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Request for Review

Dear Sir or Madame:

Please find below the response to the review formulated for the CDM project with the title “Baishuiquan Hydropower Project, Guizhou Province, China” with the registration number 2104. In case you have any further inquiries, please let us know as we kindly assist you.

Yours sincerely,

Cuiyun Zhang
Carbon Management Service

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Response to the CDM Executive Board

Issue 1. The DOE is requested to justify the suitability of the 10% benchmark, in particular as it was issued in 1995, for assessing an investment decision made in 2004.

Response by PPs:

The 10% benchmark of the proposed Project is based on the "Economic evaluation code for small hydropower projects (Document No. SL16-95)". This code was issued by the Ministry of Water Resources of China (MWR) and became effective on 01/07/1995. Section 1.2 of SL16-95 states that it is applicable to all hydropower projects with an installed capacity below 25MW and to hydropower projects with an installed capacity below 50MW located in rural regions[1]. The benchmark meets the criteria set out in the *Tool for the Demonstration and Assessment of Additionality*, specifically Step 2, Section (6), which states that benchmarks can be derived from "(d) Government/official approved benchmark where such benchmarks are used for investment decisions." The installed capacity of the proposed Project is 20MW and SL16-95 is thus applicable to the proposed Project.

On 09/09/2006, The MWR announced that this regulation was still effective[2]. Furthermore, no new regulation has taken over the effectiveness of this code since then. Therefore, 10% benchmark was applicable at the time of the decision making in 2004 (and still remains in effect today).

Since 1995, hydropower design institutes in China have widely applied this code and the 10% benchmark when developing Feasibility Study Reports (FSRs) and Preliminary Design Reports (PDRs) for small-scale hydropower projects. The 10% benchmark given in this code is the most specific benchmark for small hydropower projects and is representing the common Chinese practice for investment decision processes. The 10% benchmark has also been consistently applied by the shareholders of the proposed Project in assessing other similar investment (i.e. small hydropower project). This can also be seen from similar small hydropower project in china, such as Hunan Yangmingshan Three Level Hydropower Project (2145), Yunnan Lincang Zhenai Hydropower Project (1994).

Therefore, we believe that the use of a 10% benchmark for assessing the additionality of the investment decision made in 2004 is appropriate.

[1] http://www.cws.net.cn/guifan/bz%5CSL16-95. The Code applies to small hydropower projects below 25MW and to hydropower projects below 50MW in rural areas.
[2] <Notification of Current Effective Water Conservancy Technical Standards > by The Ministry of Water Resource of PRC, (http://www.mwr.gov.cn/tzgg/qt/20060926000000479251.aspx)

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Response by TÜV SÜD

The applied benchmark for the proposed project referred to the "Economic evaluation code for small hydropower projects' (Document No. SL 16-95) issued in 1995, in which is mentioned "This evaluation code is applied for small hydropower projects with installed capacity no more than 25MW (all newly built, expansion, modification or retrofit projects). Besides, the code is valid for projects with a capacity of less than 50MW in rural areas" (Article 1.2).
In 2002, the Ministry of Water Resources issued a Bulletin on Effective Technical Standard in Hydro & Water Industry. The "Economic evaluation code for small hydropower projects' (Document No. SL 16-95) issued in 1995 is indicated as still valid in this list (www.cws.net.cn/guifan/bz%5CSL16-95). The ongoing validity of this code was further confirmed again by the official organization, i.e. Chinese Hydraulic Engineering Society, which published all valid standards for the hydraulic industry on September 9th, 2006 (http://www.ches.org.cn/jishubiaozhun/001.asp)

Furthermore, TÜV SÜD can confirm, based on its local and sectoral expertise, that this benchmark is common and widely used in China for this type of project. As a result, TÜV SÜD is confident that the 10% benchmark is applied and can be considered as suitable for the proposed project activity.

Issue 2. The DOE is requested to confirm the common practice analysis, in particular the essential distinctions between the project activity and similar projects as cited in the PDD.

Response by PPs:

Firstly we would like to confirm the common practice again as follow:

The existing hydropower plants similar (with installed capacity of 15-50 MW) to the proposed project in Guizhou province are shown in following table:

Hydropower plant list (With installed capacity between 15~50 MW in Guizhou province)[3]

No.	Project name	Installed capacity (MW)	Operation time	Annual operation time (h)	Investment of unit kW (RMB ¥/kW)
1	Daqikong Hydropower Plant[4]	48	2005	5208	3,542
2	Zhongshanbao Hydropower Plant[5]	40	2001	6725	2,879
3	Tianbianzhai Hydropower Plant[6]	25	2001	5438	4,510
4	Baishuihe 2nd Stage Hydropower Plant[7]	34	2000	4686	3,706
	Average Value in Guizhou province			5514.25	3659.25
	The proposed project	20	2007	3994	5398.5

3 Data source: Yearbook of China Water Resources 2006
4 http://www.gzgov.gov.cn/shouye_tc/showzwxx.asp?id=16864
http://gzrb.gog.com.cn/system/2003/02/13/000336059.shtml
5 http://www.qxnz.com/Article_Show.asp?ArticleID=6497
6 http://lpsres.gzst.gov.cn/tmxxb005/card5.asp?tmid=17&flbh=005
http://www.chinacitywater.org/bbs/archiver/?tid-3945.html
7 http://www.chinavalue.net/Article/Archive/2008/1/6/94581_4.html

The electric power sector reform was implemented after 2000. The former State Power Corporation (SPC) was broken into five power grid companies and 2 transmission companies[8]. According to Standard for Classification and Flood Control of Water Resources and Hydroelectric Projects (SL252-2000) issued by the Ministry of Water Resources of China (MWR) in 2000, the hydropower plants with installed capacity below 50 MW are defined as small scale hydropower projects. Because the necessary data of hydro power projects with the installed capacity below 15MW can not be obtained from official source, and the proposed project which the installed capacity is 20MW, is not a small scale project (a small scale hydro power project in CDM is defined as a project with the installed capacity below 15MW). Thus, the hydropower plants with installed capacity between 15~50 MW and operated after 2000 are selected to conduct the common practice.
It can be found from table above that the average value of the specific investment per kW is RMB￥3659.25/kW, and the average value of annual operation time is 5514.25h. The investment of per kW for the proposed project (RMB￥5398.5/kW) is 47.5% higher than the average value in Guizhou province. The annual operation time of the proposed project (3994 h) is 27.6% less than the average value in Guizhou province. It is obvious that the similar projects listed in the table above have better technological and financial indicators than the proposed project. Thus, the proposed project is not the common practice in the region.

Secondly we would further like to prove the **essential distinctions** between the proposed project and the similar projects cited in the PDD, using the following steps:

Step a). Conformation of a assumed hydro power project, which can represent the common practice.

According to the sensitivity analysis in the PDD, only four main parameters are decisive to the IRR, these are net electricity generation, fixed assets investment, electricity tariff and O&M cost. From the common practice in the PDD, we can see that the average value of the annual operating hour in Guizhou province is 5514.25h, and the average value of the total investment per kW installed capacity in Guizhou province is 3659.25RMB/kW. Hence the fixed assets investment and the electricity generation are confirmed to represent the common practice situation. Thus we can further assume a fictive project in the following table:

Financial parameters of an assumed hydro power project which can represent the common practice

Parameter	Unit	Value	Comments
Installed capacity	MW	20	Considered the same as the proposed project
Net electricity generation	MWh	99257	20MW*5514.25h*(1-0.1), 0.1 is a loss and auxiliary rate, which is indicated in the SL16-95
Fixed assets investment	RMB￥10,000	7318.5	3659.25RMB/kW*20MW* 1000kW/MW/10000RMB
Electricity tariff (VAT Incl.)	RMB￥/kWh	0.23	Considered the same as the proposed project
Valued-added tax (VAT)	/	6%	Considered the same as the proposed project
Town building maintenance tax (based on VAT)	/	5%	Considered the same as the proposed project

[8] http://www.lawon.cn/law/detail.dox?id=2211075

Surtax for education (based on VAT)	/	3%	Considered the same as the proposed project
Income tax	/	33%	Considered the same as the proposed project
Annual O&M costs	RMB ¥ 10,000	219.56	[Fixed assets investment]*3% [9]
Constructing period	year	3	Considered the same as the proposed project
Operating period	year	20	Considered the same as the proposed project, and stipulated in the SL16-95

Step b). Calculating the IRR of the assumed hydro power project.

The IRR of the assumed hydro power project which can represent the common practice situation is 17.78%[10] via our calculation.

Step c). Conclusion.

From the description above, it is likely that common practice projects always have better productiveness. Accordingly we have sufficient reason to say that the **essential distinction** between the proposed project and the common practice projects is about the **productiveness**. **In general a common practice project always has better productiveness (an IRR which is higher than the benchmark), but a proposed CDM project (i.e. the proposed project) must have very bad productiveness (an IRR which is lower than the benchmark without the income of CDM).**

Hence we can confirm that there are essential distinctions between the proposed project and the common practice projects, and the proposed project is absolutely not a common practice project.

Response by TÜV SÜD

The PPs provided a complete list of similar projects in the same area (Guizhou Province), just as described in the response above and the PDD. Under the Standard for Classification and Flood Control of Water Resources and Hydroelectric Projects (SL252-2000) (see Ref.No.14), the projects listed there belong to the small scale projects, the installed capacity range is from 0 to 50MW. Since the necessary data of hydropower projects with the installed capacity less than 15MW could not be obtained; in accordance with the additionality tool, the common practice analysis is deemed appropriate to comprise capacities from 15-50MW[11].
So, the PPs listed 4 similar hydropower plants in the same area to compare the common practice of the proposed project, An analysis of specific investment per KW and of the annual operational hours was made. From the analysis we can see, the proposed project is not common practice because the investment amount per KW is higher than the average, and the annual operational time is shorter than the average level.
As could be verified by comparing the key parameters “operation time” and “specific investment”, it was shown that the other hydropower plants show major distinctions which are caused

[9] <<Interim Provision of the Financial Evaluation of the Hydro Electric Power Project>>, issued by ministry of electricity power and water resource on 14/06/1994.
[10] Refer to the spreadsheet: common practice IRR.xls
[11] The additionality tool EB39 it is stated: “*If necessary data/information of some similar projects are not accessible for PPs to conduct this analysis, such projects can be excluded from this analysis*.”

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by different water sheds and varying geological conditions as follows:

1) Baishuihe 2nd Stage Hydropower Plant is closest to the proposed project when considering the operation time, but still its operation time is about 15% higher compared to the project activity. At the same time Baishuihe 2nd Stage Hydropower Plants' specific investment is more than 31% lower compared to the project activity.
2) Similarly Tianbianzhai Hydropower Plant specific investment is closest to the proposed project, though still about 16.5% lower compared to the project activity; further Tianbianzhai Hydropower Plants' operating time is about 26.6% larger than that of the proposed project activity.

In conclusion, this proposed project is not a common practice project.

Issue 3. The DOE is requested to confirm that the ex-ante emission factor of 0.84335 tCO2/MWh complies with the requirement of the methodology regarding the use of the most up-to-date data at the time of validation as the PDD for GSC used a different emission factor (0.7784 tCO2/MWh).

Response by PPs:

Please see the table below which present a clearly roadmap of the use of the emission factor.

No.	Item	Time	Comments
1	The published 2005 emission factor by China DNA[12]	15/12/2006	0.7784 tCO2/MWh
2	PDD_GSC of starting validation	June 2007	0.7784 tCO2/MWh
3	The published 2006 emission factor by China DNA[13]	09/08/2007	0.84335 tCO2/MWh
4	The published 2007 emission factor by China DNA	18/07/2008	0.8801 tCO2/MWh
5	Final PDD of ending validation and uploading to EB secretariat.	August 2008	0.84335 tCO2/MWh
6	The updated 2007 emission factor by China DNA[14]	December 2008	0.8712 tCO2/MWh

The validation period started in the June 2007 and ended in August 2008. China DNA updates the emission factor based on the latest statistical data every year. Before the starting of validation the valid emission factor is 0.7784 tCO2/MWh, thus the emission factor in the PDD for GSC (Global stakeholders Consultation) is 0.7784 tCO2/MWh. Before the end of the validation (at the time of validation) the valid emission factor is both 0.84335 tCO2/MWh and 0.8801 tCO2/MWh. The valid most up-to-date data is 0.8801 tCO2/MWh, but has some calculating errors. After we rechecked and recalculated it, we confirm the more conservative EF published on18/07/2008 should be 0.84499 tCO2/MWh, which is higher than that in PDD. WE finally choose 0.84335 tCO2/MWh because this emission factor is more conservative than the most up-to-date one, and had been applied in previous registered CDM project (for example project Ref. 1484, 1569 and 2207).

[12] http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/2006/2006121591135575.pdf
[13] http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File1364.pdf
[14] http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/2008/20081230102527637.pdf

Therefore we confirm that the emission factor 0.84335 tCO2/MWh, adopted in the final PDD, is appropriated.

Response by TÜV SÜD

The site inspection of validation was commenced in June 2007 and validation was then first completed with submission of the registration request in August 2008. The data source (e.g. Statistical Yearbooks) which is used to calculate the emission factor (EF) is published annually. Considering the nature of the EF calculation method, which is, in cases when applying the ex-ante approach, to provide a precise as possible estimation of the EF throughout the crediting period, it is deemed appropriate to apply the latest available data for the calculation of the emission factor.

It is TÜV SÜDs understanding that the terminology to make "*use of the most up-to-date data at the time of validation*" is complied with in cases when applying the most up-to date data as available when completing the validation, rather than applying the EF as available at the time of on-site mission or GSP stage.

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Annex 1: Information reference list;
it lists the major documents which were used for the response. All documents have been validated by TUV-SUD.

Ref. No.	Issuance and/or submission date (dd/mm/yyyy)	Title/Type of Document	Author/Editor/ Issuer	Relevance in CDM context
1	1995	Economic evaluation code for small hydropower projects No. SL 16-95	Ministry of electricity power and water resource of China	
2	26/09/2006	<Notification of Current Effective Water Conservancy Technical Standards >	The Ministry of Water Resource of PRC (http://www.mwr.gov.cn/tzgg/qt/200609260000004792 51.aspx)	
3	2006	Data source: Yearbook of China Water Resources 2006	The Ministry of Water Resource of PRC	
4	09/09/2005	Daqikong Hydropower Plant put into operation	http://www.gzgov.gov.cn/shouye_tc/showzwxx.asp?id=16864	
5	2001	Zhongshanbao Hydropower Plant put into operation	http://www.qxnz.com/Article_Show.asp?ArticleID=6497	
6	2001	Tianbianzhai Hydropower Plant was put into operation	http://lpsres.gzst.gov.cn/tmxxb005/card5.asp?tmid=17&flbh=005	
7	2000	Baishuihe 2nd Stage Hydropower Plant was put into opearion	http://www.chinacitywater.org/bbs/archiver/?tid-3945.html	
8	2003	State Power Corporation (SPC) was broken into five power grid companies and 2 transmission companies	http://www.lawon.cn/law/detail.dox?id=2211075	
9	14/06/1994	<<Interim Provision of the Financial Evaluation of the Hydro Electric Power Project>>	Ministry of electricity power and water resource of China	
10	04/01/2009	the spreadsheet: common practice IRR.xls	Guizhou Hengyuan Project Management and Consulting Co. Ltd.	
11	2006	The Emission Factor published by China DNA	http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/2006/2006121591135575.pdf	
12	2007	The Emission Factor published by China DNA	http://cdm.ccchina.gov.cn/WebSi-	

			te/CDM/UpFile/File1364.pdf	
13	2008	The Emission Factor published by China DNA.	http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/2008/20081230102527637.pdf	
14	01/08/2000	Standard for Classification and Flood Control of Water Resources and Hydroelectric Projects (SL252-2000)	Water Resource Ministry of China	