Trading Emissions Plc

3rd Floor, Exchange House, 54-62 Athol Street, Douglas, Isle of Man, IM1 1JD

Date: 23rd October 2007

To: CDM Executive Board

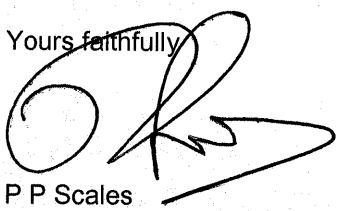
Re: Request for Review- (1227) Yuyao Electricity Generation Project Using Natural Gas

Sir/Madam

Please find here a package of documents, in response to the EB request for review. These documents are sent via the Project DOE (DNV) and include both the requested feedback from the Project Participant (with support from their consultants) and the DOE.

I hope this meets your requirements.

Yours faithfully



P P Scales
Director

Response to request for review "***Yuyao Electricity Generation Project using Natural Gas***" with the Reference Number 1227

UNFCCC Secretariat
Martin-Luther-King-Strasse 8
D-53153 Bonn
Germany
Attention: CDM Executive Board
Date: Oct 24, 2007

Dear Sir or Madam,

We were informed that the project "*Yuyao Electricity Generation Project using Natural Gas"* (reference number 1227) was requested for review by 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:

Issue 1:

"The PP shall further demonstrate the additionality of the project activity."

Our clarification:

The additionality of the project was demonstrated according to the Steps required by AM0029 Methodology, which comprises benchmark investment analysis, common practice analysis and describing the impact of CDM registration. Through the analysis, the additionality of the project activity was based on points list as following:

a) The incentive from the CDM was seriously considered prior to the start of the project activity, which was described in the B.5 of the PDD submitted for registration. Evidence was supplied to validator and further information is provided under Issue 8 below.
b) Benchmark investment analysis shows that the project IRR (6.69%) is lower than the benchmark (8%), the proposed project is not considered to be financially attractive. The sensitivity analysis on annual operation hour, annual O&M cost and static total investment also show the conclusion regarding the financial attractiveness is robust to reasonable variations in the critical assumptions. Further sensitivity analysis against more appropriate parameters is requested by three EB members, this is further clarified under Issue 6 below.
c) Common practice analysis shows that the project is not common practice, only one similar activity, Fujian Xiamen Dongbu CCGT power project, are identified in the PDD submitted for registration. The Dongbu project was a foreign invested joint venture and as such under local and national taxation rules it benefits from significant tax and import duty exemptions which the Yuyao project can not benefit from. Further clarification is provided under Issue 7 below.

Issue 2:

"The East China Sea Chunxiao gas field production capacity will be 2-2.5Gm^3/a from 2007 onwards. Expected consumption of the project activity of approximately 0.570 Gm^3/a., represents about 22.8 to 28.5% of the total production of the gas field. Further clarification is required regarding how much of the field production will be used for power generation besides the amount used in the proposed project activity. If a significant amount of the gas produced in the field (more than 50%) will be supplied for power generation, the project activity is part of a much bigger regional power initiative that necessarily includes the development of the gas field (and natural gas was made available in the region or country because of the project activity). In addition, it is required to include in the common practice analysis an appraisal of the last 2-3 Zhejiang Provincial electric power 5-year expansion plans (see reference 9 at validation report) to check the assumptions made for power generation with natural gas."

Our clarification:

The Chunxiao gas field is invested by China National Offshore Oil Corp. and China Petroleum & Chemical Corporation. The proposed project activity is invested by Guohua Electric Power Corporation and Yuyao Municipal Construction and development Corporation. The owners of the proposed project are different from the owner of the gas field and, the NG Purchase Agreement was reached through the normal business negotiation and not through any formal programme directly linked to the development of the field plus generating capacity. Furthermore, the natural gas price agreed on NG Purchase Agreement of 17 April 2007 reflects the market price[*] demonstrating it is not priced in a way to support the gas field development. It is a market price determined by local gas supply in Zheijiang, as well as international gas price signals. It should be noted that the Zheijiang gas supply network sources gas not only from Chunxiao but also from the North West of China and from Ningbo LNG terminal. Thus the project activity did not necessarily need the Chunxiao gas field to be developed as it could still source gas potentially from North WestChina or from the LNG terminal through international markets.

In PDD, we did not refer to Zhejiang Provincial electric power 5-year expansion plans (reference 9 in the validation report). This document may be assessed by DOE to confirm other information included in the PDD. As we know, the similar projects mentioned in this reference are all applying as CDM projects and the natural gas to be consumed is not from Chunxiao gas field but from other sources available in the Zheijiang natural gas market.

In addition, it should be noted that the development of the Chunxiao gas field was for strategic energy security reasons and proceeded before gas offtakers were secured.

[*] From the document on the price of natural gas from Chunxiao, issued by Zhejiang Provincial Price Bureau, the Average price of natural gas from Chunxiao selling in market is 1.86RMB/Nm^3, which is very close to what is paid to the project (1.85RMB/Nm^3).

Even when the Chunxiao gas field went into operation in 2006, it still lacked sufficient downstream consumers, limiting its production[†].

Issue 3:

"The IRR analysis should consider issues related to higher levelised cost of electricity for power plants operating with natural gas, as the plant will operate as peak and medium load power. Because it is known that peak load power plants do not operate with high capacity factor, it is very common to pay availability tariffs to the plants during stand-by periods. It is also very common to have different feed-in tariffs for peak/medium load power plants (usually higher than base load plants)."

Our clarification:

According to the Chinese regulations the feed-in tariff is set at a fixed level following approval by the relevant Provincial or National Price Bureau, the detailed process can be found in Issue 6. The Grid Company will only pay for the electricity delivered to the grid based on the approved feed-in tariff, and do not pay extra amounts such as availability tariffs, to the project, even though the project will operate as peak and medium load power. The project's feed-in tariff approved by the Zhejiang Provincial Price bureau is just 0.464RMB/KWh almost the same (0.79% higher) as the one in the Feasibility Report which is used in the PDD. The relevant documents are available to the DOE to check.

Issue 4:

"Additionality is demonstrated primarily using benchmark analysis. Assumed benchmark for the sector: IRR = 8%. IRR of the project without CERs = 6.69%. The mentioned source for all the data used in the IRR calculation is the feasibility study report of the proposed project. The PP shall further clarify the assumptions and data sources for that internal document as it is the core of the additionality demonstration and the DOE shall further clarify how they have validated the benchmark analysis."

Our clarification:

The feasibility study report (FSR) of the proposed project was conducted by Zhejiang Provincial Electric Power Design Institute (Rated as "A" degree for power designing) and completed in May, 2004. The FSR was sent to NDRC[‡] for evaluation and was approved on December 9, 2004. The FSR is not just an internal document, it's an official document prepared by an independent third party and approved by the national government. The assumptions and data sources for economic evaluation in FSR are based on following authoritative rules and guidelines:

- *The detailed rules of economic evaluation for power project constructing*, issued by former Power Industry Ministry;

[†] http://newspaper.mofcom.gov.cn/aarticle/caijyw/200608/20060802807849.html

[‡] The National Development and Reform Commission (NDRC) is a macroeconomic management agency under the State Council, which examine and approve major construction projects including energy projects.

- *The methodology and Parameters of economic evaluation for project constructing (2nd Edition)*, issued by NDRC;
- *Basic rules of budgetary estimate for construction in Power Industry*, by State Economic and Trade Commission ;
- *Norm of budgetary estimate for power engineering project*, by China Electricity Council*;*
- *Comprehensive budgetary estimate of construction& Material for power project in East China Regions*, by China Electricity Council.

Issue 5:

"The assumed efficiency in the power plant is 43.2% (based on the NG consumption and electricity generated) while Board decisions already used as a conservative proxy 50% efficiency for CCGT power plants. Using the Board efficiency and the assumed consumption of NG (570,024,000Nm^3/a, very likely under a long term contract) the project would be able to generate 15.8% more electricity and the IRR would be very different."

Our clarification:

We believe there is some confusion about the calculation of the efficiency (based on the NG consumption and the electricity generated) of the project; we would like to attempt to clarify the confusion step by step.

Step 1: Calculation of the efficiency based on the NG consumption and the electricity generated

- The consumption of NG is 570,024,000 Nm^3/a;
- The NCV provided by the NG supplier and implemented in the Feasibility Report is 0.033830 GJ/m^3;
- So the total energy input is 19,283,911.92GJ (570,024,000 Nm^3*0.033830 GJ/m^3);
- The electricity generated is 2,730,000MWh (780MW*3500h), assumed the equation between MWh and GJ as: 1MWh=3.6GJ, the total energy output is 9,828,000GJ (2,730,000MWh*3.6GJ/MWh);
- Efficiency could be calculated as below:

$$\text{Efficiency} = \frac{\text{Energy output}}{\text{Energy input}} = \frac{9{,}828{,}000\text{GJ}}{19{,}283{,}911.92\text{GJ}} = 51\%$$

Step 2: Explanation of why the reviewer calculates the efficiency as 43.2%

- The consumption of NG is 570,024,000 Nm^3/a;
- The NCV is 0.038931 GJ/m^3, which is larger than 0.033830 GJ/m^3 above-mentioned only used in PDD for project emission calculating. This NCV is not from NG supplier and is the Chinese national value for natural gas form *China Energy Statistical Yearbook*;
- So the total energy input is 22,191,604.344GJ (570,024,000 Nm^3*0.038931 GJ/m^3);

- The electricity generated is 2,730,000MWh (780MW*3500h), However, the electricity amount (2,662,000MWh) the reviewer used for calculation from the PDD is just the electricity delivered to the grid, which does not consider the self-consumed part (2.5%). Hence, by using this amount for electricity generated, the total energy output is incorrectly calculated as 9,583,200GJ (2,662,000MWh*3.6GJ/MWh);
- Efficiency factor has been calculated as below:

$$\text{Efficiency} = \frac{\text{Energy output}}{\text{Energy input}} = \frac{9{,}583{,}200\text{GJ}}{22{,}191{,}604.344\text{GJ}} = 43.2\%$$

Step: 3 Comparing two calculation processes listed above and clarifying the confusion
From the steps above it is demonstrated that the 43.2% of efficiency factor is resulted from two incorrect parameters: one is NCV of National Default being used instead of project specific NCV. The DOE requires the project use the National Default NCV (a bit higher) when calculating the project emission so as to be conservative; it should not be used for efficiency calculation because it deviates from the real situation. The other incorrect parameter used is electricity amount of 2,662,000MWh, which is just electricity delivered to the grid, not including self-consumed part (2.5%) and therefore not the total electricity generated.

The assumed efficiency in the power plant based on the project specific NCV and the total electricity generated should be 51% instead of 43.2%.

Issue 6:
"Further sensitivity analysis against more appropriate parameters is required to demonstrate that the project IRR cannot achieve the benchmark IRR."

Our clarification:
In the PDD submitted for registration, annual operation hour, annual O&M cost and static total investment are selected as parameters to assess the impacts of their reasonable variations on the project IRR.

According to the comments requested in Issue 6, more parameters such as feed-in-tariff and the natural gas price are selected as parameters in IRR sensitivity analysis. The sensitivity analysis results on these two parameters are described in following Table1.

Table 1 IRR Sensitivity analysis on Feed-in-Tariff and Natural Gas Price[§]

Vary Range / Parameters	-10%	-5%	0%	+5%	+10%
Feed-in-Tariff (Inc Tax)	0.93%	4.22%	6.69%	8.79%	10.60%

[§] The spreadsheet of sensitivity analysis process on feed-in-tariff and natural gas price has been provided to DOE for verifying.

Natural Gas Price (Inc Tax)	9.30%	8.11%	6.69%	5.01%	3.61%

From Table 1, it is clear that the project IRR is very sensitive to the Feed-in-Tariff: when it varies from 414.32RMB/MWh (-10%) to 506.40RMB/MWh (+10%), the IRR accordingly varies from 0.93% to 10.60%. In the PDD, the feed-in-tariff is not considered in the sensitivity analysis because the tariff is strictly regulated by the Government and therefore can not significantly fluctuate. The process for setting the tariff is as follows: firstly, the project owner will negotiate the feed-in-tariff with grid company, then it will be determined by Price Bureau of the government, once the feed-in-tariff is issued, it will strictly be regulated by the government. Therefore the approved the tariff can not be changed by the project owner or the grid company according to China's Management Rules on Feed-in-Tariff Issued by NDRC[**]. Subsequent to the FSR being completed and the investment decision being taken, the project obtained a feed-in-tariff of 464RMB/MWh[††] from Zhejiang Provincial Price Bureau on December 31, 2005, which is only 0.79% more than feed-in-tariff used in FSR and PDD (460.36RMB/MWh). The project IRR at the tariff of 464RMB/MWh is 7.10%. Although project IRR is sensitive to the feed-in-tariff, it can not be easily varied and is very unlikely to make the project IRR achieve the benchmark. In addition, considering the long-term increasing trend of fuel in the future and normal inflation rate of China's economy, it could not absolutely guarantee that the feed-in-tariff will not be changed along the whole entire life; However, the potential uncertainty[‡‡] of feed-in-tariff in the future actually brings the risk to the investment of the project.

Another sensitive parameter is the price of natural gas. When it decreases more than 5%, the project IRR will achieve the benchmark (8%). It is highly unlikely the gas price will change so much as it is now 40% higher than it was when the FSR was prepared and the investment decision was made. Therefore it would actually need to drop by over 33% from today's prices to achieve the 5% decrease required to meet the benchmark[§§]. The natural gas price used in PDD is 1.31RMB/Nm^3 according to one notice[***] from NDRC in 2003, however, the project got the natural gas price approval[†††] from Zhejiang Provincial Price Bureau in 2007, which is 1.85RMB/Nm^3 and much more (40%) expensive than expected. The increasing trend of natural gas

[**] Management Rules on Feed-in-Tariff ,No [2005].514, March 28, 2005, http://www.ndrc.gov.cn/zcfb/zcfbtz/zcfbtz2005/t20050613_6670.htm

[††] Notice from Zhejiang Price Provincial Bureau, No[2006].1, December 31,2005

[‡‡] http://www.gzcoal.gov.cn/pages/Page_Info.aspx?News_Id=6892

[§§] 1.85*(1-33%) ≈1.31*(1-5%)

[***] Notice regarding the price of natural gas, National Development and Reform Commission,28 September 2003, [2003]No. 1323.

[†††] Notice on Natural Gas Price to Guohua Yuyao CCGC project, No[2007].105, April 9,2007

price continues, both in China and elsewhere in the world[‡‡‡]. Since the natural gas price is much higher than what was used in PDD we believe the PDD is conservative and it is highly unlikely that the project could under any reasonable assumptions achieve the benchmark rate of return.
Therefore, although two more parameters are selected to make sensitivity analysis, it will not contradict the claim that the proposed project activity is financially unattractive because of reasons above-mentioned. Following the decision being taken to proceed with the project the actual electricity tariff and natural gas price secured by the project are such that the original assumptions used in the investment analysis were overly optimistic.

Issue 7:
"Information is required on incentives available to a similar project being developed by a multinational corporation without CDM."

Our clarification:
In common practice analysis, Fujian Xiamendongbu CCGT power project, is identified as a CCGT project which is proceeding in China without CDM support. This is a foreign enterprise in Xiamen City, Special Economic Zone and as such enjoys a number of benefits which the project activity does not benefit from. Xiamendongbu project enjoys tax discounts as an incentive to develop without CDM. The details are shown below:

As a project invested by a multinational corporation in Xiamen City, there are no income tax for the first two years and half income tax for the next three years after the first two years. This policy is applied from the year, at which the project has the income. Yuyao project does not enjoy this policy.

As a project invested by a multinational corporation in Xiamen City, its income tax is 15%. The income tax for Yuyao project is 33%.

As a project invested by a multinational corporation in China, it can get preferential tariff for importation of some foreign equipment.

The policy above is proved by the government and the link can be found in the website[§§§] of Xiamen Municipal Office State Administration of Taxation and

[‡‡‡] BP Statistical Review of World energy 2007, http://www.bp.com/liveassets/bp_internet/china/bpchina_chinese/STAGING/local_assets/downloads_pdfs/b/BP2007_review.pdf

[§§§] http://www.xm-n-tax.gov.cn/LlfxServlet?nwbz=2&lmbh=008&errpage=/jsp/internet/index/errPage.jsp&url=/publish/internet/bszn/FB0000000008.shtml

website[****] of Xiamen Municipal Government.

Issue 8:
"Further information on evidence of CDM consideration prior to the start of the project activity is required."

Our clarification:
According to the Guideline of CDM PDD, if the starting date of the project activity is before the date of validation, evidence should be provided that the incentive from the CDM was seriously considered in the decision to proceed with the project activity. This evidence shall be based on (preferably official, legal and/or other corporate) documentation that was available at, or prior to, the start of the project activity.

In the B.5 of our PDD submitted for registration, we describe evidence of considering the incentive from CDM prior to the start of the project activity, which is from one formal document issued by the Enterprise Bureau of China Development Bank on 9 March 2004[††††]. In this document, China Development Bank fully recognized the contribution of the CERs revenues to the financial attractiveness of the project and actively supports the CDM development of the project.

With the Letter of Intent for Loan on 9 March 2004 and the completion of the Environmental Impact Assessment Report in April 2004 and the Feasibility Study Report in May 2004, the project was approved by National Development and Reform Commission on 9 December 2004[‡‡‡‡]. Then the project started construction on 28 December 2004[§§§§].

Issue 9:
"Specific investment barriers faced by the project activity without CDM should be identified and documented."

Our clarification:
We did not adopt barriers analysis in the PDD, and it is not required by AM0029 methodology. The additionality of the project is mainly embodied in the project IRR lower than benchmark IRR. The details of this issue can be seen in the benchmark IRR analysis step and in the clarifications provided above. In the instance of this project the CDM benefit is by way of a secure hard currency income stream for the project. This income increases the financial attractiveness of the project and also

[****] http://www.xm.gov.cn/ts/zcfg/yhzc/200709/t20070901_176664.htm

[††††] This document was supplied to DOE for verifying before submitting for registration.

[‡‡‡‡] National Development and Reform Commission, Project approval letter No. 2863, 9 December 2004.

[§§§§] Zhejiang Electric Power Project Management Ltd., Notice of project construction with the confirmation of the supervision company, 12 December 2006.

provides for some foreign exchange exposure management should foreign currency denominated parts or servicing be required. We therefore feel that the IRR analysis is sufficient to demonstrate additionality.

With the above clarification, explanation and additional information, we wish that the concerns raised by CDM Executive have been fully and adequately addressed, and we sincerely hope that the CDM Executive Board would approve this project for registration.

Note:

In case you have any further question or request during review process, please don't hesitate to contact us by phone call or Email to person listed below.

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