



**Response to the request for review on the CDM project activity
“Baxianyuan 27 MW Hydropower Project” with the registration number 1321**

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

January 7, 2008

Dear Mr. Stehr,

We were informed that our project “Baxianyuan 27 MW Hydropower Project (Ref. no. 1321)” was requested for review by CDM Executive Board on 28/12/2007. As required by the Board, we would like to answer the questions, clarify the issues and provide additional information, as follows.

Issue 1:

The DOE is required to further clarify how they have assessed and validated the benchmark applied and its validity.

Our clarifications:

The *Economic Evaluation Code for Small Hydropower Projects* (hereafter referred as the Code) was issued by the Ministry of Water Resources of China (Document No. SL16-95) for the economic evaluation of small hydropower projects.

In Section 1 (General description) of the Code, paragraph 1.2 describes that “Economic evaluation for small hydropower projects focuses on economic evaluation for newly built, refurbishment, expansion, rebuilding or retrofit of hydropower plants and auxiliary grids with an installed capacity not more than 25,000 kW…… Economic evaluation of medium-sized hydropower plants located in rural areas with an installed capacity of 50,000 kW or below can refer to the Code.”

In Section 4 (financial evaluation) of the Code, paragraph 4.3 describes that “The benchmark for small hydropower project (Ic) is defined as 10%.”

The Baxianyuan 27 MW Hydropower Project is a newly built hydropower plant satisfying the condition that “located in a rural area with an installed capacity not more than 50,000 kW”. Therefore, the Code is applicable to the Project.

The evidence in Chinese has been validated as described in P25 of the validation report.

As per the *No.3 Notice* issued by the Ministry of Waster Resources on 26/06/2006 (<http://www.lawon.cn/law/viewDetail.jsp?id=237012>), the Code is still valid.

Relevant pages from the Code have been translated in Annex 1.

Issue 2:

The DOE is required to further clarify the appropriateness of the sensitivity analysis and the pertinence of its conclusions and how the said analysis was validated.

Our clarifications:

The following financial parameters were taken as sensitive elements for sensitive analysis of financial attractiveness:

- ♦ Total investment
- ♦ Annual O&M cost
- ♦ Annual electricity output
- ♦ Bus-bar tariff (not including VAT)

The investment of the Project had been started in 2005 and will be finished in mid 2008. The price of materials has kept increasing in recent years, therefore it is impossible to decrease the total investment of the Project. At present, about 90% of the total investment has been arranged for the Project and the actual investment of the Project will be 10% higher than that estimated in the *Feasibility Study Report* (hereafter referred to as the FSR). Therefore the fluctuation range of $\pm 10\%$ employed in the sensitivity analysis for the total investment is conservative and sufficient to reflect the impact of total investment on the IRR of the Project.

As to the annual O&M cost, even under the assumption that the annual O&M cost were reduced to zero, the IRR of total investment of the Project is only 7.44%, still far below the benchmark (10%), so taking the fluctuation range of $\pm 10\%$ in the sensitivity analysis of annual O&M cost is conservative and sufficient to reflect the impact of the annual O&M cost on the IRR of the Project.

For the annual electricity output, it was estimated in the FSR based on 53 years long-term hydro resources data from Shaanxi Water Engineering Exploring and Planning Research Institute, who has the top level certificate in hydrologic and water resources survey and appraisal, hydro geological investigation, engineering and consulting thus their data is highly reliable and authoritative. Since the operation period of the Project is only 30 years, taking the fluctuation range of $\pm 10\%$ in the sensitivity analysis of annual electricity output is conservative and sufficient to reflect the impact of the annual electricity output on the IRR of the Project.

For the bus-bar tariff (not including VAT), it is fixed to 0.27 RMB/kWh by the *Notice on Revising the Bus-bar Tariff within Shaanxi Grid* by Shaanxi Bureau of Commodity Price (SHAANJIAJIAFA[2005]100). The document has been provided to the DOE as one of the IRR data resources. In fact, the trend of the bus-bar tariff movement is decreasing, taking that the bus-bar tariff was 0.30 RMB/kWh in 2002 and 0.27 RMB/kWh in 2005¹. The bus-bar tariff of 0.27 RMB/kWh within Shaanxi Grid is still valid currently. Therefore, taking the fluctuation range of $\pm 10\%$ in the sensitivity analysis of bus-bar tariff (not including VAT) is conservative and sufficient to reflect the impact of the bus-bar tariff on the IRR of the Project.

¹ *Notice on Revising the Bus-bar Tariff within Shaanxi Grid* by Shaanxi Bureau of Commodity Price (SHAANJIAJIAFA[2005]100)

Based on the above clarified, the sensitivity analysis of the Project provided in the PDD is appropriate and sufficient. Even the variation range of the uncertain factors reaches 10%, the IRR of the Project could not reach the benchmark and the additionality of the Project would not be influenced. Therefore, the additionality of the Project is robust.

Issue 3:

The PDD states that detailed IRR calculation process will be provided in an additional document without specific reference. Further clarification is required.

Our clarifications:

The IRR calculation process was submitted along with the PDD for registration. To make the description in the PDD clear, the sentence is revised to “detailed IRR calculation process has been provided in the IRR calculation excel table as an attachment submitted along with the PDD”.

The IRR calculation excel table is provided again as an attachment (Annex 2).

Issue 4:

The DOE is requested to provide further details and evidence to support its validation of the common practice analysis. In doing so the DOE is requested to recall the requirements of sub-step 4b of the *Tool for the demonstration and assessment of additionality*.

Our clarifications:

The statistics yearbook titled *Annual of China's Water Power* (volume 6-9) was published by the China Electric Power Press. The statistics yearbooks titled *Yearbook of China Water Resources* (edition 2004 and 2005) and *Yearbook of Shaanxi Water Resources* (2002-2004) were published by the China Hydropower Press. Both of these data sources are among the most authoritative and professional documents to demonstrate the latest situation of hydropower projects in China. The related information from these three yearbooks has been provided to the DOE and used to assess the description in Step 4 of the PDD by the DOE. All of the contents are consistent.

The Project is a hydropower project located in Shaanxi Province with an installed capacity of 27 MW. As per the *Tool for the demonstration and assessment of additionality*, project activities with similar scale to the Project can be identified as similar project activities. The installed capacity of the Project is 27 MW. As per the Code (see response to issue 1 for detail), hydropower project activities with an installed capacity not more than 50,000 kW (50 MW) can be identified as similar project activities. To enhance the conservativeness and completeness of the common practice analysis, the range of installed capacity of similar scale is enlarged from 50 MW to 100 MW. Therefore, existing grid connected hydropower projects in Shaanxi Province with an installed capacity not more than 100 MW are identified as similar project activities to the Project as listed in the table below (the same as Table 3 provided in Step 4a in Section B.5 of the PDD).

Project Name	Installed capacity (MW)
Linhekou Hydropower Project	72
Shiquan Hydropower Addition Project	90
Erlang Dam Step Hydropower Project	50
Shimen Hydropower Project	41.2

Shitouhe Hydropower Project	49.5
Auxiliary Hydropower Project of Dongfanghong Transferring Wei River for Irrigation Project	25
Heihe Hydropower Project	20

As per the *Tool for the demonstration and assessment of additionality*, Step 4b is used to demonstrate why the existence of these activities does not contradict the claim that the proposed project activity is financially unattractive or subject to barriers. This is done by comparing the proposed project activity to the other similar activities, illustrating and explaining essential distinctions between them. It is explained why the similar activities enjoy certain benefits that render them financial attractiveness (e.g., subsidies or other financial flows) that the proposed project activity cannot enjoy.

As per the *Tool for the demonstration and assessment of additionality*, essential distinctions may include a serious change in circumstances under which the proposed CDM project activity will be implemented when compared to circumstances under which similar projects were carried out.

For existing grid connected hydropower projects in Shaanxi Province with an installed capacity not more than 100 MW that have been identified as similar project activities to the Project, essential distinctions are identified in Step 4b as:

(1) Distinctions in regulation characteristics:

- Linhekou Hydropower Project employs incompletely yearly regulation reservoir²;
- Shimen Hydropower Project employs multi-year regulation reservoir;³
- Shitouhe Hydropower Project is an auxiliary project to Shitouhe Reservoir, which is featured by incomplete yearly regulation⁴;
- Heihe Hydropower Project is an auxiliary project to Heihe Jinpen Reservoir, featured by incomplete yearly regulation⁵;

All of these four hydropower projects have incompletely yearly regulation capacity, yearly regulation capacity or multi-year regulation capacity. Therefore these projects have the regulation capacity to adapt the fluctuation of water resources, thus to optimize the usage of water resources, such as undertaking peak load balancing function and so on.

The Project is a run-of-river hydropower project. Its operation is dependant on water resource. This run-of-river project is much different from those hydropower ones with regulation capacity and more risky in the amount of electricity generated. Therefore, the above four projects possess incomparable advantages over the Project in respect of regulation characteristics.

(2) Distinctions in investment

- Shiquan Hydropower Addition Project is constructed based on the existing hydropower project,

² *Yearbook of Shanxi Water Resources* (2002-2004) P242-243.

³ <http://www.hwcc.com.cn/newsdisplay/newsdisplay.asp?Id=40548>

⁴ <http://www.shuigong.com/papers/others/20060125/paper16040.shtml>

⁵ <http://www.cws.net.cn/zmslgc/ArticleView.asp?ArticleID=No&ClassID=1689>

with a unit investment of 3333.3 RMB per kW⁶, 60 % less than the Project (8550 RMB per kW);

Based on the sensitivity analysis, if the total investment of the Project can be reduced to 40%, the financial indicators of the Project could reach the benchmark which makes the Project economically feasible. However, it is impossible to decrease the total investment of the Project to 40%. Therefore, Shiquan Hydropower Addition Project possesses incomparable advantages over the Project in respect of investment.

(3) Distinctions in investment environment

During 2002, a reform for electric power system in China, *Electric Power System Reform* was issued by China State Council dated February 10th, 2002, which breaks the state-monopoly of the electricity supply system, separates electric power generation and electric grid operation into sectors, and promotes market competition. Both the Erlang Dam Step Hydropower Project and Auxiliary Hydropower Project of Dongfanghong Transferring Wei River for Irrigation Project were developed before 2002.

· Erlang Dam Step Hydropower Project is a complex project involving transferring more than 0.2 billion m³ water from Jialing River to Han River, which is one of the key projects listed in the Eighth Five Year Plan of Shaanxi Province and one of the Top-Priority 20 projects to Shaanxi's development.⁷ It was invested by the government of Shaanxi Province by 2000 and its bus-bar tariff was determined according to the principle of full-cost recovery⁸. Under the principle of full-cost recovery, the bus-bar tariff is defined as the sum of (1) per kWh electricity generation cost, (2) per kWh taxes and fees and (3) per kWh preset reasonable profit. This policy was issued to encourage investment in the power industry. Therefore the Erlang Dam Step Hydropower Project supported by this policy didn't have any investment risk.

· Auxiliary Hydropower Project of Dongfanghong Transferring Wei River for Irrigation Project was put into operation in 1970⁹, far earlier than the Project. This project was invested and operated by the government at the age of Planned Economy, so the developer didn't have any investment risk.

The Project is invested by a private company and the favorable policies for the bus-bar tariff (the principle of full-cost recovery) had already been cancelled in 2001¹⁰. Therefore the above two projects possess incomparable advantages over the Project in respect of investment environment.

To summarize, existing grid connected hydropower projects in Shaanxi Province with a commensurate scale to the Project possess incomparable advantages over the Project in respect of regulation characteristics, investment per kW and investment environment.

6 *Annual of China's Water Power* (volume 6) (data of 1998-2000)P219.

7 http://www.chinawater.com.cn/newscenter/df/shx/t20060724_184381.htm,

<http://www.sx-sigc.com/web-site/y/right?id=33&col=%B5%E7%C1%A6%CF%E0%B9%D8&on=right>

8 Ministry of Water Resources and Electric Power, State Economic Committee and State Price Bureau, *Note on Implement methods of Various Power Tariff* (No. 101 Shuidiancaizi[1987])

9 <http://zhidao.baidu.com/question/11298801.html>

10 State Planning Committee, *Notice on Standardizing Electricity Tariff Management* (No. 701 Jijiage[2001])

As per the *Tool for the demonstration and assessment of additionality*, “if Sub-steps 4a and 4b are satisfied, i.e. ... (ii) similar activities are observed, but essential distinctions between the project activity and similar activities can reasonably be explained, then the proposed project activity is additional”.

Therefore, the analysis carried out in Step 4b in Section B.5 of the PDD to draw the conclusion that the Project is additional satisfies the requirement of sub-step 4b of the *Tool for the demonstration and assessment of additionality*.

Issue 5:

The DOE is also requested to provide a detailed description of the steps taken and evidence examined to determine that the benefits of the CDM were seriously considered prior to the start date.

Our clarifications:

At the time of preparing the Feasibility Study Report, the project owner had a clear awareness of the poor financial performance of the Project. They endeavored to find out whether the Project can be carried out with certain kind of support.

In February 2005, the enforcement of the *Kyoto Protocol* attracted the project owner's attention. Knowing that the *Kyoto Protocol* had been enforced and the Clean Development Mechanism provided by the *Kyoto Protocol* could enhance the Project financial performance, the project owner held a board meeting on 09/03/2005 (Annex 3 ‘Board Meeting Minute’) and decided to implement the hydropower project with CDM assistance.

Meanwhile, the project owner started to look for a qualified CDM developer. Three months later, on 06/06/2005, the project owner signed the CDM consultation agreement (Annex 4 ‘Emission Reductions Cooperation Agreement’) with Beijing Haohua Jianghe International Water Conservancy Consultation Co., Ltd (hereafter referred as Haohua). Additionally, Haohua promised to find CERs buyers to ensure the future CDM revenue for the project owner. Based on the confidence to obtain additional CDM revenue to overcome the investment barriers and make the Project financially attractive, the project owner started construction on 11/06/2005 (Annex 5).

In conclusion, CDM had been seriously considered prior to the commencement of the Project. The above information has been provided in Section B.5 of the revised PDD.

Issue 6:

Further clarification is required on the summary of the stakeholders comments received.

Our clarifications:

As described on Page A-44 of the validation report, the stakeholders' comments on the implementation of the Project have been collected twice.

In July 2005, Shaanxi Water Engineering Exploring and Planning Research Institute conducted a survey on the local residents possibly impacted by the Project as a part of the *Environment Impact*

Assessment Report (hereafter referred to as the EIA report). The DOE has validated this document and confirmed in the validation report that “In the EIA report, the process and result can be found. It was described in the EIA report that the result of public comments has no significant environmental impact and the project would be beneficial to the local economic development.”

From March to April 2006, the project owner introduced the hydropower plant and CDM to the residents near the project site, and then attached a letter to villages’ billboards for more than 15 days to collect public opinions. As described in Section E of the PDD and on Page A-44 of the validation report, “no negative comments received”. (Annex 6, Position letter issued by Qingxi village committee)

There were no negative comments from the above surveys. The survey carried out in March to April 2006 was tailored for CDM development, so in the PDD submitted for registration only the results of later survey on stakeholders’ comments were provided.

To supplement the comments collection, PP would like to add a summary of the first survey into Section E of the PDD as below. Please find the revised PDD as attached.

“In July 2005, Shaanxi Water Engineering Exploring and Planning Research Institute conducted a survey on the local residents possibly impacted by the Project as a part of the *Environment Impact Assessment Report* (hereafter referred to as the EIA report). The survey was conducted in form of questionnaire.

For the 100 questionnaires distributed to the stakeholders, 99 pieces returned. The basic information of the respondents is illustrated in Table 4.

Table 4 Basic Information of the Respondents

Education			Age		
Education	No.	Percentage (%)	Age	No.	Percentage (%)
College and above	11	11.1	50 and above	4	4.0
Senior High School	10	10.1	40~50	41	41.4
Junior High School	36	36.4	30~40	37	37.4
Elementary School	42	42.4	20~30	17	17.2

It can be seen that the respondents are adequately representative in terms of age and educational level, and their attitudes towards the impacts of the Project can be a comprehensive reflection of the attitudes of the residents possibly impacted by the Project. According to the 99 questionnaires received:

- 99 respondents (100%) support the implementation of the Project.
- 99 respondents (100%) consider that the implementation of the Project will benefit the local economic development.
- 99 respondents (100%) consider that the implementation of the Project will has no significant impact on environment.”

Issue 7:

The Validation report states that “The State Development and Reform Commission (the Chinese DNA) as issued the Letter of Approval declaring the project complies with the permission



requirements provided for in the Measures for the Operation and Management of CDM Project in China, and assists China in achieving sustainable development". The DOE shall further clarify whether the report is a draft version, as typographical errors in this and following paragraphs suggest, or a final report. A final Validation report shall be submitted.

Our clarifications:

This issue will be explained by the DOE.

Issue 8:

The Validation Report, when indicating the Validation Team Conclusions states that "The IRR in excel has been offered on mail of 13/04. But as you know, there is a little difficult to find a qualified financial expert, the excel document is attached to you. A financial training is arranged on her. The financial expert has checked the calculation of IRR. No problems were found". Further clarification is required on this conclusion.

Our clarifications:

This issue will be explained by the DOE.

Issue 9:

The Validation Report, when indicating the Validation Team Conclusions states that "it was not clear here which footnotes. I have checked the PDD and found the footnote on page 6 and 8 are considered when deciding the baseline.

AMN: Not clear. Please elaborate The Pp has added the cross link in the PPD and this table 5. Please give the conclusion of the validation team". Further clarification is required on the scope and meaning of this conclusion.

Our clarifications:

This issue will be explained by the DOE.

With the above clarification, explanation and additional information, we hope that the CDM Executive Board would be satisfactory and will approve the registration of our project activity in a sooner manner.

Yours sincerely

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