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Request for Review

Dear Sir or Madam,

Please find below the response to the review formulated for the CDM project with the title "China Jintan Hydropower Project" with the registration number 2014. In case you have any further inquiries please let us know as we kindly assist you.

Yours sincerely,

Javier Castro
Carbon Management Service

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Response to the CDM Executive Board

Request 1:

The DOE is requested to justify the appropriateness of the 10 % benchmark, which was issued in 1995 in assessing the additionality of an investment decision made in 2005.

Response from PP:

The 10% benchmark is derived from “Economic Evaluation Code for Small Hydropower Project (SL 16-95)” issued by Ministry of Water Resources (MWR) of P. R. China in 1995. SL 16-95 applies to the small scale hydropower projects with the installed capacity of below 25MW, it can also be referred to the small scale hydropower projects with the installed capacity of between 25MW-50MW in rural areas. The document “Notice of Current Effective Technical Standards of Water Resources ([2006] No. 5)¹” issued by MWR in 2006 shows that SL 16-95 is still applicable to small scale hydropower projects, and no new code replaces this code by now. This code and 10% benchmark has widely been applied for small scale hydropower projects in China.

The benchmark in Preliminary Design Report (PDR) of the project is also 10%, the PDR was approved by Water Resources Bureau of Hunan Province. Thus the PDR and its approval letter further show that the 10% benchmark is applicable.

Other small scale hydropower projects applying the 10% benchmark have been registered as CDM project activity recently, such as Hunan Yangmingshan Three Level Hydropower Project (Ref. 2145), Yunnan Lincang Zhenai Hydropower Project (Ref. 1994), Fujian Wuyishan Wenlin River 2nd and 3rd Level Hydropower Station (Ref. 1831) and Lijiang Xinzhuhe Second Level Hydropower Project (Ref. 1879), China Tuanjie Small Rundle Hydropower Project (Ref. 1772), etc..

The installed capacity of the proposed project is 20MW, which is lower than 25MW. Thus the SL 16-95 and 10% benchmark is appropriate to the proposed project.

Response from DOE:

The applied benchmark for the proposed project referred to the “Economic evaluation code for small hydropower projects” (Document No.SL16-95) issued in 1995, in which it mentions “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, projects with a capacity of less than 50MW in rural areas can refer to this code too.” (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.SL16- 95) issued in 1995 is still indicated as valid in this list (<http://www.cws.net.cn/quifan/bzdt/bzgg.asp>).

The ongoing validity of this code was further confirmed again by an official organization, i.e. Chinese Hydraulic Engineering Society, which published all valid standards for hydraulic industry on September 9th, 2006 (<http://www.ches.org.cn/jishubiao/hun/001.asp>).

Furthermore, TÜV SÜD can confirm, based on its local and sectoral expertise, that this benchmark is pretty common and widely applied in China for this type of project.

¹ <http://www.mwr.gov.cn/tzgg/qt/20060926000000479251.aspx>



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As a result, TÜV SÜD is quite confident that the 10% benchmark is appropriately applied and can be considered as suitable for the proposed project activity.

Request 2:

The DOE is requested to explain how it has validated that the continuation of baseline scenario, power generation by fossil fuel-fired power plants, is realistic and credible.

Response from PP:

There are 4 possible baseline scenarios of the project activity are described in the PDD, which are as follows:

Baseline scenario 1 - The project activity undertaken without being registered as CDM project activity;

Baseline scenario 2 - Construct a fossil fuel-fired power plant with equivalent annual electricity supplied to CCPG;

Baseline scenario 3 - Other renewable energy power plants with equivalent annual electricity supply to CCPG;

Baseline scenario 4 - Equivalent annual electricity generation supplied by CCPG.

The analysis of baseline scenarios is as follow:

Baseline scenario 1 - The project activity undertaken without being registered as CDM project activity

The IRR of the project is only 7.87% which is less than the benchmark without CERs sale income, the project is not financially attractive. Thus baseline scenario 1 is not realistic and credible.

Baseline scenario 2 - Construct a fossil fuel-fired power plant with equivalent annual electricity supplied to CCPG

In China, the average annual utilization time of fossil fuel-fired power plants is 5,316h² which is larger than that of hydropower plants, so the installed capacity of the fossil fuel-fired plants with equivalent annual electricity generation to this project will be less than 20MW. According to the current laws and regulations in China, the thermal power plant with an installed capacity equal to or less than 135MW is strictly forbidden³.

Therefore, the baseline scenario 2 does not comply with current mandatory applicable legislation and regulations in China, it is not realistic and credible.

Baseline scenario 3 - Other renewable energy power plants with equivalent annual electricity supplied to CCPG

There is neither potential for wave or tidal energy nor for geothermal energy in the project's area. No biomass-based power plant with a similar scale to the project has previously been built in the region. Moreover, other renewable energy alternatives, such as solar PV are considered to be too costly for generating the equivalent annual output. The wind resources in the region where the proposed project is located is poor with very low wind energy potential⁴, and no wind power plant is implemented in Hunan Province due to too high investment of per kW. Thus there are no favorable conditions for other power plants based on renewable sources; construction and the economic return of other renewable power plants with similar scale would

² National Statistics Bulletin of Power Industry in 2007, China Electricity Council.

³ Notice on Strictly Prohibiting the Construction of Fuel-fired power plants with installed Capacity of 135 MW or below, General Office of the State Council, April 15, 2002.

⁴ <http://www.newenergy.org.cn/html/2003-9/2003991.html>.

be of little attractiveness (without CDM). It also can be found from China Power Electric Year-book 2007 that there are only hydropower plants and fuel-fired power plants in Hunan Province. Therefore the baseline scenario 3 is not realistic and credible.

Baseline scenario 4 - Equivalent annual electricity generation supplied by CCPG

This scenario complies with the national laws and regulations, and doesn't face any economic or technological barriers, it is feasible baseline scenario to the project activity.

According to the analysis above, only baseline scenario 4 Equivalent annual electricity generation supplied by CCPG is realistic and credible. In other words, power generation by fossil fuel-fired power plants (namely baseline scenario 2) is just a possible baseline scenario, but it is forbidden by national laws and regulations.

Response from DOE:

The PDD submitted for registration as well as the response of the PP to this request clearly identifies the baseline for the proposed CDM project activity, which is the continuation of the scenario prior to the implementation of this project activity, i.e. power generation supplied by the Central China Power Grid, which is mainly dominated by fossil fuel fired power plants.

The applied methodology ACM0002 (Version 06) clearly defines that "for project activities that do not modify or retrofit an existing electricity generation facility, the baseline scenario is the following: Electricity delivered to the grid by the project would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described below."

Hence, the defined baseline scenario is in line with the methodology requirements, and reasonably represents what would occur in the absence of the proposed CDM project activity.

In summary, TÜV SÜD confirms that the baseline scenario is the power generation by the operation of those power plants that are connected to the Central China Power Grid. The majority of the power plants within the Central China Power Grid consists of fossil fuel fired plants, therefore the baseline was simply described as the power generation by (mainly) fossil fuel fired power plants (within the Central China Power Grid).

As a result, TÜV SÜD considers the defined baseline scenario indicated in the PDD as well as in the PP's response as realistic and credible.

Request 3:

The DOE is requested to explain the discrepancy in the grid emission factor between the PDD submitted with the request for registration and the PDD submitted for validation.

Response from PP:

The approaches used for the power grid baseline emission factor calculation are the same between the PDD submitted with the request for registration and the PDD submitted for validation. The calculation methods are derived from Chinese Designated National Authority (DNA)'s Guideline of emission factors of Chinese grids (hereinafter referred to "the Guideline"). The DNA published the baseline emission factor on 15 December 2006 with the data source of <China Energy Statistical Yearbook 2005>, <China Electric Power Yearbook 2001-2005>, IPCC 1996 and the statistical documents from National Electrical Surveillance Committee.

At the time of the PDD submitted for validation, the latest version of <China Energy Statistical Yearbook 2006>, <China Electric Power Yearbook 2006> have been published. The baseline emission factor is calculated in the validation PDD by using the <China Energy Statistical Yearbook 2006>, <China Electric Power Yearbook 2006> and IPCC 2006 by PDD developer. However, the latest standard coal consumption of coal/oil/gas fired power plants power supply data for the most advanced commercialized technologies in China have not been published by Chinese DNA yet. So the $EF_{Gas,Adv}$ and $EF_{Oil,Adv}$ are excluded from the calculation of $EF_{Thermal}$ for conservative principle, i.e. $EF_{Thermal} = EF_{Coal,Adv} * (1 - \lambda_{Oil} - \lambda_{Gas})$. Meanwhile, due to lack of the data of latest standard coal consumption for the most advanced commercialized coal fired power plant, PDD developer has to use the standard coal consumption of power generation for the calculation of $EF_{Coal,Adv}$. It is conservative for standard coal to adopt the value 320g/kWh since the best available technologies in China are sub-critical power plants in 2004 with the standard coal consumption of power generation of 336.66g/kWh in accordance with the data from National Electrical Surveillance Committee published on 15 December 2006 by NDRC. It also can be found from <China Electric Power Yearbook 2005> that the standard coal consumption of power generation is 371kg/kWh in Central China Power Grid. Thus, the value 320g/kWh is very conservative to calculation BM.

NDRC published the baseline emission factor on 9 August 2007, which is after the validation of the project. PDD developer updated the power grid emission factor by referring to the data published on 9 August 2007, which is the one in the PDD submitted for requesting registration.

Based on the ACM0002 (Version 06), the data are available at the time of PDD submission should be used for emission factor calculation. Thus the baseline emission factor is revised back into the one in the PDD submitted for validation, which is also more conservative.

Response from DOE:

The values for the emission factors for the operating margin and build margin applied in the various PDDs are listed below:

GSP PDD: $EF_{OM} = 1.28956 \text{ tCO}_2/\text{MWh}$ $EF_{BM} = 0.61277 \text{ tCO}_2/\text{MWh}$

Sub for Reg PDD: $EF_{OM} = 1.2899 \text{ tCO}_2/\text{MWh}$ $EF_{BM} = 0.61592 \text{ tCO}_2/\text{MWh}$

The emission factors have been revised during the validation process and were updated to be in line with that published by the DNA of China in 2007. This revision was performed for this and other similar projects based on recent EB decisions as indicated in the EB Meeting Report

41, §55q(iv), where it was indicated that NDRC values should be applied and were also accepted later on.

However, in order to be conservative, the emission factors have been revised again to the old values with a combined margin emission factor of 0.95116 tCO_{2e}/MWh, i.e. 0.02 tCO_{2e}/MWh lower than the value published by the China DNA in 2007, and even 0.04 tCO_{2e}/MWh lower than the value published by the China DNA in 2008.

TÜV SÜD considers the applied values as conservative and based on former EB guidance on this issue, accepted these values for the calculation of the combined margin emission factor.