

UNFCCC Secretariat
Martin-Luther-King-Strasse 8
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Germany

CDM Executive Board

4 December 2008

Response to Request for Review “2*6MW Coke Oven Gas Power Generation Project in Xiangcheng County” (Ref No. 1721)

Dear Sir or Madam,

First Climate were informed that our project “2*6MW Coke Oven Gas Power Generation Project in Xiangcheng County” (Ref No. 1721) was requested for review by three members of the CDM Executive Board. As required by the Executive Board and on behalf of the project participants, we would like to answer the questions and clarify the issues raised in the requests for review as follows:

Question 1:

Considering that the investment being made is by an independent power producer, further substantiation that the benchmark reflects the risk profile of this project activity is required.

a) Base of applying coking sector benchmark of 12% in PDD

In PDD, the project benchmark Internal Rate of Return (IRR) applied for the project activity is based on the 12% benchmark financial IRR for the coking industry in page 204 of the Economic Assessment Method and Parameters for Construction Project (3rd Edition, 2006), hereafter referred to as “Economic Assessment Methods”. This reference is widely used by Chinese authorities for assessing the financial feasibility of potential new projects.

Although the project is a power generation project, the coking sector benchmark of 12% is applied in the submitted PDD. The reasons are as follows:

The project company has a different risk profile compared to those operating renewable and fossil-based power projects. The project uses off-gas from a coking plant as fuel. Therefore, it relies on a coking facility’s production output to maintain the electricity production, and thus is exposed to the same risks as the coking industry.

- i) Fluctuations in the output of the coking plant, related to supply of input materials as well as downstream demand for coke, will have a significant impact on the amount of waste gas produced by the coking plant;
- ii) The project is also directly subject to all operational risks affecting the coking plant and will not be able to generate power if the coking plant is shut down temporarily or permanently; and
- iii) i) and ii) will have a significant and profound impact on the amount of the associated power generation by the project.

In terms of ownership structure, the project activity is owned by more than 15 individuals, and the project company has no business other than power production. In a legal sense, the project is therefore an “independent” power producer, as mentioned in the PDD. From a factual and commercial viewpoint, however, the project is fully dependent on the course of business of the coking plant.

Based on the aforementioned analysis, it is concluded that the project activity has the same risk profile as the coking sector, not the power sector. Therefore, the coking sector benchmark of 12% was adopted in the submitted PDD.

b) Alternatives to the 12% Coking Sector Benchmark

When the project activity was submitted for registration in March 2008, the PP had no precedents available which would have indicated that the benchmark of 12% could be questioned. In the meantime, conflicting precedents have been established by the EB: One very similar project using the 12% benchmark was registered in August 2009 (#1397), while other similar projects were rejected by EB-43 in October.

While we maintain that the 12% benchmark is adequate for the reasons listed under Section a), we therefore explore possible alternative benchmarks below.

One alternative would be to analyse the *equity* IRR against a suitable benchmark for equity returns. This option is not analyzed further. Instead, we focus on the discussion of an alternative benchmark for the *project* IRR, in order to maintain consistency with the approach selected in the PDD.

As noticed by EB, independent power producers for renewable energy, such as hydro and wind farms, often apply the benchmark referred to in the “*Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects*” (hereinafter the Interim Rules). This reference is widely used for power project investments in China. In the past, the benchmark in accordance with the ‘Interim Rules’ was often determined as 8% based on the following rationale:

In p34-35, the Interim Rules says:

*“...to date, there has been no unified and clear provision on benchmark IRR in power sector in China, benchmark for the **electrical engineering retrofit projects** has not been determined either.. 8% benchmark for total investment or 10% benchmark for equity proposed by the Interim Rules is determined after relevant experts discussed, based on current benchmark level applied in economic assessment for hydropower, coal-fired power and power transmission and transformation as well as considering long-term loan interest rate (> 5 years) of domestic commercial bank...”*

However, the Interim Rules also mentions:

“...with deep financial mechanism reform and access to WTO of China, the long-term lending rate of commercial bank in China will not remain unchanged. It will change from time to time, and so does the long-term lending rate for the electrical engineering retrofit projects. In order to ensure the feasibility and correctness of economic assessment of the electrical engineering retrofit projects, the benchmark should be accordingly changed. Before relevant authority doesn't clearly prescribe benchmark, generally, the assessor can consider the long-term lending rate of domestic commercial banks, plus 2-3 percentage points, as the benchmark for total investment for the electrical engineering retrofit projects....” (see the Annex 1)

Interim Rules was issued on 10 September 2002 by State Electric Power Corporation (see the Annex 1). At that time, the PBC¹'s benchmark lending rate for long-term loan (> 5 years) was 5.76% (see the Annex 2), resulting in a benchmark of 8%, up 2-3 percentage point above the benchmark lending rate prevailing at that time. However, this 8% value is outdated and not applicable for this project, for two reasons below:

- The long-term benchmark lending rate of PBC itself is not fixed, and will be adjusted according to the national economic environment. Consequently, the benchmark for power generation project should be also changed from time to time. As showed in the Annex 2, on 21 December 2007, it reached the peak value of 7.83% for long-term loan (> 5 years). If a project made its investment decision at that time, a reasonable investor would of course not apply 8% as the benchmark rate since the extra return of 0.17% over and above the cost of debt would not yield a sufficient premium for the equity financiers.
- When the FSR of this project was approved in January 2006, the benchmark lending rate for more than five years' loan of the PBC had increased to **6.12%**². The lending rates of domestic commercial banks vary around the benchmark rate of PBC. On 1 January 2004, and with the approval of the State Council, the PBC enlarged the floating range of lending rates to strengthen risk management of financial institutions. The financial institutions decided on lending rates according to the credit worthiness and risk profile of an enterprise instead of its size and ownership, leading to a differentiated pricing pattern based on lending risks. The lower and upper limit was set at 90 and 230 percent of the benchmark rate respectively (see the Annex 3). Using the PBC benchmark rate applicable in January 2006 (the project approval date), this translates into lending interest rates ranging from 5.51-14.08%.

The project is located in rural area of Henan Province of China, local Urban and Rural Credit Cooperatives (URCC) are main financial institutions that provide project-based loan for small- and middle-scale enterprises. As stated in the Annex 3, for where financial competition is immature, upper limit of lending rate still exists with the ceiling being set at 230 percent of the PBC's benchmark lending rate and the floor remains unchanged.

¹ People's Bank of China, also called as 'Central Bank'

² See Annex 2 and <http://www.pbc.gov.cn/detail.asp?col=462&ID=2404>

Furthermore, according to the “*Financial Operation Report of Henan Province in 2006*”³, the most (60%) of the lending of URCC in Henan Province in 2006 occurred at a rate anywhere between 1.1 and 2.0 times the PBC’ benchmark lending rate. For small- and middle-size enterprises as the project company, the multiplier of 130% is applied as a minimum, corresponding to **7.96%** ($1.30 \times 6.12\%$) as of January 2006. In fact, the estimate of 7.96% for the cost of debt is still a conservative estimate of the cost of debt in 2006. As shown in the Figure below, it is observed that the long-term loan interest rate (> 5 years) of URCC in Henan in 2006 was actually above 8%, even exceeding 9% at some points (see the figure below).

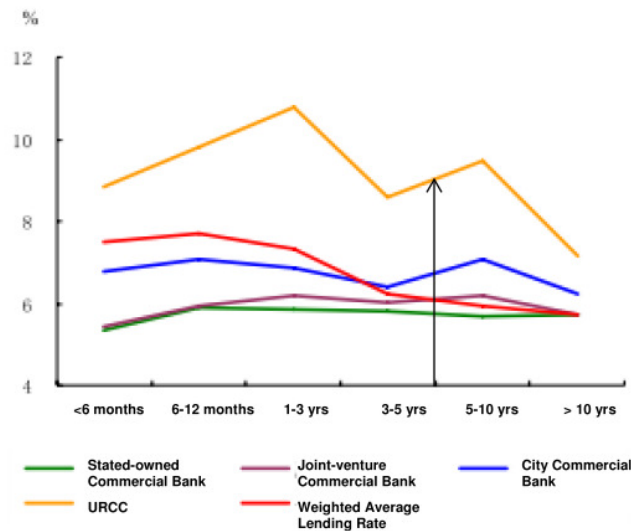
Following the determination principle for benchmark in the Interim Rules, the benchmark would thus be in the range of 9.96-10.96% (loan interest rate of 7.96%, plus 2-3 percentage points), or at least 10% if rounded off conservatively. This represents a benchmark based on a realistic estimate of the cost of debt which the PP could expect at the time of FSR approval in January 2006.

Table: Distribution of Lending Rate’s Floating Range in 2006

Unit: %

		Total	State-owned Commercial Bank	Joint-venture Commercial Bank	City Commercial Bank	URCC
Upward Floating Distribution	Total	100	100	100	100	100
	0.9-1.0	28.3	25.5	3.1	1.9	16.0
	1.0	33.8	49.2	18.4	2.5	24.0
	Sub-total	37.9	25.3	78.5	95.6	60.0
	1.0-1.3	34.2	24.7	43.0	8.4	22.5
	1.3-1.5	3.5	0.2	18.0	15.6	8.3
	1.5-2.0	0.2	0.1	16.9	46.6	19.3
	Above 2.0	0.0	0.3	0.6	25.1	9.9

Data source: Table 5, page 3, *Financial Operation Report of Henan Province in 2006*.
<http://www.pbc.gov.cn/detail.asp?col=428&ID=1729>



³ Financial Operation Report of Henan Province in 2006, published by Zhengzhou Branch of People’s Bank of China 2006;

The report can be downloaded at <http://www.pbc.gov.cn/detail.asp?col=428&ID=1729>

Figure: Weighted Average Lending Interest Rate of Financial Institutions RMB Loan in 2006

Source: Figure 4, page 3, *Financial Operation Report of Henan Province in 2006*, <http://www.pbc.gov.cn/detail.asp?col=428&ID=1729>

Consequences of Applying 10% Benchmark

If 10% benchmark is considered for this project, the project is still additional because the project IRR without carbon credits is only 8.70%. This finding is further supported by the sensitivity analysis (see Annex 9), which shows that the 10% benchmark will not be exceeded unless:

- a. a decrease in total investment by 8.6%;
- b. a decrease in operating costs by 7.9%;
- c. a decrease in raw COG price by 16.5%;
- d. an increase in electricity tariff by 4.3%.

However, the above situations are unlikely to happen because :

- a) The booming Chinese economy is driving the inflation rate (inflation increased very steeply in the past years) which translates into higher investment cost and operation costs. In fact, according to the actual equipment purchasing contracts it is very clear that with one set of equipment, which includes one boiler (3.1 million RMB) and one gas turbine generator (4.9 million RMB), it already exceeds the estimation in the FSR by 20% (FSR makes the assumption of 13.275 million RMB for two sets). Due to this significant cost over-run, the project owner has decided to postpone the purchasing plan of the second unit even until now as we are writing.
- b) The raw COG price is fixed in the COG purchase agreement until the end of 2020.
- c) The tariff is fixed until the end of 2020 in the signed PPA. Please note the tariff is not inflation adjusted and it is very conservative

Conclusions

- The benchmark of 12% applied in the submitted PDD is supported by the fact that it is fully dependent on the operation of the coking plant and consequently subject to all associated risks. Therefore, it is appropriate for the power project in coking sector to apply 12% benchmark.
- If the benchmark is derived purely on the guidance given in the Interim Rules (and disregarding the associated risks faced by the project), the applicable benchmark as of January 2006 would be at least 10%.

Question 3

The project activity start date should be in accordance with the CDM Glossary of terms.

The timeline of the project is as below:

No.	Timeline	Event
1.	30 May 2005	Board decision on CDM development
2.	29 July 2005	Purchasing agreement signed between COG and electricity producers
3.	September 2005	Feasibility Study Report (FSR) completed by the officially accredited Henan Provincial Engineering Consulting Company.
4.	25 January 2006	FSR Approval issued by the Henan Provincial Development and Reform Committee
5.	1 March 2006	Turbine-generator Unit Purchasing Contract ⁴ signed
6.	27 April 2006	Boiler Purchasing Contract ⁵ signed
7.	21 May 2006	EIA Approval issued by the Henan Provincial Environmental Protection Bureau
8.	1 June 2006	Construction Permission issued by Henan Provincial Development and Reform Committee
9.	27 August 2006	Boiler Installation Contract ⁶ signed
10.	8 October 2006	Civil Construction Contract ⁷ signed
11.	13 October 2006	Letter of Loan Intent signed
12.	28 November 2006	Turbine-generator Unit Installation Contract ⁸ Signed
13.	28 March 2007	Power Purchase Agreement signed
14.	6 July 2007 – 4 August 2007	PDD made publicly available for comments.
15.	17-18 October 2007	DOE site-visit
16.	November 2007	Chinese DNA's LoA approved
17.	15 February 2008	Original Switzerland LoA approved under name of Factor Consulting + Management AG

⁴ See the Annex 4

⁵ See the Annex 5

⁶ See the Annex 6

⁷ See the Annex 7

⁸ See the Annex 8

18.	13 August 2008	Updated Switzerland LoA due to the name change of Factor Consulting + Management AG to First Climate AG
19.	6 October 2008	Requesting for registration

In the guidelines of definition of “start date of the project activity” from paragraph 76 of EB 41, the start date of the project should be dated on “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.

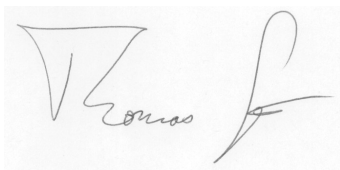
For the project, it can be found that:

- Turbine-generator Unit Purchasing Contract was signed on 1 March 2006;
- Boiler Purchasing Contract was signed on 27 April 2006;
- Project Construction Permission was issued on 1 June 2006;
- Boiler Installation Contract was signed on 27 August 2006;
- Civil Construction Contract was signed on 8 October 2006;
- Turbine-generator Unit Installation Contract was signed on 28 November 2006;

In the submitted PDD, the Project Construction Permission date was chosen as “the starting date of the project activity”. In considering the recent request of EB at its 41 meeting, we’d like to change the starting date into “Turbine-generator Unit Purchasing Contract” signing date, which is 1 March, 2006. The PDD will be revised according to the clarification of the Board reported in paragraph 67 of EB 41st meeting.

We sincerely hope that the Board accepts our above explanations. In case you have any further question or request during the review process, please do not hesitate to contact Mr. Thomas Stetter.

Yours sincerely



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Attachment:

- Annex 1. Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects*
- Annex 2. Benchmark Lending Rate for the RMB Loans Granted By Financial Institutions*
- Annex 3. People's Bank of China Decision on the Rise of Benchmark Interest Rates and Market-based Interest Rate Reform*
- Annex 4. Turbine-generator Unit Purchasing Contract*
- Annex 5. Boiler Purchasing Contract*
- Annex 6. Boiler Installation Contract*
- Annex 7. Civil Construction Contract*
- Annex 8. Turbine-generator Unit Installation Contract*
- Annex 9. Sensitivity Analysis for Project IRR (Excel)

Notes:

- Annexes *in italics* are in Chinese language and are therefore only submitted to the DOE but not to the EB.
- Only Annex 9 is submitted to the EB.