge region and he investment environment for each region is different. Specifically in terms of available resources, loan policies, labor costs and electricity tariffs.
2. Projects within similar size installation of the project. This is in order to reflect the different size of investment and associated risk.
   As the project is a 50MW project, a capacity boundary of 25-100MW is appropriate.
3. Projects that started construction after 2002. Projects developed prior to 2002 are not considered because in that year the China State Power Corporation was split into five regional grids with substantial effects on the investment environment for power generation projects in China.

In this process only 5 similar projects could be identified.
Laiwu Iron & Steel Group Laigang Inc. 25MW Waste Gas Power Generation Project, Yinshan Profiled Iron Co., Ltd. 25 MW Waste Gas Power Generation Project of Laiwu Iron & Steel Group Corp; 48MW Waste Gases Recovery and Power Generation Project of Shandong Weifang Iron & Steel Group Corporation, China are applying CDM and have already been listed at the UNFCCC homepage.[3]
Tangshan Jinxi Iron & Steel is using its own Waste Gas. It is a self supplying Waste heat Recovery Project, which is different to this project.
The 50MW Tangshan Iron & Steel has been developed by a public entity, which again has another economic environment than the project proponent.
Referring to issue 8:

Response from the Project Participant:

According to the CDM glossary and terms, the starting date of a CDM project activity is the earliest date at which either the implementation or construction or real action of a project activity begins.

The approval to start constructions was received in September 2006 after which the construction contract was signed and actual construction activities started both in the same month (i.e September 2006). The main equipment purchase contract, however, were signed in July 2006. We have corrected the PDD for this earlier starting date to ensure a conservative and early starting date of the project activity

Response by TÜV SÜD:

The starting date of the project has been revised. It is now in line with the CDM glossary and terms. The main equipment purchase contract and the purchase agreement with Guofeng were both signed in July 2006. These documents have been checked and verified during the validation.

[3] CDM in China, report from Worldbank 2008

Industrie Service

CDM was seriously considered in May 2006. The change of the starting date does not affect the additionality of the project.

Referring to issue 9

Response from the Project Participant:

The EB requested that a comparison is made between "import of electricity from the grid and flaring and/or venting of surplus gases" on one side, and the "project activity undertaken without CDM" on the other side. The latter involves the project entity (i.e. Xinfeng), which is a private and independent entity involved in the purchase and utilization of waste gas and subsequently the generation and sale of electricity.

In the PDD, we have argued that the project activity, being defined as the utilization of waste gas from Guofeng and Bainite by Xingeng to generate power and provide power to Guofeng, undertaken without CDM faces a prohibitive barrier because it is not a financially feasible alternative. We have demonstrated this by calculating an IRR for the project implemented without CDM, and comparing it to a benchmark for the iron and steel industry, as defined and discussed above.

A direct comparison between (1) the project activity undertaken without CDM and (2) the import of electricity from the grid combined with flaring and/or venting of surplus gases cannot be based on a comparison of IRRs, because the second option does not require an investment and hence no IRR can be calculated. However, it is possible to compare the levelized power supply costs of the proposed project activity with the price of power supplied by the grid.

The levelized power supply costs is equal to the price for the power generated by the proposed project activity that equates the Net Present Value (NPV) calculated at the benchmark rate to zero, or alternative, the price for the power generated by the proposed project activity that equates the IRR of the project to the benchmark rate. Using the same numbers as in the PDD, repeated below for convenience as Table 1 (with as only change that footnote 4 in the PDD, explaining that FSR means Feasibility Study Report, has been deleted, and that footnote 2 have been added), the levelized power supply costs can by trial and error be calculated as 0.3601 RMB/kWh (net of VAT).

Table 1. Data used for the calculation of the levelized power supply costs of the proposed project activity assuming no CDM revenues

Project information		
Indicator	**Value**	**Source**
Installed capacity	50MW	FSR, p.58
Estimated annual power supply	334.8GWh	FSR, p.60
Construction period	1yr	FSR, p.60
Project lifetime	20+1yrs	FSR, p.60
Total investment	211.5million RMB	FSR, p.60/61
Working capital	3.7 million RMB	FSR, p.61
Equity	106.5 million RMB	Total Investment less Debt
Expected bus-bar tariff	0.4 RMB/kWh (incl. VAT)	Electricity Purchase Agreement
Annual O&M cost	29,767,638 million RMB	FSR, p.61
Fuel purchase cost	56,625,362 million RMB	Waste gas purchase agreement

Industrie Service

Value added tax(VAT) rate	17%	Electricity Purchase Agreement
Urban maintenance and construction tax	7% of VAT	FSR, page 61
Education fee	3.5% of VAT	FSR, page 61
Income tax income	33%	FSR, p.61
CER price	8[4] EURO/tCO_2e	Assumption; NDRC minimum price
Exchange rate	10.758 RMB/EUR	http://finance.yahoo.com/currency
Crediting period	10yrs	This PDD
Debt – short term (2 years)	80,000,000 RMB	Loan agreement
Interest rate short term debt	6.85%	Loan agreement
Debt – long term (15 years)	25,000,000 RMB	Loan agreement
Interest rate long term debt	7.03%	Loan agreement

The price of power delivered by the grid is 0.350 RMB/kWh (net of VAT). As the price of power delivered by the grid is below the levelized power supply cost of the proposed project activity, the proposed project activity is not the baseline scenario.

Further comments

In our view, the above calculation, although supporting our selection of the baseline scenario, does not provide the full picture. It compares options that are available to different project entities: the proposed project activity is an investment decision to be made by the project entity, Xinfeng, whereas the decision to purchase power from the North China Grid or from the proposed project activity is a decision of the iron and steel enterprise Guofeng.

Guofeng's decision making

The decision to purchase power provided by Xinfeng rather than from the North China Power grid presupposes that Xinfeng will come into existence and produces power. The decision will be based on a comparison of the price agreed between Xinfeng and Guofeng (project price) and the price for power provided by the grid (grid price). If the project price is below the grid price, Guofeng will buy power produced from the proposed project activity, otherwise from the grid.

Xinfeng's decision making

Xinfeng will only implement the proposed project activity in case the project price is higher than the levelized power supply costs. Only in that case will it be able to achieve the required return on capital employed in the project.

Combining both entity's decision making

Based on the above, we can identify to different situations:

1. The levelized power supply cost is above the grid price. In this case, it is not possible for both parties to agree on a price that would, at the same time, make it attractive for the project

[4] This has been set to zero for the calculation of the levelized power supply costs without CDM, and set equal to 8 for the calculation of the levelized power supply costs with CDM.

entity to implement the proposed project activity and to make it attractive for Guofeng, the customer, to purchase the power produced by the project. Hence the proposed project activity will not be implemented.

2. The levelized power supply cost is below the grid price. In this case, it is possible for both parties to agree on a price that would, at the same time, make it attractive for the project entity to implement the proposed project activity and to make it attractive for Guofeng, the customer, to purchase the power produced by the project. Hence the proposed project activity may be implemented. However, implementation is by no means certain – firstly, both parties may fail to come to an agreement on the project price; secondly, other barriers may prohibit the project from being implemented.

As demonstrated above, in absence of CDM, the levelized power supply costs are above the grid price. Hence the proposed project activity would not be implemented without CDM and hence cannot be the baseline scenario.

Additional Baseline Clarification:

Additional to our formal response above, we would like to clarify why the continuation of flaring of waste gas and import of electricity from the grid is the only plausible baseline scenario for the two iron and steel facilities. In principle the opportunity to implement a BFG to power generation project at the two iron and steel facilities exists. This is only a credible baseline scenario before the project entity (i.e. Xinfeng) obtained the rights to utilize the BFG. This right was crystallized at the moment of signing the gas purchase agreement for the bulk of the gas purchases in July 2006 (i.e. 90% of gas) and the gas purchase agreement for the remainder of the gas in August 2007 (i.e 10%) and hence from that moment on it is legally impossible for the two iron and steel facilities themselves to utilize the waste BFG for power generation.

Therefore we should only analyse the credibility of this baseline opportunity prior to signing of the abovementioned agreements. Prior to these agreements, the opportunity to build and operate a captive BFG power plant had existed for a number of years, but such a project has not been implemented. This can be supported by a letter from the local government confirming that they have never received an application for a captive power plant using BFG from any entity other than Xinfeng. To understand why a captive power plant was never built and that Guofeng and Bainite never intended to utilize the gas through the construction of a captive power plant we can demonstrate the following barriers.

Looking at the micro economics of Guofeng, a review of Guofeng's financial statements demonstrates that their focus in 2005/2006 was core business expansion conferring a high opportunity cost to non-core business projects such as the project activity. Based on information contained in a 2007 Credit Rating Report by China Lianhe Credit Rating Company, Guofeng's return on equity (ROE) was 39.53% and 35.82% in 2004 and 2005 respectively. The expected net income of the BFG project is RMB22 million in each normal year, and the initial equity investment is RMB 106.5 million. So the expected ROE of the BFG project is 20.7% in year 1. As the BFG project is expected to earn RMB 22 million each year, its shareholders' equity will increase every year and the ROE of the BFG project will decrease and be lower than 20.7% in the following years. Therefore, Guofeng would seek projects with higher returns than those that could be provided by the BFG power project.

Industrie Service

In addition, Guofeng started an aggressive plan to upgrade its equipment and improve its capacity of iron and steel in 2005. The following indicators drawn from the Guofeng financial statements as stated in the Credit Rating Report by China Lianhe Credit Rating Company indicate that this expansion faced financing difficulties which would have also been faced by any internal power project.

- The investments to acquisition of fixed assets were RMB 1.45 billion and RMB 1.65 billion in 2005 and 2006 respectively. There are two indicators that suggest that financing of this expansion was challenging, leaving Guofeng to focus on core activities only.
- In 2005, the total change in cash flow of Guofeng was negative (outflow of RMB 166.3 million), which indicates Guofeng did not have extra funds to finance a BFG power project. Secondly. The cash flow from financing was a net outflow of RMB 286.6 million and RMB 368.3 million in 2004 and 2005 respectively, which indicate Guofeng faced some difficulty to raise funds from banks and shareholders.

On a macro scale, the iron and steel sector in Hebei Province where Guofeng is located, has been undergoing considerable consolidation. In July 2005, the NDRC issued the new steel policy promoting the restructuring of iron and steel industry. This notice results in the closure of small and antiquated blast furnaces and encourages the consolidation of the industry through the promotion of mergers, reorganizations and increase in size of organization. To avoid being taken over as a result of this consolidation, Guofeng had to focus on the core business expansion plans from 2005 and 2006 rather than the construction and operation of non-core business such as a BFG power plant (source: “Page 77, 78, 380: “Market research oin China Steel industry 2007”, published by Beijing HL Consulting Company Ltd. on April 29 2006”, and “Executive summary and paragraph 24, OECD report, “Current situation of the Chinese Steel industry”, published 4th of April 2006”.

Response by TÜV SÜD:

The Chinese government has tight plans for the Iron and Steel sector. In July 2005 the notice of checking the increased iron and steel producing capacity in Hebei Province, to promote the restructure of the Iron and Steel Industry was published.[5]
To stay operational and avoid being overtaken by a bigger company, the aim of the Iron and Steel Plants was to keep upgrading their equipment and improve their capacity.
Guofeng Iron and Steel and Bainite are small to medium Iron and Steel producers in China. To reduce the risk of being overtaken, the companies rather invested in an expansion of their core business or an upgrade of equipment, than to generate electricity. This needs to be considered as a considerable barrier.
Also the financial statements of Guofeng are showing, that in 2005 the change in cash flow was negative. This indicates that Guofeng did not have surplus funds and was not able to get funds from the bank for new investments.[6] This has been checked and verified by TUV SUD through Credit Rating Notice China Lianhe Credit Rating 2007. The credit rating document shows that company was in bad financial situation and the project activity being implemented by Guofeng would have faced investment barrier.

[5] Market Research Report on China s Steel Industry Beijing HL Consulting Co., Ltd. April 2006

[6] Credit Rating Notice China Lianhe Credit Rating 2007

Industrie Service

Hence audit team is of the opinion that implementation of the project by Guofeng and Bainite would have faced institutional and investment barriers. Hence it is not required to conduct an economic comparison analysis between the project scenario (without CDM) and baseline scenario (import of electricity from the grid). Further, it should be noted that any kind of economic comparison analysis would only make sense if conducted from perspective of Guofeng, which is buying total electricity from the project activity. Guofeng has option to either buy electricity from the grid or set up its own waste gas based power generation project. However since implementation of the project by Guofeng faces barriers, the baseline scenario is to purchase electricity from the grid.
From the perspective of Xinfeng, which is an energy service company, it would only make sense to conduct a benchmark analysis and not comparison analysis because if they would not set-up the project the electricity would be generated at grid, which is not in their control.