

Members of the CDM Executive Board
 UNFCCC Secretariat
 Martin-Luther-King-Strasse 8
 D-53153 Bonn
 Germany

1st Floor
 Park Central
 40/41 Park End Street
 Oxford OX1 1JD
 UK

Tel +44 (0)1865 202 635
 Fax +44 (0)1865 251 438
 Email uk@ecosecurities.com
www.ecosecurities.com

09 April 2008

Dear Members of the CDM Executive Board,

Request for review – 1539 Liyutang Small Hydropower Project

Please find below our responses to the issues raised as part of the request for review for this project.

- 1. Further details are required regarding how the DOE has undertaken an independent assessment to confirm that the input values used in the investment and sensitivity analyses adequately reflect the true economic situation of the project activity.**

Please refer to the response from the DOE. Furthermore, please refer to Annex 1 for confirmation from National Electric Power Company Zhongnan Survey Design & Research Institute of applicability of values used in FSR.

- 2. The investment and sensitivity analyses should be presented in a transparent manner to allow reproducing the analyses and obtaining the same results as provided for in paragraph 6 of the additionality tool.**

Please see below for information about the investment analysis:

The input values used in the analysis were from the proposed project's: Feasibility Study - approved by the *National Development and Reform Committee*; Power Purchase Agreement (PPA) – from the grid company, Chongqing Kai County Power Supply Co. Ltd; and Water Purchase Contract - signed between the reservoir development company and the developer. Data was used from the three documents in order to ensure the use of the most current values at the time of the decision making. The additionality tool requires that all relevant assumptions are presented in a transparent manner. The relevant assumptions are the following, which are shown in table B.5.3 of section B.5 of the PDD submitted for registration.

Name	Value	Source
Total installed capacity	15MW (6MW for the first level, 9MW for the second level)	Feasibility Study Report
Operating time (hours)	3330 for the first level	Feasibility Study

	3260 for the second level	Report
Income tax (%)	33%	Feasibility Study Report
VAT(%)	6%	Feasibility Study Report
Project Lifetime (year)	20	Feasibility Study Report
Tariff, including VAT (RMB/MWh)	258	PPA
Total Investment (RMB)	103,310,000	Feasibility Study Report
Annual Electricity Production (MWh)	49,330	Feasibility Study Report
Operation Cost (RMB/MWh)	49.33 ¹	Feasibility Study Report and the Water Purchase Contract

The operation cost was calculated based on the data from the FSR and the Water Purchase Contract. The parameters used are in the following table.

Operating costs	Parameters	Source
<i>Salary for employees per year</i>	730,000 [RMB/year]	FSR
Employee benefit percentage	14% for welfare, 17% for pension, 6% for housing Total = 37%	FSR
<i>Cost of benefits payments, based on employee salary</i>	$730,000 \times (37\%) = 270,100$ [RMB/year]	
Power generation	49,330 MWh/yr	FSR
Water price (based on amount of electricity generated)	8.109 [RMB/MWh]	Water Purchase Contract
<i>Cost of water</i>	$8.109 \times 49,330 = 400,017$ [RMB/year]	Calculated
Total investment	103,310,000 [RMB]	FSR
Repair fee (percentage based on the total investment)	1%	FSR
<i>Cost of repairs, based on total investment</i>	$103,310,000 \times 1\% = 1,033,100$ [RMB/year]	Calculated
Total Operation cost	2,433,217 [RMB/year]	Calculated
Operation cost per MWh generated	$2,433,217 / 49,330 = 49.33$ [RMB/MWh]	Calculated

¹ Please refer to the table below for a breakdown of the operating costs.

To further transparency and ease of reproduction of the IRR analysis, the IRR spreadsheet, including the input values, is attached in Annex 5 in the PDD sent for registration; the IRR was calculated as the project IRR. The spreadsheet demonstrates that, without CDM revenue, the IRR is 4.37% which is lower than the applicable 10% benchmark provided by the Ministry of Water Resources in the “Notification of Economic Evaluation Code for Small Hydropower Projects, Document No. (SL 16-95)”.

Please see below for information about the sensitivity analysis.

Four parameters were adjusted in the sensitivity analysis: operational cost, total investment, electricity tariff, and operating hours. The parameters were changed in a range from -10% to +10%. In this range, the project IRR was still lower than the benchmark, as demonstrated in the PDD which was sent for registration.

In addition to the analysis in the PDD, a second sensitivity analysis has been completed to demonstrate how much parameters would have to change in order for the IRR to reach the benchmark. The analysis shows that:

- the operational cost would need to decrease 240%,
- the total investment would need to decrease over 40%,
- the electricity tariff would need to increase over 53%,
- the operating hours would also need to increase over 53%.

Sensitivity analysis of change needed to reach benchmark:

To reach IRR of:	4.37%(project IRR without CDM revenue)	10% (benchmark IRR)
Change in operational costs	0%	-240%
Change in investment costs	0%	-40%
Change in electricity tariff	0%	+53%
Change in operating hours	0%	+53%

In reality, these four scenarios are highly unrealistic as:

- the operational cost cannot decrease by 240% as this would make the operating cost be below zero which is not possible,
- the price of the raw materials (like steel and concrete) is constantly increasing in China² so the total investment could therefore not decrease by 40%,
- the electricity tariff is fixed according to the signed PPA, and therefore will not increase, particularly not by 53%,
- the operating hours were estimated based on over 10 years of historic hydrological

² Barboza, David. “Costs rising, China to export inflation.” *International Herald Tribune*. 01/02/2008.

data as presented in the FSR, so it is highly unlikely that the hours would increase by 53%.

This sensitivity analysis shows that the IRR remains lower than the benchmark for a realistic range of assumptions for the input parameters of the financial analysis. Therefore it can be concluded that the proposed project was not financially attractive.

3. Further clarification is required on how the electricity generation from each of the hydropower plants is to be monitored.

Since the project has not yet started operation³, the location of the revenue meter(s) has not been finalized. According to the current plan, the first level power station will be connected to Zhengba substation and the second level power station will be connected to Zhendong substation. Each of the levels will be monitored separately: the grid company will install a revenue meter for each of the two power stations. The location of the electricity meter(s), including a possible cross-check meter, for establishing the electricity supplied to the grid will be specified in the final agreement between the project developer and the grid operator prior to the start of operation of the project. The monitoring data will be recorded from the installed meter for each power station and will be kept until two years after the end of the crediting period

We hope that the information provided adequately addresses the concerns raised.

Yours sincerely



Belinda Kinhead
Head of Implementation
belinda.kinhead@ecosecurities.com
Direct line +44 (0) 1865 297 132
Direct fax +44 (0) 1865 251 438

³ Operation is expected to commence in June 2008.

Annex 1

Confirmation from National Electric Power Company Zhongnan Survey Design & Research Institute of applicability of values used in FSR

证 明

重庆市水利投资（集团）有限公司：

我公司于2001年编制的关于鲤鱼塘梯级水电站项目的可行性研究报告中提到的，关于计算项目内部收益率的数据是根据实际情况取得，完全属实。鉴于项目2006年开工建设，根据当时的实际情况，可研报告中的投资和运行成本会略有变化但仍可使用。投资和运行成本会略有提高，可能会导致内部收益率略有下降。

特此证明。本证明只可用于鲤鱼塘梯级水电站项目申请CDM过程中。

国电公司中南勘测设计研究院

(章)

二〇〇八年四月七日

Annex 1 (translation)
Confirmation from National Electric Power Company Zhongnan Survey Design & Research
Institute of applicability of values used in FSR

Certification

Chongqing Water Resources Investment (Group) Co., Ltd :

In the Feasibility Study Report of Liyutang Cascade Hydro Power Project made in 2001, the data for the Internal Rate of Return was chosen based on the actual situation at that point of time and they were reasonable. Since the project started construction in 2006, the total investment and the operation costs in the Feasibility Study Report would have varied moderately due to the current circumstance, but still valid and acceptable. As the investment and operation costs increased moderately, the Internal Rate of Return would be lower as a result.

This certification is only permitted to be used in the CDM project application.

The Mid-South Design and Research Institute of the National Electricity Corporation

(Stamp)

7 April, 2008