



JAPAN CONSULTING INSTITUTE

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Date : 12 June 2008

Ref. No.: JCI-CDM-C-08-042

CDM Executive Board
c/o Mr. Kai-Uwe Barani Schmit
Manager CDM Section

Subject : DOE and Project Participants Response
on the Request for review for registration request

(Reference No.1605: Shaba 24MW Hydropower Project in Yunnan Province, China)

Dear Sirs,

Please find the attached document which shows JCI's response and the Project Participant's response on the request for review to the CDM project with the reference number 1605.

In case you have any further question or request, please let us know by phone call or Email.

Yours sincerely,

A handwritten signature in black ink, appearing to be 'H. Sato', is written over a horizontal line.

Hideyuki Sato

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Initial Response of DOE and Project Participants to Review Requests

Project title: Shaba 24MW Hydropower Project in Yunnan Province, China

Reference No.: No.1605

Project Participants: Yunnan Dali Xianglong Energy Development Co. Ltd.

Marubeni Corporation

(CDM consultant: Beijing Haohua River International Water
Engineering Consulting Co. Ltd.)

DOE: Japan Consulting Institute, JCI

Issue 1: Further clarification is required regarding whether costs incurred before March 2006 have been included in the investment analysis, and if so justification should be provided for this.

Response of JCI:

The proposed project started its planning in 2003 and the FS Report completed March 2005 as shown in the PDD. At that time the project was as a business without CDM support. The project started a construction in June 2005 and afterword the project encountered with financial problems due to investment cost increase and stopped construction works.

The project owner discussed with the stakeholders and consultant to overcome the financial problem and started studying CDM. The Yunnan Lingyu Water Resource Design Institute estimated the investment cost increase and prepared the report /Annex 1/ in which it was nearly 24million Yuan. The meeting in which was participated by the local governments, the design institute, the project owner and the CDM consultant was held at 8th Dec., 2005 and the above report was submitted to the meeting. The minutes of the meeting showed the serious consideration the stakeholders participated in the meeting and decided to apply CDM registration /19/.

The project owner signed the CDM consult agreement with Beijing Haohua Rivers International Water Engineering Consulting Co. Ltd., 12th Dec., 2005. And the Branch Bank of China Agricultural Bank agreed to provide the extra loan to the project with condition of CDM application on 16th January, 2006 /Annex 4/. Then the proposed project restarted a construction on March 2006.

According to the below Project Participant's response the cost incurred before March 2006 was 4.7928 million Yuan that was about 3.7% of total investment. The financial analysis including sensitivity analysis in the PDD used the Total Static Investment of 128.42 Million Yuan which included the cost incurred before March 2006.

Generally, the financial performance of a specific part of the project may be individually evaluated



if investment and return from the respective part of the product can be clearly separated. Otherwise the financial performance of a project is to be evaluated at any point of time during construction phase on the basis of the total investment cost that is necessary to complete overall project construction. In this specific case, the revenue from the sales of electricity cannot be separated for each part, i.e. initial construction phase and the remaining phase. Therefore the financial performance of this specific Project shall be evaluated on the basis of the total static investment that is necessary for both initial phase and the remaining phase.

JCI considers that the scheme of evaluation of the financial performance of the Project employed in the PDD is reasonable.

Response of Project Participant:

Costs incurred before March 2006 have been included in the investment analysis. According to six proofs for the Monthly Expense Payment, the actual expense payment each month from June 2005 to December 2005 is as follows:

During 17/06/2005-25/07/2005: the expense payment was 2.18198million Yuan;

During 26/07/2005-25/08/2005: the expense payment was 0.647034million Yuan;

During 26/08/2005-25/09/2005: the expense payment was 0.500784million Yuan;

During 26/09/2005-25/10/2005: the expense payment was 0.583496million Yuan;

During 26/10/2005-25/11/2005: the expense payment was 0.670202million Yuan;

During 26/11/2005-29/12/2005: the expense payment was 0.209342million Yuan;

The sum during 17/06/2005- 29/12/2005 is 4.7928 million Yuan. The construction work stopped at December 2005 and after that there was no cost incurred until the construction restart in March 2006.

Moreover the IRR was also checked in case that 4.7928million Yuan was reduced from the investment analysis. The results were such that the IRR was changed to 8.30% from 7.77% without CER which was still lower than the benchmark of 10% so the proposed project was still additional. The IRR with CER was changed to 15.23% from 14.53%. The six proofs for the Monthly Expense Payment have been submitted to DOE. The related IRR calculation Excel sheets using the reduced investment were also submitted to DOE.

Issue 2: The DOE shall confirm how it has validated that the input values used in the investment analysis taking note of the guidance provided in EB 38 paragraph 54.

Response of JCI:

The input values used in the investment analysis of the PDD were as below table that compared with those values used in the FS Report.



Item	Parameters	Unit	FS Report	PDD
1	Installed Capacity	MW	24	24
2	Total Static Investment	Million Yuan	104.17	128.21
3	Annual O&M cost	Million Yuan	2.7108	2.7108
4	Annual grid-connected electricity generation	GWh	118.51	118.51
5	Feed-in Tariff (including VAT)	Yuan/kWh	0.20	0.16
6	Rate of Value Added Tax (VAT)	%	6	6
7	City building and maintenance tax rate	%	3	3
8	Surcharge for education	%	1	1
9	Income tax rate	%	33	33
10	Project life time	Year	20	20

From above table all input values are same between FS Report and PDD except Total Static Investment and Feed-in Tariff (including VAT).

The reason of increase of Total Static Investment was reported by the document issued by Yunnan Lingyu Water Resource Design Institute that was attached as Annex 1. The increased costs and reasons are shown item by item. This report was approved by all participants of the meeting on 8st Dec., 2005 to decide an application of CDM registration /19/. The participants were the local governments, the design institute and the CDM Consultant who had specific local and sectoral expertise ability. At the same time, this report was confirmed and approved by Supervision Office of Shaba Hydropower Station of Mingxing Project Supervision and consulting Co., Ltd in Sanming City on 6th December 2005. JCI evaluated the report and judged that the investment increase was appropriately confirmed.

The reason of decrease of Feed-in Tariff (including VAT) was based on the document issued by Yunnan Province Development and Reform Commission /Annex 3/. The DRC showed seasonal Tariffs depend on river water rate and then the average Tariff was calculated using such Tariffs and seasonal electric generation rates. The details were explained by the attached document Annex 2. The revision of Feed-in Tariff was a policy of the local government and the project owner should conform to it.

The paragraph 54 of EB 38 shows as followings.

54. The Board clarified that in cases where project participants rely on values from Feasibility Study Reports (FSR) that are approved by national authorities for proposed project activities,



DOEs are required to ensure that:

- (a) The FSR has been the basis of the decision to proceed with the investment in the project, i.e. that the period of time between the finalization of the FSR and the investment decision is sufficiently short for the DOE to confirm that it is unlikely in the context of the underlying project activity that the input values would have materially changed.
- (b) The values used in the PDD and associated annexes are fully consistent with the FSR, and where inconsistencies occur the DOE should validate the appropriateness of the values.
- (c) On the basis of its specific local and sectoral expertise, confirmation is provided, by cross-checking or other appropriate manner, that the input values from the FSR are valid and applicable at the time of the investment decision.

JCI judged as follows regarding the above requirements.

- (a) The FS Report has been completed in March 2005 and approved by the local Development and Reform Commission on 2nd June, 2005. The commencement of the project construction was 17th June, 2005 and the serious CDM consideration was undertaken in December 2005. Then JCI judges that the period of time between the FS Report completion and the investment decision was sufficiently short.
- (b) The all values used in the PDD are fully consistent with the FS Report as shown above table except Total Static Investment and Feed-in Tariff (including VAT). As the above explanation JCI judges that these changes were reasonable and appropriate.
- (c) The all input values are confirmed by JCI. The FS Report was approved by the Yunnan Province Development and Reform Commission and the document for the reason of increase of Total Static Investment was approved by the all attendants of meeting including the local government, the design institute and the CDM consultant who had specific local and sectoral expertise ability. At the same time, this report was confirmed and approved by Supervision Office of Shaba Hydropower Station of Mingxing Project Supervision and Consulting Co., Ltd in Sanming City on 6th December 2005. The Bank agreed with the investment increase and promised the extra loan because the project applied CDM. Annex 4 is the Loan Consent Letter from the Yangbi Country Sub Branch of Agricultural Bank of China on 16th January, 2006. The various tax rates used in the FS Report were confirmed by the documents issued by the relevant official organizations^{1 2} which were submitted to JCI.

¹ <http://www.yngs.gov.cn/portal/site/site/portal/yngs/showPContent.jsp%5BcontentId=110320%5D%5BcategoryId=100545%5D%5BcategoryCode=001035004002%5D>

² <http://220.163.166.183/zcfg/ZcfgCon.aspx?id=681>



JCI considers that the all input values used in the PDD were reasonable and appropriate.

***Issue 3:** Further clarification is required on how the DOE has validated that the CDM was considered necessary to overcome the barriers to the development of this project activity, particularly in context to the delay by one year and eight months to initiate validation.*

Response of JCI:

The barrier of this project was financial problem that JCI validated in the Validation Report and the Response to above Issue 2.

Regarding the development of this project activity after the serious CDM consideration and the decision for CDM application is shown in the Response of Project Participant below.

About one year was needed to search the CER buyer but after that the project owner and the CDM consultant have worked the necessary procedures step by step. The Project participants have submitted the relevant evidence to show the above activities to JCI.

JCI judged that one and eight months to initiate validation were tolerable length for searching partner and preparation of CDM documents.

Response of Project Participant:

After CDM consideration and re-beginning of construction of the proposed project, the project owner did the related CDM work in the following procedures:

2005	12 th December	CDM consul agreement signed between the project owner and Beijing Haohua Rivers International Water Engineering Consulting Co., Ltd.	
2006	From March to June	The consult company Beijing Haohua Rivers International Water Engineering Consulting Co. Ltd organized some CERs buyers and validators went to the on site visit of the proposed project and did the on site survey of the proposed project	The trip record
	From July to December	The consult company prepared the PDD and PIN and seek for the CERs buyers with the project owner	The work record
2007	From January to April	Contacted with the CERs buyer Marubeni Corporation and did the commercial negotiation such as CERs price and CERs transfer of the proposed project	The work record
	25 th May	The CDM Development Agreement for the proposed project signed between the Beijing	The CDM Development Agreement between the



		Haohua Rivers International Water Engineering Consulting Co. Ltd and Marubeni Corporation	CERs buyer and the CDM consult company
	1 st June	Applied for China DNA to acquire the LOA from China	The application letter to China DNA
	10 th July	The ERPA signed between the project owner and the Marubeni Corporation	The ERPA agreement
	30 th July	The review meeting by China DNA to review the proposed project and other CDM project in China	The meeting notice of the 34 th review meeting by China DNA
	13 th August	The CDM Validation and Registration Service Agreement signed between Marubeni Corporation and Japan Consulting Institute.	The CDM Validation and Registration Service Agreement.
	22 nd August	The public comment of the proposed project was started.	http://cdm.unfccc.int/Projects/Validation/
	30 th September	The LOA from China was acquired	The LOA from China DNA

Attachments;

Annex 1 The explanation Report on the increase of investment of Shaba Hydropower Station

Annex 2 Specification on the data source of average tariff 0.16 yuan/kWh

Annex 3 Yunnan province Development and Reform Commission's notice on the price of Yunnan grid uncontrolled grid-connected peak and valley tariff and relative issues.

Annex 4 The Loan Consent Letter from the Yangbi Country Sub Branch of Agricultural Bank of China.

The document reference number of the Validation Report

/19/ Meeting minutes for CDM investigation of Shaba Hydropower Project

Yangbi County in Yunnan Province

The explanation Report on the increase of investment of Shaba Hydropower Station

Yunnan Lingyu Water Resource Design Institute

1st Dec. 2005

Project Exploration Certification

Grade III

Name of institute: Yunnan Lingyu Water Resource
Design Institute Co., Ltd

Business scope: Grade III of project exploration
specialty (project measurement)

No. of certification: 232051-kb

Term of validity: ****

Issuance Department:

14th Oct., 2005

Project Designing Certification

Grade III

Name of institute: Yunnan Lingyu Water Resource
Design Institute Co., Ltd

Business scope: Grade III of water resource industry;
Grade III of electric power industry (hydro electric power
generation)

No. of certification: 232051-sb

Term of validity: ****

Issuance Department:

14th Oct., 2005

The explanation Report on the increase of investment of Shaba Hydropower Station

1. General information

Shaba Hydropower Station is located in Maidi Town of Yangbi County, Baizu Autonomous State, Dali City, Yunnan Province. The proposed project is located in the upstream section of Yangbiji River, a 1st Level tributary of Lancangjiang River which belongs to Lancangjiang River System. It is the 2nd Cascade Hydropower Station in the planning of Yangbiji Riverbasin. The proposed project is a hydroelectric project, of which the only task is electricity generation. The installed capacity of the proposed project is 3*8000kW. According to “Standard for Classification and Flood Control of Water Resources and Hydroelectric project” (SL252-2000), It belongs to Type Small (I), Grade IV projects.

The proposed project is a division-type power station. The overall layout of Shaba power station project is: the dam used for intaking water is constructed in the river section in Geluo natural village of Shaba Commune, Jiangqiao Village, Maidi Town, which is in the upstream section of Yangbiji River. The water intaken flows through a 346.5m open diversion canal and a 1825m diversion tunnel to the pressure forebay, and subsequently it flows through penstock to the powerhouse for electricity generation. The proposed project is consisted of water intaken project, water division system, pressure forebay, penstock and powerhouse.

In Dec. 2003, the “proposal of Shaba Hydropower Station Project” was compiled by Yunnan Lingyu Water Resource Design Institute Co., Ltd. After the assessment by experts from Yunnan Provincial Development & Reform Committee, the “Approval of the proposal of Shaba Hydropower Station Project in Yangbi County, Dali City” [Yunfagainengyuan (2004) 1170] was issued on Dec., 2004 by Yunnan Provincial Development & Reform Committee. According to the comments from the approval by provincial Development & Reform Committee, the Feasibility Study Report was finished by Yunnan Lingyu Water Resource Design Institute Co., Ltd in March 2005. Afterwards, according to the requirements of the “notification about issuance of six documents about reform of investment system, such as ‘implemented method (interim) of the approval of enterprise-invested projects in Yunnan Province’, by People’s Government in Yunnan Province” [Yunzhengfa (2004) 224], Development & Reform Committee of Dali City, Yunnan Province organized experts for the assessment of the “Feasibility Study Report of Shaba Hydropower Station Project in Yangbi County, Dali City” in April 2005.

Subsequently, Development & Reform Committee of Dali City, Yunnan Province issued the “notification about issuance of the approval of Shaba Hydropower Station Project in Yangbi County” [Dafagaitouzi (2005) 64] in June 2005. The construction of the proposed project was started in June 2005.

2. The reasons for the increase of investment

a) the investment was increased by RMB 6,410,000 because of the price increase of the raw materials

Because of the open of non-governmental investment field in our county, the Thinking Mode that money should be saved in the bank has been changed greatly; Private enterprises in the types of personal sole-investment, partnership, and limited liability etc. were increasing continuously. The national economic development was accelerating. Therefore, the price of raw materials of the project construction was increasing, especially the steel and cement. So far, the price of steel in Dali City was RMB 500-600/ton higher than that in the original budgetary estimation. The price of gravel, riversand, gasoline, diesel fuel, and labor cost were increasing also. The investment of Shaba Hydropower Station was estimated to be increased by about RMB 6,410,000 (the details were shown in the following table):

No.	Name of the material	The amount needed	The price increased per ton	In total (yuan)	Remark
1	Cement	27000 ton	150	4,050,000	
2	Steel	3500 ton	500	1,750,000	
3	Riversand	20000 m ³	5	100,000	
4	Gravel	30000 m ³	5	150,000	
5	Rubble	30000 m ³	5	150,000	
6	Gasoline/diesel fuel	200 ton	80	160,000	
7	Explosion material	(estimated)		50,000	Including explosive, detonating tube
8	In total (yuan)			6,410,000	

b) the investment was increased by RMB 6,004,300 because of water diversion tunnel

The project location involves four faults, with strong regional geological structure and poor stability of the crust. The tunnel is located in Jinzhan large fracture belt with very poor geological conditions. Almost all are stronged

weathered Dianxi red layer (mudstone, expand when there is water and wind), belonging to Type V, surrounding rocks. In the short several-month construction process, one roof fall accident and 13 tunnel collapses have happened, which brought about difficulties for the construction and led to the increase of excavation, bracing and lining cost. Although the construction of tunnel was contracted to China Railway Engineering General Corporation, which is a domestic large-scale construction enterprise (listed in World Top 500), the construction progress was slower than 50% of the original estimated one. The original contract period was 365 days. According to the construction progress so far, the construction period of tunnel has to extend at least one year. The total cost of tunnel original estimated was about 22,330,000 yuan, and the cost per extended meter was 12,372 yuan. But according to the investigation about construction progress, actual cost per extended meter has break through 15,662 yuan (increase more than 3290 yuan). The total cost of tunnel was estimated to increase more than 6,004,300 yuan (1825m*3,290yuan/m).

c) The proposed power station was planned to start electricity generation by the end of June 2006. However, according to the construction progress of tunnel, the construction period has to extend about one year. Thus the interest of loan increased about 3,420,000 yuan (loan 50,000,000 yuan * annual interest rate 6.84% *1 year = 3,420,000 yuan).

d) The construction of Shaba Power Station resulted in no water available for electricity generation for downstream Pingdi Power Station (installed capacity of 2*400kW) and Jiangqiao Power Station (installed capacity of 2*200kW). Once purchase compensation cost (about 8,200,000 yuan) was pay for the two power stations. However, this cost was not included in the original budgetary estimation.

In conclusion, the budgetary estimation will increase at least 24,034,300 yuan. It is suggested that the proposed project owner could pay more attention to this, apply for CDM project actively to get international support, start electricity generation as soon, and exert economic and social benefits for enterprises and the state.

云南省 漾濞县
沙坝水电站增加投资情况的说明

云南凌禹水利水电勘察设计有限公司
二00五年十二月

	
<h1>工程勘察证书</h1>	
<h2>丙 级</h2>	
单位名称:	云南凌禹水利水电勘察设 计有限公司
业务范围:	工程勘察专业类(工程测量)丙 级
证书编号:	232051-kb
有效期:	****
发证部门:	
	2005 年 10 月 14 日

中华人民共和国建设部印制

	
<h1>工程设计证书</h1>	
<h2>丙 级</h2>	
单 位 名 称 :	云南凌禹水利水电勘察设计有限公司
业 务 范 围 :	水利行业丙级; 电力行业(水力发电)丙级
以下空白	
证 书 编 号 :	232051-sb
有 效 期 :	****
发 证 部 门 :	
2005 年 10 月 14 日	
	
中华人民共和国建设部印制	

关于云南大理州沙坝水电站增加工程投资 情况的说明

一、概述

沙坝水电站位于云南大理白族自治州漾濞县脉地镇境内。工程区位于澜沧江一级支流—漾濞江（又称黑惠江）上游河段，属澜沧江水系，是漾濞江流域规划的第二级水电站。电站装机规模 $3 \times 8000\text{KW}$ ，根据《水利水电工程等级划分及洪水标准》（SL252—2000）的规定，该电站为小（I）型工程，工程等别为 IV 等，是一个以发电为单一开发任务的水力发电工程。

电站开发方式为引水式开发。沙坝电站工程枢纽的总体布置为：在漾濞江上游河段一脉地镇江桥村沙坝社格洛自然村处河段上构筑拦河大坝取水，经约 346.5m 引水明渠，1825m 引水隧洞引水至压力池，通过压力钢管引水至厂房发电。工程由取水枢纽，引水系统，压力前池、压力钢管道和厂区枢纽组成。

2003 年 12 月，由我们云南凌禹水利水电勘察设计有限公司编制完成了《沙坝水电站工程项目建议书》，经云南省发改委组织专家组进行评估，2004 年 12 月云南省发改委下达了《关于大理州漾濞县沙坝水电站工程项目建议书的批

复》[云发改能源（2004）1170号]。根据省发改委的批复意见，我们云南凌禹水利水电勘察设计有限公司于2005年3月完成了可行性研究报告。2005年4月云南省大理州发改委根据《云南省人民政府关于印发《云南省企业投资项目核准实施办法（试行）等六个投资体制改革文件的通知》[云政发（2004）224号]的要求，组织专家对《大理州漾濞县沙坝水电站工程可行性研究报告》进行评审后，于2005年6月下达了《关于对漾濞县沙坝水电站建设项目予以核准的通知》[大发改投资（2005）64号]，工程于2005年6月开工建设，目前工程正在施工之中。

二、增加投资的原因

1、因原材料上涨需增加投资 641 万元

由于国家民间资本投资领域的开放，过去人们有钱就存银行的思维已大大改变，个人独资，合伙，有限责任，股份有限等多种形式的民营企业不断增加，国家基本建设的步伐进一步加快，因此，导致工程建设的原材料不断上涨，特别是钢材，水泥等原材料上涨迅猛，到目前为止，大理州境内的钢材每吨比原概算时上涨了500—600元人民币，水泥每吨比概算时上涨了150元左右，碎石，河砂，汽油，柴油，

人工费等都相应涨价。根据测算，沙坝电站因原材料等上涨需增加资金 641 万元左右（详见下表）：

序号	材料名称	工程所需总量	每吨上涨	合计	备 注
1	水泥	27000 吨	150	405 万元	
2	钢材	3500 吨	500	175 万元	
3	河沙	20000m³	5	10 万元	
4	碎石	30000m³	5	15 万元	
5	毛石	30000 m³	5	15 万元	
6	汽柴油	200 吨	80	16 万元	
7	炸材	（估算）		5 万元	含炸药、导爆管等
8	小计			641 万元	

2、由于工作区地处于扬子江地台盐源丽江台缘拗褶带丽江台缘拗褶区与滇西褶皱带兰坪思茅地槽德钦兰坪拗褶区交接部位，区内有四条主要断层，区域地质构造强烈，区域地壳稳定性差。隧道地处金盏大断裂带上，地质条件十分恶劣，几乎全部属于 V 类围岩，且系强风化，见水见风即膨胀的滇西红层（泥岩），在短短的几个月的施工过程中，就已发生大小 13 次隧洞塌方和一次冒顶事故，给施工带来极大困难，造成开挖，初支，二衬成本的增大，虽然隧洞施工是发包给中国铁路工程总公司这样的国内特大型施工企业

(世界 500 强之一)，可每月的施工进度还达不到原预算工程进度的 50%，原合同工期 365 天，但根据目前情况预测，隧洞的工期至少要延长一年时间甚至更多。原概算隧洞工程的总造价约 2233 万元，每延米造价为 12372 元，但根据我们向中铁总公司调查几个月的施工情况，实际每延米造价已突破 15662 元，每延米增加投资 3290 元以上，预算隧洞工程总计将增加投资约 600.43 万元以上 ($1825\text{m} \times 3290 \text{ 元/m}$)。

3、原计划于 2006 年 6 月底电站建成投产发电，但根据隧洞施工进度情况预测，工期将延长一年时间左右，因此造成贷款利息的增加约 342 万 ($\text{贷款 } 5000 \text{ 万元} \times \text{年利率 } 6.84\% \times 1 \text{ 年} = 342 \text{ 万元}$)。

4、概算漏列了因沙坝电站兴建而使位于沙坝电站下游的平地坝电站 (装机容量 $2 \times 400\text{KW}$)、江桥电站 (装机容量 $2 \times 200\text{KW}$) 无水发电所产生的一次性收购补偿费约 820 万元左右。

综上所述，沙坝电站于 2007 年 6 月建成发电，预算将至少增加投资 2403.43 余万元，希业主单位引起高度重视，积极申办 CDM 项目，争取获得国际支持，早日建成投产，为企业和国家尽早发挥经济和社会效益。

Specification on data source of average tariff 0.16yuan/kWh

According to Yunnan province Development and Reform Commission yunfagaijiage (2005) No.792 document, uncontrolled tariff refers to total installed capacity under 25MW, high, plain, low tariff is 0.13 yuan/kWh, 0.18 yuan/kWh, 0.23yuan/kWh respectively, every December to next January to April is low water period, May and November is plain water period; June to October is high water period. Average tariff can't be accounted by $(0.13+0.18+0.23)\div 3=0.18$ yuan/kWh, could be accounted by annual generation division to annual generation sales. Electricity generation in high water period is very high, but tariff is only 0.13yuan/kWh; tariff in plain water period and low water period is higher, but generation is low, so the average tariff is only 0.15-0.16yuan/kWh.

The proposed project has not been operated, but the average tariff is estimated to be 0.159yuan/kWh, account according to the relative hydrology data in "Feasibility Study Report of Shaba hydropower plant in Yangbi county, Dali state", the electricity generation \times expected tariff is as follows:

1. High water period five months

High water period five months meet the need of three generators of 8000kW generation.

1). Generation: $8000\text{kW} \times 3 \times 24\text{hours} \times 150\text{days} = 86400000\text{kWh}$

2).tariff sales: $86400000\text{kWh} \times 0.13\text{yuan/kWh} = 11232000\text{yuan}$

2. Plain water period two months

Plain water period only meet the need of two generators of 8000kW generation.

1). Generation: $8000\text{kW} \times 2 \times 24\text{hours} \times 60\text{days} = 23040000\text{kWh}$

2).tariff sales: $23040000\text{kWh} \times 0.18\text{yuan/kWh} = 4147200\text{yuan}$

3. Low water period five months

Low water period can only meet the need of one generator of 8000kW generation.

1). Generation: $8000\text{kW} \times 1 \times 24\text{hours} \times 150\text{days} = 28800000\text{kWh}$

2). tariff sales: $28800000\text{kWh} \times 0.23\text{yuan/kWh} = 6624000\text{yuan}$

4. Average tariff of high, plain, low water period respectively is:

1). Annual generation:

$86400000\text{kWh} + 23040000\text{kWh} + 28800000\text{kWh} = 138240000\text{kWh}$

2). Annual tariff sales:

$11232000\text{yuan} + 4147200\text{yuan} + 6624000\text{yuan} = 22003200\text{yuan}$

3). Annual average tariff:

$22003200\text{yuan} \div 138240000\text{kWh} = 0.159\text{yuan/kWh}$

According to the annual average tariff in other small-scale power plant in Yangbi County, the tariff is different, the lowest average tariff is 0.15yuan/kWh, the highest average tariff is 0.16yuan/kWh, that is consistent with our expected tariff. So it is expected that the annual average tariff is 0.16yuan/kWh for Shaba hydropower plant.

Dali state Xianglong Energy Development Co. Ltd (Stamp)

关于平均电价 0.16 元/kWh 的依据来源说明

根据云南省发改委云发改价格〔2005〕792号文件，总装机2.5万KW以下为非统调电价，丰、平、枯电价分别为0.13、0.18、0.23元/kWh，每年12月至次年1至4月为枯水季节，5月和11月为平水季节，6至10月为丰水季节。平均电价不能简单地按 $(0.13+0.18+0.23) \div 3 = 0.18$ 元/kWh来计算，而应该以全年总发电收入除以总售电量来计算。由于丰水期发电量大，但电价只有0.13元/kWh，而平水期和枯水期虽电价高一点，但发电量少，故平均电价只有0.15—0.16元之间。

漾濞县沙坝电站尚未建成投运，但可以预算出其平均电价为0.159元/kWh，计算根据《大理州漾濞县沙坝水电站工程可行性研究报告》相关水文资料，其发电量×电价预算如下：

一、 丰水期 5 个月

丰水期5个月基本可以满足3台8000KW机组发电。

1、发电量： $8000\text{KW} \times 3 \text{台} \times 24 \text{小时} \times 150 \text{天} = 86400000\text{kWh}$

2、电费收入： $86400000\text{kWh} \times 0.13 \text{元/kWh} = 11232000 \text{元}$

二、 平水期 2 个月

平水期只能满足2台8000KW机组发电。

1、发电量： $8000\text{KW} \times 2 \text{台} \times 24 \text{小时} \times 60 \text{天} = 23040000\text{kWh}$

2、电费收入： $23040000\text{kWh} \times 0.18 \text{元/kWh} = 4147200 \text{元}$

三、 枯水期 5 个月

枯水期只能满足一台8000KW机组发电。

3、发电量： $8000\text{KW} \times 1 \text{台} \times 24 \text{小时} \times 150 \text{天} = 28800000\text{kWh}$

4、电费收入： $28800000\text{kWh} \times 0.23 \text{元/kWh} = 6624000 \text{元}$

四、 丰、平、枯三季平均电价为：

1、年总发电量：

$86400000\text{kWh} + 23040000\text{kWh} + 28800000\text{kWh} = 138240000\text{kWh}$

2、年电费总收入为

$11232000 \text{元} + 4147200 \text{元} + 6624000 \text{元} = 22003200 \text{元}$

3、年平均电价为

$22003200 \text{元} \div 138240000\text{kWh} = 0.159 \text{元/kWh}$

根据我们询问漾濞县境内其它几家小电站的年平均电价，各有所不同，最低年平均电价为0.15元/kWh，最高年平均电价为0.16元/kWh，与我们预算基本相符。故沙坝电站年平均电价预计在0.16元/kWh比较实际。

大理州祥龙能源开发有限公司



Yunan province Development and Reform Commission Document

Yunfagaijiage[2005]No.792

**Yunnan province Development and Reform Commission' notice on the price of Yunnan grid
uncontrolled grid-connected peak and valley tariff and relative issues**

State and city Development and Reform Commission:

To coordinate the price conflict between local small-scale hydropower uncontrolled tariff in Yunnan grid, regulate the charge verification between grids. According to “Notice on further use the price leverage to accelerate reasonable usage and relative issues by National Development and Reform Commission” (fagaijiage[2005]No.685), connect to the fact of our province, after studying, make the decision to try out the peak and valley tariff on the base of original tariff in high and low water periods, the relative issues are as follows:

1. Uncontrolled electricity refers to local power station not being concluded in province grid unified schedule and annual power balance. The grid-connected tariff implement the high and low periods tariff by yunfagaijiage[2004]No.589 and yunfagaijiage[2004]No.354. high, peace and low periods tariff is 0.13yuan, 0.18yuan, 0.23yuan respectively.(high and low periods separated by December, next January to April is low water period, May and November is peace water period, June and October is high water period)
2. Combine the fact of our province, towards the local power station grid-connected tariff, try out the peak and valley tariff on the base of original tariff in high and low water period, try out the peak and valley tariff in high water period.

According to the character of Yunnan grid, partition of peak, plain, valley periods adopt “eight, eight, eight” period division method. 9:00-12:00and18:00-23:00 total eight hours is peak period; 7:00-9:00, 12:00-18:00 total eight hours is plain period, 23:00-next7:00 total eight hours is valley period,

The baseline tariff of peak period is 0.13yuan/kWh, fluctuate rate is 50%, tariffs of high water period are as follows: peak period is 0.195yuan/kWh, plain period is 0.13/kWh, valley period is 0.065yuan/kWh.

3. Towards the conflict between province grid and local grid, between each local grid, regulate the charge between grids, make decisions as follows: charge between grids should follow the principle of bilateral benefit and equal consultation, charge should base on the voltage level and deliver distance, negotiate within no more than 5minutes/kWh, charge between grids should pay by relative power enterprises, cannot make bold to increase tariff.
4. Local Development and Reform (planning) Commission should strengthen the monitor and inspection of uncontrolled tariff and charge between grids, reflect the problem in implement.
5. Execute the price policy above from the day document issued.

Yunan province Development and Reform Commission (stamp)

30thAugust, 2005

Key words: economic management, tariff

云南省发展和改革委员会文件

云发改价格〔2005〕792号

云南省发展和改革委员会关于对云南电网 非统调上网电量试行峰谷电价及 相关事宜的通知

各州市发展和改革委员会：

为有利于协调云南电网收购地方小水电非统调电量中的价格矛盾，规范电网之间过网费用的核定行为。根据《国家发展改革委关于进一步运用价格杠杆促进合理用电有关问题的通知》（发改价格〔2005〕685号）文件精神，结合我省实际，经研究，决定对省电网收购的非统调电量上网电价在原已实行丰枯电价的基础上，试行峰谷电价，现将有关事项通知如下：

一、非统调电量是指地方电站未纳入省电网统一调度和年度电力电量平衡，并且未与云南电网公司签订年度购售电合同的上网电量。其上网电价执行我委云发改价格〔2004〕589号、云发改价格〔2004〕354号规定的丰枯电价。丰、平、枯电价分别为0.13元、0.18元、0.23元。（丰枯季节划分为每年的12月和次年的1至4月为枯水季节，5月和11月为平水季节，6至10月为丰水季节）

二、结合我省实际，对地方电网（电站）小电上网电价，在实施丰枯电价的基础上，在丰水期同时试行峰谷电价。

根据云南电网运行特点，高峰、平段、低谷时段划分采用“8、8、8”的时段划分法。即 9:00-12:00 和 18:00-23:00 共 8 个小时为高峰时段；7:00-9:00, 12:00-18:00 共 8 个小时为平谷时段；23:00-次日 7:00 共 8 个小时为低谷时段。

峰谷电价的基准电价为 0.13 元/千瓦时，上下浮动比例为 50%，丰水期各时段上网电价分别为：高峰 0.195 元/千瓦时，平段：0.13 元/千瓦时，低谷 0.065 元/千瓦时。

三、针对省电网与地方电网以及地方电网之间存在相互过网购售电的情况，为规范过网费行为，作出如下规定：电网与电网之间发生的过网购售电行为必须遵循互惠互利、平等协商的原则，过网费用由双方根据过网输电的电压等级、输送距离等情况，在每千瓦时不超过 5 分的范围内协商确定，但电网之间发生的过网费用由相关的电力企业消化，不得因此而擅自提高销售电价。

四、各地发展和改革（发展计划）委员会要加强对非统调上网电价及过网费的监督检查，对贯彻实施中的问题及时反映。

五、以上价格政策自发按文之日起执行。

主题词：经济管理 电力价格

抄送：云南电网公司。

云南省发展和改革委员会办公室

2005 年 9 月 2 日印发

打印 李霞

校对 袁晓梅

共印 25 份

ABC (2004)5035

Loan Consent Letter from Agricultural Bank of China

(Yang)Nongyinchenghanzi (2006)No.1

Yunnan Dali Xianglong Energy Development Co. Ltd:

We have received the “Application of loan increasing for Shaba Hydropower Station in Yangbi County” that your company sent. After the investigation by staff from our bank and the validation by relative department that we commissioned, the investment of the proposed project indeed need to be increased due to the increasing material price, extended construction period and increased investment of tunnel resulted from complicated geological structure, and incomplete budgetary estimation.

According to the information that your company offered and because the proposed project has applied for CDM, our Bank herein promises your company RMB 20,000,000 extra loan for Shaba Hydropower Station in the precondition of satisfying the requirements of loan lending of our bank.

This Loan Consent Letter can be used to explain the loan implementation to relative departments. If relative national policies, project construction scheme and investment plan are materially adjusted, or significant changes are happened to the operation and management of the proposed project owner, which induce the proposed project not to satisfy with the requirements of loan lending of our bank, the above consent need to be rechecked by our bank.

The original of this Loan Consent Letter is in effect, with validity period of half year (since the date of issuance).

Yangbi County Sub Branch of Agricultural Bank of China(stamp)

16th Jan., 2006

ABC(2004)5035

中国农业银行贷款承诺函

(漾)农银承函字(2006)第1号

大理州祥龙能源开发有限责任公司:

贵公司《关于漾濞县沙坝水电站建设项目增加贷款的申请》已收悉。经我行派员调查,并委托相关部门进行核实,该项目确实存在因物价上涨、地质结构复杂而引发工期延长,引水隧洞投资增加及部分项目漏算等实际情况需要增加投资。

根据贵公司提供的资料,经研究,鉴于该项目已申报清洁发展机制,我行承诺在符合我行贷款条件的前提下,对贵单位沙坝水电站建设项目增加贷款提供人民币贷款金额(大写)贰仟万元(小写¥20,000,000.00元)的信贷支持。

本承诺函仅用于贵公司向国家有关部门说明该项目的贷款落实情况。如遇国家有关政策变化、项目建设方案和投资计划重大调整以及项目业主发生重大经营变化等因素导致该项目不符合我行贷款条件,以上承诺需经我行重新确认。

本承诺函正本有效,从出具之日起,有效期半年。

