郑州燃气发电有限公司

Response to the request for review for the CDM project activity

#1304 Henan Zhengzhou Grid Connected Natural Gas Combined Cycle Power Plant Project

To: Mr. Hans Jurgen Stehr, Chairman
CDM Executive Board to Kyoto Protocol

From: Henan Zhengzhou Combined Cycle Power Co. Ltd. (Project Participants)

Re: Project #1304, "Henan Zhengzhou Grid Connected Natural Gas Combined Cycle Power Plant Project"

Date: 29 December 2007

Dear Mr. Chairman,

Please find below our responses to the request for review regarding the CDM project activity *#1304, "Henan Zhengzhou Grid Connected Natural Gas Combined Cycle Power Plant Project"* communicated on the 17th of December 2007. We hope that our responses will be helpful to further clarify the issues raised and provide additional information for your consideration and final acceptance.

Issue 1:

Further explanation is required on how the 8% benchmark as indicated by the Economic Assessment of Electrical Engineering Retrofit Projects, which has been validated by the DOE, is applicable to this project activity.

Our clarifications:

We understand that this issue covers two parts: why the document *Economic Assessment of Electrical Engineering Retrofit Projects* is used as a reference of the financial benchmark rate; and the second is why the 8% is selected as the financial benchmark of investment analysis in the PDD for the proposed project. We therefore would like to clarify:

1. The Economic Assessment of Electrical Engineering Retrofit Projects (*Ref no.: GuoDianFa [2002] (623)*) was issued by the State Power Corporation on the 10th of September 2002 and has been the main document in China that provides the general guidelines for the economic assessment of investment projects in the Chinese power industry. As it can be seen in the Section of "General Principles" of the Economic Assessment of Electrical Engineering Retrofit Projects *(Please refer to Annex 1 for the translation of relevant paragraph)*, the financial benchmark covers China's entire power industry, including retrofit and new investments. Being a new investment, the Henan Zhengzhou NGCC Project is covered by such financial benchmark and therefore the *Economic Assessment of Electrical Engineering Retrofit Projects* was chosen as a reference for the financial benchmark rate.

2. As stated in the point 1.11 on page 2 of Economic Assessment of Electrical Engineering Retrofit Projects, the financial benchmark rate is defined as 8% for the IRR of total investment, or 10% for the IRR of equity investment, for China's power industry as a whole. The proposed project is a gas-fired power plant, and therefore the 8% IRR of total investment serving as the benchmark IRR is applicable to the investment analysis in the PDD.

Issue 2:

The DOE shall further clarify whether the income tax and depreciation stipulations in China were verified and how they were applied and then validated in the investment analysis.

Our clarifications:

We would like to invite our DOE to address this issue separately.

Issue 3:

The DOE shall further clarify how they have assessed and validated the sensitivity analysis and why other relevant variables were not considered in the sensitivity analysis.

Our clarifications:

We would like to invite our DOE to address this issue separately.

Issue 4:

The DOE shall further clarify how they have validated the common practice analysis and provide further evidence that the only other similar project is also considering the CDM.

Our clarifications:

We would like to invite our DOE to address this issue separately.

Issue 5:

Further clarification is required on whether all relevant power plant technologies that have recently been constructed or are under construction or are being planned, including those of other investors, were considered as additional baseline scenarios.

Our clarifications:

All relevant power plant technologies that have recently been constructed or are under construction or are being planned in the proposed project boundary were summarized and further clarified as follows:

1. Identify potential baseline scenarios

1) Determine "relevant power plant technologies that have recently been constructed"

According to the table on page 571 of China Electric Power Yearbook 2006 *(please refer to Annex 2 for the translation of relevant table)*, the relevant power plant technologies that have recently been constructed within Central China Grid (CCG) where the proposed project is located can be summarized as below.

Regions	Total	Hydropower	Fuel-Fired Power	Nucleus Power	Wind Power and Others
Central China Grid (GW)	**108.39**	**48.20**	**60.17**	**0**	**0.024**
Henan Province (GW)	**28.81**	2.54	26.27	0	0
Hubei Province (GW)	**27.42**	17.89	9.53	0	0
Hunan Province (GW)	**15.12**	7.91	7.21	0	0
Jiangxi Province (GW)	**8.95**	3.02	5.91	0	0.024
Chongqing (GW)	**5.68**	1.89	3.76	0	0.024
Sichuan Province (GW)	**22.46**	14.96	7.50	0	0

Based on the above analysis, the relevant power plant technologies that have been constructed in CCG include hydro power, fuel-fired power, wind power and other generation technologies.

2) Determine "relevant power plant technologies that are under construction"

According to page 41 of China Electric Power Yearbook 2006 *(Please refer to Annex 3 for the translation of the relevant paragraph)*, the types of the technology of power plants under construction are hydro power, fuel-fired power, wind power, nuclear power, solar and biomass power plants.

3) Determine "relevant power plant technologies that are being planned"

According to the *11th Five-Year Plan for Energy Development of China*, the development of coal fired power plants, wind and hydro power plants, nuclear power plants, solar and biomass power plants are the planned power plant technologies for the 2007-2012 *(please refer to Annex 4 for the translation of relevant paragraph)*.

4) Determine potential alternatives for the proposed project

Based on the above analysis, all relevant power plant technologies that have recently been constructed or are under construction or are being planned in the project boundary are **hydro power, wind power, nuclear power, solar power, biomass power and fuel-fired power generation technologies.**

2. Consideration of relevant laws and regulations

1) Based on the above analysis, fuel-fired power generation technologies is one of relevant power plant technologies that have recently been constructed or are under construction or are being planned in the project boundary, which is include coal-fired, gas-fired and oil-fired power plants; and

2) According to *Policy Outlines of China Energy Conservation Technologies* issued by Chinese National Development and Reform Commission and Ministry of Science and Technology *(please refer to Annex 5 for the translation of relevant paragraph)*, the development of new oil-fired power plant is prohibited. The oil-fired power plant therefore is not feasible as plausible baseline scenario. (This information is added in to the revised PDD)

3. Analysis of the plausible alternatives of the proposed project

1) ***For hydro power, wind power, and nuclear power generation technologies:*** As already described in the Section B.4 of the PDD as the Alternative 3, all of these technologies have been considered as plausible baseline scenarios. However, given the fact that these technologies would not deliver the similar services as the proposed project (peak load balancing), these technologies are not selected as baseline scenarios for the proposed project.

2) ***For solar power and biomass power generation technologies:*** The solar power would not deliver the similar services as the proposed project (peak load balancing)[1]. The biomass power generation technology is not commercialized at present[2] and is also unable to provide the peak-load regulation service as the proposed project. Therefore, both the solar and biomass power generation technologies are not feasible as the baseline scenarios for the proposed project. (This information is added into the revised PDD).

3) ***For coal-fired and gas-fired power generation technologies:***

- ***Gas-fired power plant:***

  a. The project (NGCC) not implemented as a CDM project:

     As described in Section B.4 of the PDD, this technology has been considered as plausible baseline scenarios. However, according to the calculation of the levelized electricity generation cost (EGC) of the proposed

[1] *Data source: http://www.in-en.com/newenergy/html/newenergy-1431143163139011.html*

[2] *Tentative Management Measures for Price and Sharing of Expenses for Electricity Generation from Renewable Energy*, Document No. NDRC Energy [2006]13.

project, the proposed project is the least economically attractive when it is compared with other alternatives (sub-critical and the super-critical coal fired power plant). In addition, the investment analysis described in Section B.5 in PDD also demonstrates that the project would not be financially attractive without the consideration of CDM revenues. Hence the proposed project is not the baseline scenario.

b. Power generation using natural gas, but technologies other than the proposed project activity: i.e. using natural gas with single-cycle technology for power generation.

Single-cycle technology using natural gas for power generation has been described as the Alternative 2 in section B.4 of the PDD. The efficiency of the single-cycle technology (38% - 39.5%) is much lower than the combined cycle technology (54.4%-58%). Furthermore, the development of single-cycle technology using natural gas has not been commercially implemented in units beyond 300MW installed capacity. Therefore, the single-cycle technology using natural gas is not a plausible baseline scenario.

- ***Coal-fired power plant:***

The majority (about 85%) of coal-fired technology power plants under construction in China are either sub-critical or super-critical power plants[3] *(please refer to Annex 6 for the translation of relevant paragraph).* Therefore, for the coal-fired power plants, both sub-critical and the super-critical technologies are selected as baseline scenarios in the PDD. In terms of generation capacity, according to *Notice of the Planning and Construction Requirements on the Coal-fired Power Plant Projects issued by Chinese National Development* and Reform Commission *(please refer to Annex 7 for the translation of relevant paragraph),* a new coal-fired power plant with a single unit capacity should, in principle, be equal to 600MW and above. Therefore, the 600MW sub-critical and super-critical coal-fired power plants are selected as the alternative scenario to the proposed project (for more detailed analysis, please refer to the PDD).

Based on the above analysis, all the relevant power plant technologies were considered and analyzed as the additional baseline scenarios in the revised PDD.

With the above clarification, explanation and additional information, we sincerely hope that the CDM Executive Board will approve our request for registration of the proposed project activity.

Sincerely yours

Wang Jin-Tang, President

Henan Zhengzhou Combined Cycle Power Co. Ltd.

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[3] Quoted from a research paper, *Retrospect and Prospects for the Research on the Thermal Power Structural Optimization and Technology Upgrading,* first released as the keynote speech report at the 2005 Academic Council of the China Association for Science and Technology and the Chinese Society of Electrical Engineering, which was completed by Zhao Jie and Zhao Jin-Yang based on a national research project entitled, *Study on the Thermal Power Structural Optimization and Technology Upgrading,* and conducted by China Power Engineering Consulting Corporation. The Paper was checked for final acceptance by the State Power Corporation of China in 2002.

Data source:
http://paper.csee.org.cn/SearchPaper_DataList.aspx?Expression=Keyword%3D%E7%94%B5%E6%BA%90%E7%BB%93%E6%9E%84&SortField=PData&SortParam=DESC&PageSize=10&CurrPage=0#none