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Members of the CDM Executive Board
UNFCCC Secretariat
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08 October 2008

Dear Members of the CDM Executive Board,

Request for review – 1804 Hejiang County Yuanxing Hydro Project

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

Request 1. The DOE is requested to clarify how it has validated the input values used in the IRR calculation following EB 38, paragraph 54, including the use of fixed input values (tariff and operating costs).

Although this question is directed towards the DOE, we would like to provide the following additional clarifications:

The financial analysis was carried out using input values from the Adjusted Preliminary Design Report[1] (Adjusted PDR), except for the electricity tariff, which was taken from the Power Purchase Agreement (PPA). The Adjusted PDR was completed by Sichuan Yibin Hydro Power Architecture, Survey and Design Institute, an independent entity accredited by the Chinese government to carry out independent PDRs, on 26 April 2005. The assumptions and data sources for the Adjusted PDR are based on relevant national standards and criteria, from the "Economic Evaluation Code for Small Hydropower Project (Document No. SL16-95)", in accordance with Chinese procedures. The Adjusted PDR was then assessed by designated independent experts and finally approved by the Development and Reform Committee of Luzhou City on 30 December 2005. A validation of the Adjusted PDR was undertaken by the DoE and it was found to be reliable and in accordance with Chinese accounting practices. Once a loan intent letter was obtained from the bank, the project developer signed a PPA with Luzhou Yuyu Power Co.,ltd. on 18 December 2005 and the Adjusted PDR was approved on 30 December 2005. Only then was the project developer able to proceed with the project activity and the construction approval was granted on 16

[1] The initial PDR was completed for a 12 MW hydropower plant by the same institute as the Adjusted PDR (Sichuan Yibin Hydro Power Architecture, Survey and Design Institute) in March 2004 and it was co-approved by Development and Reform Committee of Luzhou City and Water Resources Bureau of Luzhou City in May 2004. It was later decided that a 15MW installed capacity instead of a 12 MW would be more appropriate at the defined site and in order to meet the rising electricity demand. An Adjusted PDR was thus commissioned.

January 2006 by the Water Resources Bureau of Luzhou City. There are 9 months between the finalization of the Adjusted PDR and the start of the project activity and less than a month between the signature of the PPA and the start of the project activity, and between the approval of the Adjusted PDR and the start of the project activity. Given this relatively short period of time, it is unlikely in the context of the project that the input values would have materially changed.

Event	Date
Finalisation of the Adjusted PDR	26 April 2005
Loan intent letter from the bank	20 November 2005
Signature of the Power Purchase Agreement	18 December 2005
Approval of the Adjusted PDR	30 December 2005
Construction approval (start date)	16 January 2006
Equipment Purchase Agreement	02 April 2006

The financial analysis of the Project was carried out according to the "Economic Evaluation Code for Small Hydropower Projects (Document No. SL16-95)", and other relevant standards applicable to the proposed project. Using fixed values for the financial analysis is in accordance with SL 16-95, which stipulates that the current price, determined at the time of the assessment, should be used for the input values for the financial analysis. This guideline is consistently applied as common practice in China.

Furthermore, the tariff is set by the grid company according to regulations from the government and is outside the control of the project developer; therefore it was not possible to predict with certainty what would happen to the tariff in the future. Likewise, operating costs are subject to cost increases determined by macroeconomic trends, of which the predominant trends have been rapid rates of increase, as discussed below. Therefore as a conservative approach, cost increases for both the tariff and the operating costs were not included in the financial analysis. Future increases in electricity tariff were accounted for in the sensitivity analysis, which demonstrated that even with optimistic rates of increase in the tariff, the project activity remained financially unattractive. The input values for the financial analysis are discussed in detail below.

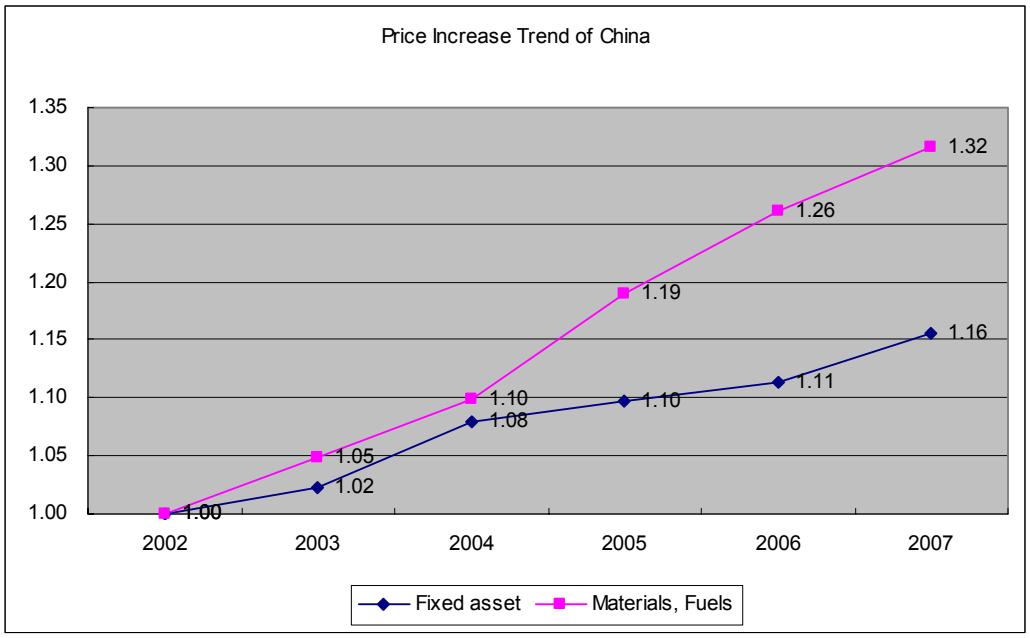
Investment costs

Total investment estimated in the Adjusted PDR was RMB102,300,000. This figure was used in the financial analysis in the PDD. The actual investment was audited to be RMB142,325,300 by Sichuan Changjiang Certified Public Accountant (CJCPA) in January 2008 in the Corporate Accounting Report[2]. The main reason for this 39% cost increase is the rise in the price of construction materials and equipments, together with some construction barriers. This is further evidenced by contracts and invoices provided to DNV. The approach followed in the PDD using the estimated investment costs from the Adjusted PDR (valid at the time of decision making) is thus conservative.

[2] Provided to DNV.

Operating costs

The operating costs are calculated according to the parameters from the approved Adjusted PDR, in accordance with SL 16-95. The operating costs are calculated predominantly based on Maintenance fees, Staff salaries and welfare, Materials, and Reservoir maintenance fees, and amount to a total of RMB1,791,700 per year, which represents only 1.7% of the total estimated investment costs. The sensitivity analysis shows that a 134% decrease in operating costs is needed for the IRR to reach the benchmark. This means that even if the project incurred zero operating costs over the project lifetime, which is not feasible, the IRR would remain below the benchmark. In addition, material and fuel prices[3] as well as staff salaries have been increasing in the past years in China[4] (see the tables below, using official data released by the National Bureau of Statistics of China). This emphasizes that, besides being in accordance with SL 16-95, the use of a fixed value for the operating costs is conservative.



Source: National Bureau of Statistics of China

Annual average salary in China (2000-2006)

Year	2000	2001	2002	2003	2004	2005	2006
Salary (RMB)	9,397	10,870	12,422	14,040	16,024	18,364	21,001

Source: National Bureau of Statistics of China

[3] See Statistical Communiqué of the People's Republic of China. National Bureau of Statistics of China (http://www.stats.gov.cn/english/StatisticalCommuniques/)

4 See China Statistic Year Books (2003-2007). National Bureau of Statistics of China (http://www.stats.gov.cn/tjsj/ndsj/)

Electricity tariff
The tariff used in the PDD is the tariff agreed in the PPA, signed in 2005, at the time of decision making. The PPA offers two tariffs: 230 RMB/MWh for the first 3,700 hours of operation and 190 RMB/MWh for the hours in excess of these 3,700 hours. The financial analysis in the PDD uses the higher of these two tariffs, which is a conservative assumption. This tariff is already above the average for projects connected to the Sichuan Province grid (where the project is located) and Guizhou Province Grid (to which the project exports electricity) at the time of the decision making (190 RMB/MWh in Sichuan Province and 178 RMB/MWh in Guizhou Province for small scale hydro power projects), as indicated in the PDD. In addition, the National Development and Reform Commission, which regulates the power production, issued in May 2005 the "Provisional Measures for the Administration of the Electricity On-Grid Tariffs" – document NDRC [2005] NO.514, which aims to regulate the determination of the electricity tariff offered to power producers in order to stabilize tariffs and increase the competitiveness of the electricity market. The effect of this price stabilization is illustrated by the fact that the current average tariffs in the two Provinces are similar to the tariffs applicable at the time of decision making[5]. As mentioned above, the tariff is set by the grid company according to regulations from the government and is outside the control of the project developer; therefore it was not possible to predict with certainty what would happen to the tariff in the future. The sensitivity analysis shows that a 20% increase in the electricity tariff over the lifetime is needed for the benchmark to be reached. This was extremely unrealistic for the Project developer to consider at the time of the investment decision. Considering that the operating costs are fixed, that the actual investment costs are 39% higher than the costs in the Adjusted PDR that were used in the financial analysis, and that SL 16-95 stipulates that input values in the financial analysis should remain fixed, it was deemed reasonable to consider a fixed electricity tariff in the financial analysis.

Power supplied to Grid
The designed operating hours of the proposed Project were determined based on 38 years of historical hydrological data, on data about electricity demand of the Grid and on technical performance of installed capacity. As such, the operating hours are only likely to fluctuate within a small range. Electricity supplied to the grid will be further discussed in response to Request 2. Actual expected power supply to the grid is more than 16% lower than expected in the Adjusted PDR, which clearly shows that the power supplied to grid expected in the Adjusted PDR was conservative from the point of view of additionality.

Request 2. The PP/DOE is requested to clarify how the reported parasitic power loss of 18% is appropriate in the context of the underlying project activity.

Response:
The 18% figure does not represent "parasitic power losses", as mistakenly indicated in the PDD, but rather the difference calculated between the electricity generated by the station and the electricity actually supplied to the grid. Sections 3.3 and 3.4 of the Economic Evaluation Code for Small Hydropower Project (Document No. SL16-95)[6], applicable to the proposed

[5] See www.china5e.com/dissertation/power/20070907155107.html
[6] Document issued by the Ministry of Water Resources, 1995 (http://www.cws.net.cn/guifan/bz%5CSL16-95)

project and widely applied in the development of design documents of small hydropower projects in China and in the economic assessment of these projects, gives a method to calculate the expected electricity supplied to the grid by a small hydropower station. Section 3.3.2 of SL 16-95 states that the electricity supplied to the grid by a project is calculated as the designed electricity generation * effective factor for supply to the grid * (1 – the internal power use). The effective factor reflects the quantity of electricity that can be sold to the grid by the project compared to what is generated. This is the main reason for the difference between the expected electricity generated and the expected electricity supplied to the grid by small hydropower stations. The choice of this factor is dictated by Section 3.4 of SL16-95 and depends on the type of hydropower station:

Table. Calculation of the power supply to the grid – effective factor

Type of hydropower station	**Effective Factor**
1.Grid connected, annual/pluriennial regulating stations	0.95-1.00
2.Grid connected, seasonal regulating stations	0.90-0.95
3. Grid connected, monthly/weekly/daily regulating stations	
The grid will take all electricity generated in rainy season and night	0.80-0.90
The grid will only take part of the electricity generated in rainy season and night	0.70-0.80
4. Not connected to the grid, Daily/No regulating capacity	0.60-0.70

The proposed Project is a grid-connected run-of-river project, with a daily/weekly water regulating capacity[7] and thus it falls under category No.3. The range for the effective factor applicable to this category is 0.7-0.9. This shows that assuming 18% "losses" between the electricity generated by the proposed project and the electricity supplied by the project was reasonable. Even if the most conservative value of the effective factor applicable to the proposed project (i.e. 0.9) is applied and the expected power supply is calculated as expected electricity generated * 0.9 (i.e. other losses neglected), the IRR is 8.51% which remains well under the 10% benchmark.

Table. Expected vs. actual power supply to the grid

Parameter	**Expected (Adjusted PDR)**	**Actual (Grid company[8])**
Annual power generation (MWh)	65,530	64,907
Effective factor & internal use	0.82	
"Losses" (%) (i.e. power generated but not supplied to the grid)	18% (1 – 0.82 = 0.18)	30.8%
Power supply to the grid (MWh)	53,730 (= 65,530 * 0.82)	44,887

[7] Daily regulating capacity for most of the time and possibly weekly capacity during some parts of the dry seasons
[8] Grid company meter readings – provided to DNV.

Besides, the project started operation in August 2007, therefore there is more than one year of data of generation and electricity supply to the grid. From August 2007 to August 2008, the actual, metered, power generated was 64,907MWh (vs. 65,530MWh expected) and the actual, metered, power supplied to grid was 44,887MWh (vs. 53,730MWh expected), as evidenced by the monthly meters readings from the grid company[9]. This shows that 20,020MWh of electricity generated was "lost" (internal use and not taken by the grid), which represents a 30.8% "loss". This is significantly higher than the 18% "loss" expected in the Adjusted PDR.
This shows that that the power losses estimated in the Adjusted PDR were appropriate and conservative.

Request 3. The DOE should clarify the changes between the PDD published for GSC and the PDD submitted for registration, in particular (a) the project name, (b) location, (c) China grid which will receive the power to be generated, and whether the China DNA has been informed of all these changes.

Although this question is directed towards the DOE, we would like to provide the following additional clarifications:
The reasons for the above mentioned changes between the PDD published for GSC and the PDD submitted for registration are explained below.

Project name

	PDD Version 1 (for GSC)	**PDD Version 2 (for registration)**	**Chinese LoA**
Project Name	Yuanxing Hydro Project	Hejiang County Yuanxing Hydro Project	Hejiang County Yuanxing Hydro Project

Reasons for the changes & actions:
The name of the project in the application submitted to the Chinese DNA (NDRC)[10], before the start of validation, is the same as in the PDD version 2 submitted for registration. The name of the project given to and approved by the China DNA was therefore correct, and there was no change to inform the Chinese DNA about. The name of the project in PDD version 1 was a typographical error and it was corrected order to be consistent with the Host Nation Approval in PDD version 2.

[9] Provided to DNV.
[10] See the PDD submitted to NDRC in May 2007, provided to DNV. For the Host Nation Approval, a PDD has to be submitted in Chinese and in English to the Chinese DNA. Since this is usually a few months before start of validation (here 2 months), some changes and typographical errors can be made in the PDD before the submission for validation. This is one reason why there can be discrepancies between the PDD submitted to the Chinese DNA and published for GSC.

Location

	PDD Version 1 (for GSC)	PDD Version 2 (for registration)	PDD submitted to the Chinese DNA for approval
Location	The exact location of the project is defined using GPS coordinates: 103°29′28″E, 30°46′13″N.	The exact location of the Project is defined using geographic coordinates obtained with a Global Positioning System (GPS) receiver: E 106°09′04″ longitude, N28°46′11″ latitude for the power plant and E 106°10′06″ longitude, N28°42′07″ latitude for the diversion dam.	The location of the Project is E 106°09 - E 106°10′ longitude and N28°46′ - N28°42′ latitude.

Reasons for the changes & actions:
In the Adjusted PDR, the location of the Project is: E106°09′ longitude, N28°46′ latitude for the power plant and E106°10′ longitude, N28°42′ latitude for the diversion dam. This data was used in the PDD submitted to the Chinese DNA for the Host nation approval[11], before the start of validation. The location of the project given to and approved by the China DNA was therefore correct, and there was no change to inform the Chinese DNA about.
The geographic coordinates in PDD version 1 were a typographical error. This was corrected according to the Adjusted PDR and refined after a cross-check with a GPS receiver during the validation site visit.

China Grid

	PDD Version 1 (for GSC)	PDD Version 2 (for registration)	PDD submitted to the Chinese DNA for approval
Grid	Central China Power Grid	South China Power Grid	Central China Power Grid

Reasons for the changes & actions:
The Project is located in Yuanxing County, in Sichuan Province, near the border of Guizhou Province. The Adjusted PDR specifies that the electricity generated by the Project will be delivered to the Ganyu Transformer station, operated by Luzhou Yuyu Power Co.,ltd. It does not mention either the provincial grid or the regional grid to which the electricity will then be exported by the local grid company. This is decided by the local grid company and the local government, generally shortly before the start of operation, and is outside the remit of the project developer. At the time of PDD development, it was not decided yet to which provincial grid the local grid company would export the electricity generated by the project; it was concluded by the CDM consultant that the project would export electricity to the Central China Power Grid, since the project is located in Sichuan Province, which is included in the Central China Power Grid. However, since the project is very close to the border with Guizhou Province, it was later decided that the local grid company would supply the electricity to the Guizhou power grid instead, which is part of the South China Power Grid[12].

[11] See the PDD submitted to NDRC in May 2007, provided to DNV.
[12] See the Clarification on electricity transmission of Hejiang County Yuanxing Hydro Project. The purchased electricity from the Project will be finally supplied to SCPG through Guizhou Power Grid – March 2008.

The local government, by approving the project, approved that the project would supply the electricity to the Ganyu Transformer station, which is the actual situation. The Chinese DNA reviewed this approval. The project is not connected to the Central China Power Grid.

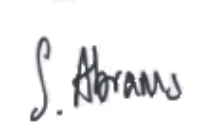
Since :

- The project is in line with what was approved by the local government (the change made was outside the remit of the project developer);
- The Letter of Approval from the Chinese DNA does not regulate to which grid the electricity generated by the Project should be supplied;
- The change of grid does not affect the contribution of the project to sustainable development, its CDM eligibility, or the project design, which are the parameters approved by the Host Nation DNA;
- The change in grid results in a slight decrease in expected CERs (the emission factor of the South China Power Grid is lower than the emission factor of the Central China Power Grid), hence the CERs to be generated by the project will not exceed the cap indicated in the Chinese LoA;
- The project name and location provided to the Chinese DNA were correct;

we believe that the validity of the LoA was not questioned and therefore that there was no need to inform the DNA of this change. However, based on this request for review, EcoSecurities has now sent a notification to the Chinese DNA informing them about the above mentioned change.

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

Yours sincerely,



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