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	Javier Castro	Javier .Castro@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 1916. In case you have any further inquiries please let us know how we can kindly assist you.

Javier Castro
Carbon Management Service

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Response to the CDM Executive Board

Question 1

The DOE is requested to clarify how it has validated that the project start date complies with the definition in the CDM Glossary of terms and to confirm the prior consideration of the CDM with respect to what is stated in the PDD.

Response by PP

According to EB's CDM-Glos-04, *"the start date shall be considered to be the date on which the project participant has committed to expenditures related to the implementation or related to the construction of the project activity."*

AS Timeline showed in PDD:

Time	Milestones of the proposed project
2003	The 2500 t/d cement production line was put into production in 2003.
04/2006	The investment decision was made on the board meeting and CDM issue was taken into consideration.
09/2006	The proposed project gained its approval from local government *Economy and Trade committee of Jiangsu Province*, it is recommended that the project owner to apply for support from CDM.
03/2007	Main equipments boilers order contract signed.
04/2007	Environmental Impact Assessment was approved by Environmental Protection Administration of Jiangsu Province
09/2007	Construction started.

The investment decision was made in 04/2006 which can be cross-checked by the board meeting records. And in 09/2006, the proposed project gained its approval from local government *Economy and Trade committee of Jiangsu Province*, it is recommended that the project owner to apply for support from CDM. This can be cross-checked with the approval document.
With this approval, the project owner can start construction, so this is considered to be the starting date of the proposed project.

The consideration of CDM issue can be seen both from the board meeting records and the approval of local government.

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Response by DOE

As for CDM-Glos-04 (EB 41, para. 67) the starting date of a CDM project activity is defined as following:

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. Project activities starting between 1 January 2000 and the date of the registration of a first clean development mechanism project have to provide documentation, at the time of registration, showing that the starting date fell within this period, if the project activity is submitted for registration before 31 December 2005.

In light of the above definition, the start date shall be considered to be the date on which the project participant has committed to expenditures related to the implementation or related to the construction of the project activity. This, for example, can be the date on which contracts have been signed for equipment or construction/operation services required for the project activity. Minor pre-project expenses, e.g. the contracting of services /payment of fees for feasibility studies or preliminary surveys, should not be considered in the determination of the start date as they do not necessarily indicate the commencement of implementation of the project. For those project activities which do not require construction or significant pre-project implementation (e.g. light bulb replacement) the start date is to be considered the date when real action occurs. In the context of the above definition, pre-project planning is not considered "real action".

The Board further noted that there may be circumstances in which an investment decision is taken and the project activity implementation is subsequently ceased. If such project activities are restarted due to consideration of the benefits of the CDM the cessation of project implementation must be demonstrated by means of credible evidence such as cancellation of contracts or revocation of government permits. Any investment analysis used to demonstrate additionality shall comply with the requirements of paragraph 7 of the "Guidance on the assessment of investment analysis" (version 02).

As indicated in the timeline on page 20 of the PDD, the main equipment boilers order signed was in March 2007. Evidence stating this was available for the Audit team (see also IRL No. 15 of Annex 2 of our validation report). This date is regarded by DOE to be the start date of the project activity (start of implementation), since expenditures in this case for the purchase of the boilers have been committed by the PP.

The project start date, indicated in chapter C.1.1 of the PDD, is September 30, 2006 combined with the following statement: "*CDM issues are taken into consideration, when the proposed project gained its approval from government, it is recommended that the project owner to apply for support from CDM."* Taking into account the above indicated definition of the start date of a project activity, this event is considered to be related to minor pre-project expenses and, thus, does not comply with it.

However, it can be confirmed by DOE that with the decision of the directorate of Jiangsu Jiao-qiao Cement Co. Ltd. to invest on Waste Heat Recovery Project applying for CDM project from April 2006 (see IRL No. 37), strong evidence is available proving that the CDM project has been considered prior to the correct starting date of the project activity in March 2007.

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Question 2

Further clarification is required on how the DOE has validated: (a) the suitability of the input values to the investment analysis, as per EB 38 paragraph 54, including the use of fixed input values; (b) the appropriateness of the applied tariff; and (c) the sensitivity analysis.

Response by PP

(a)

Item applied in PDD	**Data**	**Validation Remarks on Input Values/ Cross-Check and Validation Remarks**
Estimated annual generated electricity	59.50**GWh** (FSR, Chapter 8 – Economic Analysis)	Annual electricity generation confirmed by validation team against the FSR, breakdown as follow:- 9MW –59.50GWh(**mean power generation capacity: 8.5MW**) This input value is cross checked according to similar projects data published by professional independent Cement Design Institute on cement industrial website ***/1/*** [http://www.chinacements.com/news/2007/4-5/C15386705.htm] ; Generally, the **mean power generation capacity for** 9MW (5000t/d) waste heat plant is about 9MW; and the comprehensively accepted operation hours are 7200hours(300 days a year, 30days for repair and maintenance, 30days for vacations); the vale applied here is believed to be reliable.
Estimated annual supplied electricity	54.14**GWh** (FSR, Chapter 8 – Economic Analysis)	Annual net electricity supply confirmed by validation team against the FSR, breakdown as follow:- 9MW –54.14GWh For cement waste heat recovery power plant, the auxiliary electricity takes about 8% ***/2/*** [**Comparison of Domestic and foreign Cement Waste Heat Recovery Tech*, Building Material of China, 2005.06***], this also applied to the proposed project and the input values are reliable.
Total investment	56.53 **million RMB** (FSR, Chapter 8 – Economic Analysis)	This input value is cross checked according to similar projects data published by professional independent Cement Design Institute on cement industrial website ***/1/*** [http://www.chinacements.com/news/2007/4-5/C15386705.htm **and** ***/2/*** [**Comparison of Domestic and foreign Cement Waste Heat Recovery Tech*, Building Material of China, 2005.06***], the unit investment is about 9000Yuan/kWh, and the input values are found to be reliable. Generally, the total investment is around 60.00 million RMB; the vale applied here is believed to be reliable.
Project lifetime	**21yrs** (FSR, Chapter 8 – Economic Analysis)	These input values are also cross checked according to***/3/* Page 84, '*Inform on Economic Assessment method and parameter of Construction Projects by NDRC and MO (Version 03)C*'**, the project life time is determined by the lifetime of the main equipments, for the waste heat project the main equipment is the generator and boiler, and according to audit laws and regulations of China the lifetime of generator and boiler are considered to be 12-20 years, so this input value is considered reliable***/4/***[http://www.ale.gov.cn/09/03.jsp?tid=20070301124901631524196]
Prospected Electricity Tariff in PDD	**0.323RMB/kWh (Excl. VAT)**	1.Based on the latest announced "Notice about adjust electricity purchase price of East China Power Grid" from NDRC" (No.FaiGaiJiaGe 2006 1230); http://www.ndrc.gov.cn/zcfb/zcfbtz/tz2006/t20060630_75077.htm, the current tariff is 0.323 RMB/kWh (excl. VAT), 2. *Yixing Jinshu Cement Co.ltd Low Temperature Waste Heat Power Generation Project(http://cdm.unfccc.int/Projects/Validation/index.html) and* The project *Yixing Tiansheng Cement Co.ltd Low Temperature Waste Heat Power Generation Project(http://cdm.unfccc.int/Projects/Validation/index.html)The prospected prices are all* 0.323 Yuan/KWh. Thirdly, Because extra power reserve fees is going to be charged by power supply company for captive power station. So, the expected price used in PDD is lower than the price that the project owner buying electricity. The price of 0.323 used is conservative.

Operational cost:	10.04 million Yuan	The operational cost is calculated based on raw material consumption, labour costs (salary & welfare), maintenance and repair expenses, etc, These input values are also cross checked according to /2/'**Comparison of Domestic and foreign Cement Waste Heat Recovery Tech ,*Building Material of China, 2005.06***', generally the average cost is around 0.30 Yuan/kWh, for this project it is 1004/5414=0.185 , which is lower than the cement industrial statistical vale and so this input value is considered to be the normal operation cost level and believed reliable.

(b)

1. Firstly, the applied tariff (0.323 Yuan/KWh) is calculated based on national regulation, namely *Notice about adjust electricity purchase price of East China Power Grid from NDRC" (No.FaiGaiJiaGe [2006] 1230) http://www.ndrc.gov.cn/zcfb /zcfbtz/tz2006/t20060630_75077.htm;* This documentation is published by NDRC of Jiangsu Province on its official website on 2006.07.03. (see annex01); There is also a documentation "Notice on Adjustment of Electricity Price from Jiangsu Province Price Bureau" is published on Jiangsu Province Price Bureau's(Government who's in charge of price) website based on "Notice about adjust electricity purchase price of East China Power Grid" from NDRC" (No.FaiGaiJiaGe 2006 1230); (see annex02)

2. Secondly, the electricity prices in the same region are about 0.323 Yuan/KWh, For project *Yixing Jinshu Cement Co.ltd Low Temperature Waste Heat Power Generation Project(http://cdm.unfccc.int/Projects/Validation/index.html) and* The project *Yixing Tiansheng Cement Co.ltd Low Temperature Waste Heat Power Generation Project(http://cdm.unfccc.int/Projects/Validation/index.html); The prospected prices are all* 0.323 Yuan/KWh.

3. Thirdly, because extra power reserve fees is going to be charged by power supply company for captive power station. So, the expected price used in PDD is lower than the price that the project owner buying electricity. The price of 0.323 used is conservative.

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(c) For Sensitivity analysis:

1. First, it's common to conduct a sensitivity analysis with a range of -10%~+10%;

2. Secondly, based on the last 10 years statistic data of Jiangsu Province((URL:http://www.jssb.gov.cn/jstj/tjsj/tjnj/)); The average increasing of electricity tariff is 2.07% while the average increasing of raw material is 3.59%; this means that the increase of O&M has a faster speed than the electricity tariff; Given that scenario, an increase of the electricity price will not lead to a different outcome of the investment analysis. So, it is not necessary to conduct the sensitivity analysis with a wider range.

Year	Tariff(Electricity)	Coal	Wages&Welfare	**Raw Material**
1998	102	90.1	105.7	91.3
1999	101	90	111.1	96.3
2000	106.1	94	112.3	110.9
2001	99.9	110.9	115	99.2
2002	99.6	121.4	114.1	97.7
2003	100.4	105.1	116.3	106.9
2004	103.8	138.9	115.8	115.6
2005	106	116.1	115.1	109.7
2006	99.7	95.1	113.5	103.2
2007	102.2	105.1	115.1	105.1
Year	**Tariff**	Coal	Wages&Welfare	**Raw Material**
1998	2.00%	-9.90%	5.70%	-8.70%
1999	1.00%	-10%	11.10%	-3.70%
2000	6.10%	-6%	12.30%	10.90%
2001	-0.10%	10.90%	15.00%	-0.80%
2002	-0.40%	21.40%	14.10%	-2.30%
2003	0.40%	5.10%	16.30%	6.90%
2004	3.80%	38.90%	15.80%	15.60%
2005	6.00%	16.10%	15.10%	9.70%
2006	-0.30%	-4.90%	13.50%	3.20%
2007	2.20%	5.10%	15.10%	5.10%
Annually Increasing Rate	**2.07%**	6.67%	13.40%	**3.59%**

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Response by DOE

(a) In EB38, para. 54 the following is stated:

The Board clarified that in cases 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:

- 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.

- 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.

- 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.

It has been checked by the Audit team that the FSR has been the basis of the decision to proceed with the investment in this project. The FSR has been finalized in May 2006 (evidence see IRL-No. 6 of Annex 2 of the validation report) and officially approved in September 2006. The investment decision for the CDM came one month before, in April 2006 (see DOE answer to question No. 1). This time period is regarded by the DOE to be sufficiently short for materially changing input values.

Furthermore, it can be confirmed by the Audit team that the input values for the investment analysis of the PDD do comply with the fixed figures indicated in the FSR. No inconsistencies of FSR and PDD occurred.

DOE has experienced local experts to confirm that the input values from the FSR are valid and applicable at the time of the investment decision. The input values have been validated by comparing the figures with statistical figures from 90 CDM Waste Heat Recovery projects in the Cement Industry (registered and under validation). The calculated specific project investment costs of 6.8 Mio. RMB/MW is slightly lower than the average of 7.5 Mio. RMB/MW of the statistics, and much lower than the maximum of 14 Mio. RMB/MW of the statistics. The operational costs are almost 1 Mio. RMB/MW compared to 10 Mio. RMB/MW average. The grid tariff (excluding VAT) is slightly lower than the average for East China Power Grid (0.323RMB/kWh versa 0.33 RMB/kWh). The operational hours of this project activity are higher than the average of cement plants with WHR in China (7200 h versa 6500 h). In sum the project input values are rather conservative compared to statistical values.

(b) The price of 0.323 Yuan/kWh (excl. VAT) is consistent with the value applied in the FSR. The power tariff is cross- checked with the Jiangsu tariff rate. Official evidence for the selected power tariff of 0.323 Yuan/kWh dated from 2006 has been checked by the local Auditor. The value is plausible and reasonable.

(c) The 10% range used in the PDD has been assessed by the Audit team as following.

With an increasing electricity tariff it is assumed, that the other input values, like investment costs and O&M costs will also rise. An increase of the electricity price will hike the IRR whilst an increase of O&M costs will lower them. Both parameters are disproportional to each other. And if we consider the same inflation for the products, their increase will equal each other. It is realistic, that the electricity price will rise in the next years. But through the connected discount and inflation rate, it is likely that the O&M costs will rise in the same proportion at least. Given that scenario, an increase of the electricity price will not lead to a different outcome of the investment analysis. The IRR will still be below the benchmark as stated in the sensitivity analysis with 10% range.

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Question 3

The DOE is requested to clarify how it has validated the barriers listed in the PDD.

Response by PP

1. **Technological barriers**

According to step 3 of the additionality tool (EB39 Annex10).

(b) Technological barriers, inter alia:

- Skilled and/or properly trained labour to operate and maintain the technology is not available in the relevant country/region, which leads to an unacceptably high risk of equipment disrepair and malfunctioning or other underperformance; [not applicable for the proposed project]
- Risk of technological failure: the process/technology failure risk in the local circumstances is significantly greater than for other technologies that provide services or outputs comparable to those of the proposed CDM project activity, as demonstrated by relevant scientific literature or technology manufacturer information; [not applicable for the proposed project]

Compared with foreign technology, domestic technology is in a less efficient; but domestic has a lower investment and operation cost1.

The investment comparison of domestic and foreign technology[2]:

Item	Domestic	Foreign
Unit Investment	7000-9000/KWh	16000/KWh

From the table, it can be seen that compared with domestic technology, the foreign technology request too much for investment. For this reason, the project owner shall have a very low prospected IRR. Under this condition, the project owner has to choose a less efficient domestic technology and accept unproven reliability and uncertainty.

The implementation of pure low temperature waste heat recycling power generation in China has been prevented to some degree by the high cost of advanced imported equipment. The manufacturer of the waste-heat utilization technology has been unable to build up substantial sales to other cement plants in China due to the high cost of its equipment.[3] The high cost of equipment prevents Chinese companies from implementing these technologies.

[1] See (Refer to) for more information on energy efficiency promotion policies: Global Environment Institute(2005), Financing of Energy Efficiency Improvement for Cement Industry in China, GEI Report, January 2005.

[2] Comparison of Domestic and foreign Cement Waste Heat Recovery Tech, Building Material of China, 2005.06.

[3] The first applications of advanced waste heat utilization technology in the Chinese cement industry was a demonstration project at the Anhui Ningguo Cement Plant supported by the New Energy and Industrial Technology Development Organization (NEDO) of Japan and the State Development and Planning Commission which became operational in 1998.

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Domestic industrial technology companies have been developing waste heat utilization technologies, but these technologies have not yet achieved the same standards in efficiency and in particular reliability as foreign manufacturers[4].

Besides, the project owner has no experience on operation of power generation,they have been faced many challenges from power station. Skilled and/or properly trained labour to operate and maintain the technology is not available in the relevant country/region, which leads to an unacceptably high risk of equipment disrepair and malfunctioning or other underperformance; For this reason, the project owner has to cost a large sum of money to employ expertise and made special arrangement for its staff to become familiar with waste heat capture and utilization technology. Staff of the project attended the training sessions in order to operate and maintain the waste heat utilization equipment. This means a large expenditure; in fact the tech barriers at last come into financial barriers if the project owner chooses the domestic technology.

However, with the expected CDM income, the project owner shall be able to have a reasonable project IRR and with a good cash flow to afford to provide more training for the staff and employ experienced experts to guarantee the operation and so to low down the prospected risk and overcome this barrier.

2. **Financial barriers**

Cement industries is now considered as highly energy consumption and environment polluting , this is sufficient reason for a bank not to extend a loan to the project owner and availability of alternative investment instruments (such as risk capital) provided through the investment services sector is limited in China.[5]

With the expected CDM income, the project owner shall be able to have a cash flow good enough to conquer the future uncertainty of the proposed project.

Response by DOE

The project participant relies on both, the investment analysis (step 2) and the barrier analysis (step 3). The investment analysis proves already the project additionality. According to the applied addionality tool version 4, the barrier analysis is then optional. Nevertheless, it is applied in the PDD and, therefore, shall be justified in the following.

a) Technological Barrier: The PP uses domestic technology, meanwhile this technology is not available in the Jiangsu province. All available information of the PP regarding this barrier has been validated by the DOE. Since non of the criteria of the additionality tool for a tech-

[4] See (Refer to) for more information on energy efficiency promotion policies: Global Environment Institute (2005), Financing of Energy Efficiency Improvement for Cement Industry in China, GEI Report, January 2005.

[5] "Wuxi City Center Branch of People's Bank of China" (No. 98, 2007) , According to this document, 84 companies of high levels of pollutant emissions and energy consumption can not get the loan from the bank, taking into account the severe environmental situation in the district including the water quality of Taihu Lake, and the company is included in the list of 84 companies

nological barrier are fully applicable here, a technological barrier for the project activity cannot be assumed and is taken as anecdotic information.

b) Investment Barrier: the mentioned typical bank concerns of polluting and energy consuming cement plants leading to not give loans to the cement companies are plausible for DOE's local Audit team. Hence, it has been demonstrated by the PP that no private capital is available from capital markets due to the mentioned risks associated with investment in the country where the proposed CDM project activity is to be implemented.

In sum at least the investment barrier would prevent the implementation of the proposed project activity from being carried out if the project activity was not registered as a CDM activity.

Furthermore, both discussed barriers do not prevent the implementation of at least the alternative scenario of business as usual, since it does not need extra investment and the existing cement plant does respect the legislative requirements.

Question 4

The DOE is requested to clarify: (a) how it has validated the determination of the baseline scenario; and (b) the reference to the resolution of this issue in the validation protocol.

Response by PP

Relative regulation, laws are validated. Onsite validation can make sure that there is no other use of the waste heat. Validation on investment can make that without CDM support, there should be a lower IRR and the proposed project shall be denied during decision making time.

The possible alternative scenarios in absence of the CDM project activity would be as follows:

1) The proposed project activity not undertaken as a CDM project activity;
2) Import of electricity from the grid;
3) Existing or new captive power generation on-site, using other energy sources than waste heat and/or gas, such as coal, diesel, natural gas, hydro, wind, etc;
4) A mix of options 2) and 3), in which case the mix of grid and captive power should be specified;
5) Other uses of the waste heat and waste gas.

Alternative 3) could not be the baseline scenario for the reason that in China, fossil fuel power plant with the capacity below 135 MW is prohibited to construct if the district is covered by a big power grid; Relative regulation and laws are openly acceptable.

Alternative 4) could not be the baseline scenario for the reason that alternative 3) is not chosen as reliable baseline scenario.

Alternative 5) could not the baseline scenario for the reason that There are no any other potential demands for heating or other industry utilization of the additional waste heat locally.

Alternative 1) could not be the baseline scenario for the reason that without CDM support, the proposed project shall be denied during the decision making time for the low IRR.

The investment analysis is showed in B.5 in details.

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Response by DOE

As stated by the PP above, 5 technically feasible alternatives to the project activity have been determined in the PDD (step 1 in the approved methodology AM0024, version 1 to identify the baseline scenario). All determined baseline scenarios apart from alternative 2) that is *Import of electricity from the grid* have been excluded. In step 2, the options 3) *Existing or new captive power generation on-site, using other energy sources than waste heat and/or gas, such as coal, diesel, natural gas, hydro, wind, etc* and 4) *A mix of options 2) and 3), in which case the mix of grid and captive power should be specified* have been deleted because of non-compliance with regulatory requirements. The option 5) *Other uses of the waste heat and waste gas*, e.g. for district heating is not demanded in this region and therefore it can be regarded as not consistent with applicable legislation. Finally, only the alternative 1) *The proposed project activity not undertaken as a CDM project activity* and 2) *Import of electricity from the grid meet the regulatory requirements* and remained for economic analysis to be undertaken (step 3). The investment analysis covered both alternatives as required by the approved methodology.

As stated in chapter B.4 of the validation protocol “Among all the plausible baseline scenarios mentioned above, Alternative 2)-import of equivalent amount of electricity from East China Power Grid can be taken as the proposed project’s baseline scenario.” the selected baseline for the CDM project activity reasonably represents the anthropogenic emissions that would occur in the absence of the proposed project activity.

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