

January 4, 2010

UNFCCC Secretariat  
Martin-Luther-King-Strasse 8  
D-53153 Bonn  
Germany

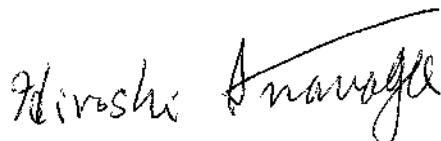
**Response to request for review of project activity 2902 entitled "Changning Kawan 18.9MW  
Hydroelectric Project"**

Dear Members of the CDM Executive Board,

We refer to your request for review of project activity "Changning Kawan 18.9MW Hydroelectric Project" (Ref. no. 2902). Please find below the following clarifications for your consideration and review.

We sincerely hope that the Board accepts our aforementioned explanations.

Yours sincerely,



Hiroshi Inanaga

CEO

Deloitte Tohmatsu Evaluation and Certification Organization (Deloitte-TECO)

## Response to the CDM Executive Board

The purpose of this response is to clarify the proposed project activity of "Changning Kawan 18.9MW Hydroelectric Project" and the relevant validation findings for the request for review, which is notified by UNFCCC secretariat on 21 December 2009. To ensure clarification of the proposed project activity, Deloitte-TECO requested the project participants to provide additional information, such as actual value of investment cost and currently estimated investment till completion, electricity tariff and the explanation regarding the raised electricity related issues, which is discussed in the following section. Deloitte-TECO also requested the project participant to provide their own response for the request for review, which is attached in the latter part of this report. Deloitte-TECO hopes this report helps well understanding of the proposed project activity applying for Clean Development Mechanism.

### Issue raised

*The DOE is requested to further explain how the proposed tariff has been determined for the project activity and provide an assessment as to whether the net return to the investor has been reduced as a result of any reduction in tariffs over recent years, or whether the net return has been unaffected as a result of other changes such as investment costs. It is not clear how the applied tariff, 0.146RMB/kWh, excl. VAT, has been validated as it is in the lower side of the range provided, 0.1379-0.4566RMB/kWh, excl. VAT. As confirmed by the DOE the investment cost of 4,870RMB/kW are below a range of other CDM projects in the region (6,000-9,000RMB/kW).*

### Response by Deloitte-TECO

#### **1 Tariff**

##### **1.1 Proposed Tariff Determination**

The tariff in the FSR was determined according to the Grid Connection Agreement (Appendix 1) between the grid company (Yunnan Baoshan Electric Power Company) and the project owner (Changning County Jia Yuan Electric Power Development Co., Ltd.) on 15 June 2006 before the completion of the FSR was on September 2006. The respective tariff is defined through negotiation between a power station and a grid company. As

result, the tariff (0.146 RMB/kWh excl. VAT) was actually applied for the financial analysis in the FSR because this tariff was the most realistic value at the time of FSR creation. Since then, no such agreement for the tariff of the proposed project has been issued and/or reported. The actual Power Purchase Agreement (PPA) will be contracted after starting its operation.

For cross-check purpose, the invoices of the similar two hydropower stations in Changning County, where the proposed project is located, were obtained to assess actual tariff. Those invoices in September 2009, whose tariffs were 0.145 RMB/kWh (Hexi Shuiku Hydropower Station) and 0.132 RMB/kWh (Changning Gengshunchang Hydropower Station) exclusive of VAT respectively, which those tariffs were even lower than the proposed project (Appendix 2). All those hydropower stations are connected to the same grid as the proposed project. Therefore, the actual tariff of the proposed project can be estimated as the same range.

The comparison analysis with similar registered CDM projects was also conducted and concluded that the tariff of the proposed project was adequate as described later in “1.2 Tariff Validation”.

From the facts presented above, Deloitte-TECO concluded that the estimated tariff used in financial analysis in the FSR/PDD is determined reasonably.

Furthermore, according to the “Guidance on the Assessment of Investment Analysis” of “Tool for the demonstration and assessment of additionality” (EB39, Ann10), the input values should be “valid and applicable at the time of the investment decision”. Deloitte-TECO confirmed in the validation process that the tariff of 0.146 RMB/kWh (excl. VAT) applied in the investment analysis of proposed project is valid and applicable at the time of the investment decision, as the tariff is utilized in the FSR, which was completed in September 2006, approximately seven months before the CDM decision made by the project owner, i.e. April 2007. The time between the completion of FSR and CDM decision is sufficiently short to conclude that the input values are unlikely to be changed materially.

Deloitte-TECO concluded, therefore, the tariff employed in the financial analysis of

proposed project is reasonable.

## 1.2 Tariff Validation

As explained in the validation report, page 18, the tariff of the proposed project was cross-checked whether it was adequate by analyzing the range of similar CDM registered large-scale hydropower projects in South China Power Grid (SCPG), in the range of 0.1379~0.4566 RMB/kWh (excl. VAT). It, however, was considered that the SCPG is rather too wide for this analysis since geographical circumstances, regional economic condition, legislations and other factors may be varied from province to province.

Based on these observations, Deloitte-TECO decided to implement more area specific analysis. The tariff was compared with similar projects, i.e. similar scale hydropower projects (18.9MW±30%) in Yunnan Province which were recently registered as CDM, in order to further assess the reasonableness and credibility of the tariff of the proposed project. Precise data are obtained by checking PDDs and demonstrated in the table below to clarify our conclusion.

Tariff Comparison Table with Similar Projects

Ref.	Installed capacity (MW)	Tariff in PDD or other source (RMB/kWh)	Note	VAT	Tariff excl. VAT	Tariff incl. VAT
2905	15	0.18	With VAT	6%	0.170	0.180
1988	14	0.164	Without VAT	6%	0.164	0.174
1511	15	0.177	With VAT	6%	0.167	0.177
2003	20	0.172	With VAT	6%	0.162	0.172
2690	24	0.155	Without VAT	6%	0.155	0.164
2106	20	0.158	With VAT	6%	0.149	0.158
2016	21	0.152	With VAT	6%	0.143	0.152
2804	18.9	0.18	With VAT	6%	0.170	0.180
1983	20	0.17	With VAT	6%	0.160	0.170
2063	20	0.17	With VAT	6%	0.160	0.170
2050	21.6	0.14	With VAT	6%	0.132	0.140
2054	22.5	0.14	With VAT	6%	0.132	0.140
2059	18	0.14	With VAT	6%	0.132	0.140
2055	18	0.14	With VAT	6%	0.132	0.140
2045	18.9	0.18	With VAT	6%	0.170	0.180

The analysis revealed that the tariff of the proposed project (0.146 RMB/kWh excl. VAT) still falls in the narrow range of similar projects in Yunnan Province (0.132~0.170 RMB/kWh (excl. VAT)).

In addition, in order to demonstrate the conservativeness of additionality of the project at the time of FSR creation, assuming the electricity tariff 0.170 RMB/kWh (excl. VAT), the highest tariff among recently registered similar CDM projects in Yunnan Province, was applied in analysis considering the investment cost of the FSR (92.04 million RMB), the project IRR without CDM revenue is 9.74%, still below the benchmark of 10%.

Therefore, Deloitte-TECO concluded that the tariff, 0.146 RMB/kWh (excl. VAT), is reasonable and appropriate in the region of Changning County as well as in Yunnan Province for financial analysis of the proposed project at the time of investment decision.

## **2 Net Return to the Investor**

### **2.1 Whether the net return to the investor has been reduced as a result of any reduction in tariffs over recent years**

As described above “1. Tariff”, the tariff of the proposed project has not been changed over recent years since the Grid Connection Agreement (Appendix 1) contracted between the grid company (Yunnan Baoshan Electric Power Company) and the project owner (Changning County Jia Yuan Electric Power Development Co., Ltd.) on 15 June 2006. Furthermore, in reality, the tariffs of the hydropower stations in the region, Changning County, are almost the same value. Due to no tariff reduction over recent years, the net return to the investor has not been reduced. If there will be any reduction in tariff over next years, then the net return to the investor will be correspondingly reduced.

### **2.2 Whether the net return has been unaffected as a result of other changes such as investment cost**

Starting date of the first crediting period, i.e. starting date of commercial operation was expected on 1 February 2010. It, however, is postponed to August 2010 due to the tunnel construction difficulties by geological reasons as described in the PP response. This fact implies that the investment cost may be increased rather than originally estimated.

In order to clarify the fluctuation of the investment cost estimated in the FSR/PDD further, Deloitte-TECO requested project participant to present the actual investment cost together with currently estimated investment cost till completion, and performed the cross-check. The investment cost of the proposed project is 92.04 million RMB based on the FSR and indicated in the approval of FSR and PDD. As an aside, the composition of investment cost was checked. It was divided into two categories, civil engineering cost for approximately 70% and machinery & equipment for approximately 30%, which is considered as a reasonable composition for such hydropower station construction.

Since the project is under construction, there is no final report for investment cost of the project. However, according to the Supervision Report (Appendix 3) submitted by the project supervision company (Yunnan Ming Tong Hydropower Construction Supervision Co., Ltd.) prepared in December 2009, it has been invested 123.27 million RMB on the project and an estimated investment cost of 9.5 million RMB will be paid for the project till completion. Thus, the investment cost can be expected as 132.77 million RMB (Appendix 3).

The result is presented in the table below. It was found that the investment in actual situation exceeded the prices contemplated in the FSR by about 44.25%. The actual investment cost till completion exceeded the estimated value in the FSR, meaning that the financial analysis was conducted conservatively as a result.

Investment Cost Comparison Table

Item	Estimated cost in FSR (million RMB)	Anticipated cost until completion (million RMB)	Difference (%)
Dam & Tunnel work Building, Forebay, Penstock, Others	63.1951	99.5238	57.49
Turbines, Generators	28.8486	33.2469	15.25
Total Investment cost (million RMB)	92.0437	132.7707	44.25

Considering the actual estimated investment cost of 132.77 million RMB and the tariff of 0.146 RMB/kWh (excl. VAT) granted by the grid company, IRR is recalculated for the proposed project as 5.12% (Appendix 4).

Moreover, the electricity tariff 0.170 RMB/kWh (excl. VAT), the highest tariff among recently registered similar CDM projects in Yunnan Province, was applied in analysis considering the invested and estimated investment cost till completion (132.77 million RMB), the project IRR without CDM revenue is 6.45%, still below the benchmark of 10%.

As a result, Deloitte-TECO came to the conclusion that the net return has been affected, reduced, as a result of changes in investment cost, which could be considered as conservative.

### **2.3 Investment cost validation**

In the validation report, the investment cost per installed capacity was compared with similar project, i.e. large scale hydropower projects in China which were recently registered as CDM in order to further assess the reasonableness and credibility of the total investment. On basis of our local expertise and experience with similar projects in this sector, the unit investment cost per kW was analyzed. It was that the investment cost of 4,870RMB/kW was reported in the validation report which was below a range of other CDM projects (6,000-9,000RMB/kW).

It, however, was considered that the range of other projects selected was too wide for this analysis since geographical circumstances, regional economic condition, and size of project. Based on these observations, Deloitte-TECO decided to implement more area specific analysis. More precise data are demonstrated in the table below to clarify our conclusion with the range of similar projects between 4,074.19 and 5,852.67 RMB/kW. The investment cost was compared with similar projects, i.e. similar scale hydropower projects (18.9MW $\pm$ 30%) in Yunnan Province which were recently registered as CDM, in order to further assess the reasonableness and credibility of the investment cost of the proposed project. The analysis revealed that the unit investment cost of the proposed project (4,870 RMB/kW) falls in the range of similar projects (4,074.19-5,852.67 RMB/kW).

Investment Cost Comparison with Similar Projects

Project Ref. No.	Capacity (MW)	Investment cost (10 <sup>4</sup> RMB)	Investment per capacity (RMB/kW)
	A	B	C=B*10/A
2905	15	8491	5660.67
1988	14	7783.24	5559.46
1511	15	8779	5852.67
2003	20	11630.36	5815.18
2690	24	12253.11	5105.46
2106	20	9489.00	4744.50
2016	21	8575.95	4083.79
2804	18.9	8397.74	4443.25
1983	20	9843.78	4921.89
2063	20	11215.97	5607.99
2050	21.6	8800.24	4074.19
2054	22.5	9340.91	4151.52
2059	18	8453.36	4696.31
2055	18	9336.45	5186.92
2045	18.9	8631.88	4567.13

Therefore Deloitte-TECO concluded that the total investment applied as input value was acceptable at the time of FSR creation.

From those analyses above, Deloitte-TECO is therefore of the opinion that the applied tariff of the proposed project is reasonable, and the net return to the investor has been reduced, considered as conservative, as a result of investment costs.



## **Response from Project Participant**

Response to Request for Review by the CDM Executive Board:

Changning Kawan 18.9MW Hydroelectric Project (CDM Ref. 2902)

Dear Designated Operational Entity “Deloitte-TECO”,

We refer to the requests for review raised by the review team concerning request for registration of project activity reference “Changning Kawan 18.9MW Hydroelectric Project (CDM Ref.2902)” and would like to provide the following response to the issues raised.

### **Issue**

The DOE is requested to further explain how the proposed tariff has been determined for the project activity and provide an assessment as to whether the net return to the investor has been reduced as a result of any reduction in tariffs over recent years, or whether the net return has been unaffected as a result of other changes such as investment costs. It is not clear how the applied tariff, 0.146RMB/kWh, excl. VAT, has been validated as it is in the lower side of the range provided, 0.1379-0.4566RMB/kWh, excl. VAT. As confirmed by the DOE the investment cost of 4,870RMB/kW are below average of other CDM projects in the region (6,000-9,000RMB/kW).

### **PP Response:**

#### **Part 1 About the tariff**

The tariff of the Project was sourced from the reply of connection application of Yunnan Baoshan Electric Power Company at June 15<sup>th</sup> 2006 (Appendix 1) . Based on the tariff, Yunnan Province Baoshan City Wanrun Survey and Design Institute of Water Resources and Hydropower (an authorized third party) did economic analysis and find that the IRR of the Project the much lower than the benchmark, the Project is not

feasible. After that the project owner knew CDM, and find that the Project is feasible with the finance help from CDM. Therefore the project owner made board resolution to develop the Project as CDM project on April 5<sup>th</sup>, 2007.

The tariff of the Project is also compared with other similar projects in Changning County. Based on the information from Water conservancy bureau of Changning County, there are two commissioned hydropower projects similar to the project, which is Hexi shuiku Hydropower Station and Changning Gengshunchang Hydropower Station. We confirmed with the two project owners and find the actual tariff of their projects. Which is 0.145RMB/kWh (Hexi Shuiku, excl. VAT), 0.132RMB/kWh (Changning Gengshunchang, excl. VAT) (Appendix 2), even lower than the Project.

Therefore we can see the tariff in Changning County is very low and the tariff of the proposed Project 0.146 RMB/kWh applied for financial analysis in FSR is reasonable, conservative and appropriate.

## **Part 2 About the investment cost**

The Fixed asset investment is estimated at 92.04 million RMB in FSR, but due to unexpected tunnel geological reasons, the time limit for the project has changed. Therefore the investment cost has changed accordingly.

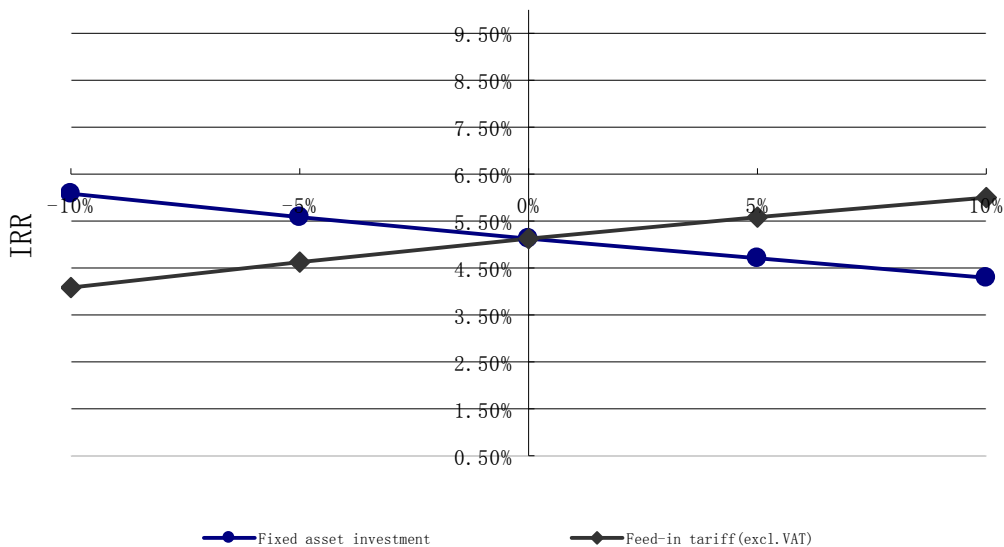
The construction of the project is started on November 6, 2007, According to the FSR, the construction period is about 2 years, and the Project will start commission in November 2009. Unexpectedly Due to the tunnel geological reasons (Tunnel collapse occurred several times, mainly due to the sandy phyllite lithology, rock crushing and groundwater infiltration and the poor stability), the project has not completed until now. According to the supervision report from the project supervision company (Yunnan Ming Tong Hydropower Construction Supervision Co., Ltd.), 123.27 million RMB has been invested in the project, which has greatly increased compared with the estimation. (Appendix 3)

Furthermore, there are anticipated eight months for construction. The supervision company estimates that 9.5million RMB will be invested to the project. The investment will be used for the excavation of remained 1,900m tunnel; installation of turbine and generator; construction of substation.

Therefore the total investment will be reached at 132.77million RMB. Based on this data, we did economic analysis again and find that the IRR of the project is only 5.12% without CDM, which is obviously lower compared with the IRR in FSR (Appendix 4). So the investment cost from FSR is conservative.

### Part 3 Sensitivity Analysis

Concerning with whether the net return to the investor has been reduced as any reduction in tariffs over recent years, and whether the net return has been unaffected as a result of other changes such as investment costs, please refer the following sensitivity analysis:



From the above graph it can be concluded the net return to the investor will be correspondingly reduced if there is any reduction in tariff, and the net return to the investor will be correspondingly affected as a result of other changes such as investment costs too

In conclude the Project is not financially attractive without the help from CDM, and the Project is additional.

### Attachment list

No.	Title of evidential documents
Appendix 1	Grid Connection Agreement
Appendix 2	Invoices from three hydropower stations in Changning County
Appendix 3	The Supervision Report (Appendix 3) submitted by the project supervision company (Yunnan Ming Tong Hydropower Construction Supervision Co., Ltd.)
Appendix 4	IRR Spreadsheet for anticipated investment cost

## 关于昌宁县珈源电力开发有限公司

### 《入网申请》的复函

昌宁县珈源电力开发有限公司：

贵公司《申请》2006年6月12日已收悉，经我公司研究后，现将有关事项复函如下：

一、贵公司新建电站，卡湾电站装机容量为：一级站  $3 \times 6300\text{KW}$ ，二级站  $3 \times 6300\text{KW}$ ，三级站  $2 \times 5000\text{KW}$ ，我公司同意贵公司电站建成后并入我公司电网运行，上网电价为  $0.1547$  元（含税，不分丰枯季）。  $8.9\text{MW}$   $0.1547$  (含税)

二、贵公司应将新建电站的设计资料、项目批准文件送我公司一份，并将工程进度以季度简报形式在每季度后10日内向我公司报工程进度情况，以便进行电力、电量平衡。

三、贵公司新建电站必须在2009年11月以前建设完成，并按照电网有关技术规范要求与我公司办理《机组并网、购售电协议》、《调度协议》和《安全责任划分协议书》，并在具体条款中明确相关事项。

四、贵公司新建电站接入我公司电网工程由贵公司投资建设，必须符合保山电网规划的要求，贵公司新建电站接入我公司电网方式、接入点等技术问题另行商定。

五、贵公司根据《电力法》第二十五条、《供电营业规则》第八十九条、《供电营业区划分及管理办法》第二十二条、《电力供应与使用条例》第十条、第二十条、第二十二条、第二十四条、第二十五条之规定，未经我公司同意，不得自行发展负荷及向第三方转供电力。



"Connection application" reply for Changning County Jia Yuan  
Electric Power Development Co., Ltd.

Changning County Jia Yuan Electric Power Development Co., Ltd.

We accept the application for your company on June 12, 2006. After we discuss about that, the relevant matters replies are as follows:

1. Your company's new power station, Kawan power station installed capacity is: 1 Station  $3 \times 6300\text{KW}$ , 2 Station  $3 \times 6300\text{KW}$ , 3 points  $2 \times 5000\text{KW}$ , we agree with your company's power plants into grid after the completion of construction, Tariff is 0.1547 yuan (including tax, regardless of wet and dry season).
2. Your company should send us the copy of design data, project approval documents, The progress should be reported per quarter in last 10 days for electric power, power balance.
3. Your company must finish the new power station construction prior to November 2009. According to the relevant technical specifications, your company should contract with our company about "electricity purchase agreement", "scheduling agreement" and "security agreement on the division of responsibilities", and make related matters clear.
4. The new power plant construction must comply with the requirements of Baoshan Power System Planning. technical issues about the access point will be decided through consultation.
5. According to the "Electricity Law" 25th article, "Supply Business Rules," 89th article, "zoning and management of electricity supply business approach" the twenty-second article, "Electricity supply and use of Regulations," Article X, the second 10, Twenty-second Article 24th Article 25th Article, your company can not develop the load and transfer to a third party for power without our company agreement.

The seal of Yunnan Baoshan Electric Power Company  
15<sup>th</sup> June 2006



5300071170 云南增值税专用发票 No 0090

代开 2009-12-24 9:40:21 electricity output

2009-12-24 9:38:35 dell Options 0990

tariff (excl VAT) VAT

2009-12-24 9:39:04 dell Options

2009-12-24 9:41:35 dell Options tax amount

国税函[2006]1075号公安印件

购货单位名称:	纳税人识别号:	地址、电话:	开户行及帐号:	货物或应税劳务名称:	规格型号:	单位:	数量:	单价:	金额:	税率:	税额:
云南保山电力股份有限公司	530502713406801	云南省保山市隆阳区隆阳路 0875-2208119	中国工商银行保山市分行永昌分理处 2510021609022100305	2009年6月份电费		度	53440	0.1447383982	7734.82	3%	230.89
				2009年10月份电费		度	98050	0.1449430505	13621.78	3%	417.65
				2009年11月份电费		度	9840	0.145631098	1433.01	3%	42.99
合计									¥ 23089.61		¥ 692.68
价税合计(大写)				贰万叁仟零捌拾玖元贰角玖分 (小写) ¥ 23782.29							
销货单位名称:	纳税人识别号:	地址、电话:	开户行及帐号:	货物或应税劳务名称:	规格型号:	单位:	数量:	单价:	金额:	税率:	税额:
昌宁县国税局特殊纳税人	530524000K05241	昌宁县田坝镇新城办事处 0875-7121179	中国工商银行保山市分行永昌分理处 2510021609022100305	电费		度	53440	0.1447383982	7734.82	3%	230.89
				2009年10月份电费		度	98050	0.1449430505	13621.78	3%	417.65
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销货单位名称:	纳税人识别号:	地址、电话:	开户行及帐号:	货物或应税劳务名称:	规格型号:	单位:	数量:	单价:	金额:	税率:	税额:
昌宁县国税局特殊纳税人	530524000K05241	昌宁县田坝镇新城办事处 0875-7121179	中国工商银行保山市分行永昌分理处 2510021609022100305	电费		度	53440	0.1447383982	7734.82	3%	230.89
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销货单位名称:	纳税人识别号:	地址、电话:	开户行及帐号:	货物或应税劳务名称:	规格型号:	单位:	数量:	单价:	金额:	税率:	税额:
昌宁县国税局特殊纳税人	530524000K05241	昌宁县田坝镇新城办事处 0875-7121179	中国工商银行保山市分行永昌分理处 2510021609022100305	电费		度	53440	0.1447383982	7734.82	3%	230.89
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价税合计(大写)				贰万叁仟零捌拾玖元贰角玖分 (小写) ¥ 23782.29							

收款人: 李向庭 复核: 张洁瑜 开票人: 张洁瑜 销货单位: (章)

Changning County Hexi ShuikuHydroelectric Power Station

Sep. 01

Fax NO.:

国税函[2005]703号公安印件

5300062170

云南增值税专用发票

No 00205517

此联不作报税、扣税凭证使用

开票日期: 2009年09月15日

购货单位名称:	纳税人识别号:	地址、电话:	开户行及帐号:	货物或应税劳务名称:	规格型号:	单位:	数量:	单价:	金额:	税率:	税额:
云南保山电力股份有限公司	530502713406801	云南省保山市隆阳区隆阳路 0875-2208119	中国工商银行保山市分行永昌分理处 2510021609022100305	电费		度	53440	0.1320754717	7939.81	0%	4763.99
合计									¥ 79399.81		¥ 4763.99
价税合计(大写)				捌万肆仟壹佰陆拾叁元捌角							
销货单位名称:	纳税人识别号:	地址、电话:	开户行及帐号:	货物或应税劳务名称:	规格型号:	单位:	数量:	单价:	金额:	税率:	税额:
昌宁县更顺昌水电开发有限责任公司	530524757190707	昌宁县田坝镇文昌路 0875-7132092	中国工商银行保山市分行永昌分理处 2510021609022100305	电费		度	53440	0.1320754717	7939.81	0%	4763.99
合计									¥ 79399.81		¥ 4763.99
价税合计(大写)				捌万肆仟壹佰陆拾叁元捌角							
销货单位名称:	纳税人识别号:	地址、电话:	开户行及帐号:	货物或应税劳务名称:	规格型号:	单位:	数量:	单价:	金额:	税率:	税额:
昌宁县更顺昌水电开发有限责任公司	530524757190707	昌宁县田坝镇文昌路 0875-7132092	中国工商银行保山市分行永昌分理处 2510021609022100305	电费		度	53440	0.1320754717	7939.81	0%	4763.99
合计									¥ 79399.81		¥ 4763.99
价税合计(大写)				捌万肆仟壹佰陆拾叁元捌角							

收款人: 穆天祥 复核: 穆天祥 开票人: 穆天祥 销货单位: (章)

Changning County Gengshunchang Hydropower Development Co., Ltd.

**云南明通水电建设监理有限公司文件**

**云南明通水电建设监理有限公司**

**关于卡湾一级水电站预计投资的分析报告**

昌宁县珈源电力开发有限公司:

贵公司投资开发的卡湾一级水电站建设项目由云南明通水电建设监理有限公司实施监理。水电站预计投资的分析报告如下:

单项工程名称	已完成工程量	剩余工程量	完成投资(万元)	预计投资(万元)	
<b>土 建</b>					
拦河坝、明渠工程	完成主体框架结构浇筑	启闭机室装饰, 左岸边坡稳定支护。	880.95	45	
引水隧洞	累计完成开挖进尺 5522.076m (未含支洞 602.02 米及废弃支洞 102 米)	开挖剩余 1890.424m	5895.68	725	
<b>厂 房</b>					
压力前池	土建完成	沉降缝处理	2370.75	35	
泄水道、消力池	土建完成	0			
压力管道	镇墩、支墩	边坡防护及爬梯			
厂房	主体框架浇筑完成	厂房装饰工程			
升压站	0	升压站			
<b>附属工程</b>					



附属工程			335.33	
设备生产安装工程				
拦河坝金属结构安装	门槽预埋及二期灌浆	检修闸门、弧形闸门、启闭机、冲砂器、明门门叶、启闭机安装	1269.15	145
抗冲金属结构安装	门槽已制成	门槽及门叶安装		
压力管道安装	100	0		
尾水闸门槽安装	门槽	启闭机		
行本	完成安装	未调试		
主机设备制安	生产完成 80%。安装设备附件完成 75%	主机设备安装		
辅助设备制安	生产完成 85%。完成设备附件及辅助线路安装	安装		
电气设备制安	生产完成 90%	安装		
其它			1575.19	
合计投资 (万元)			12327.07	950

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dell Options

Total Investment ( 10 thousands )

云南  
水利建设  
现场监理章

Note 2009-12-28 17:07:59  
dell Options

关键词: 投资 分析 报告

云南明通水电建设监理有限公司

校对: 胡红

Yunnan Ming Tong Hydropower Construction  
Supervision Co., Ltd.  
28th December 2009

Please see the attached excel file for Appendix 4.