TRICORONA

UNFCCC Secretariat

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Stockholm, 2009-01-19

Response to request for review

Dongshan Hydro Power Project in Guangdong Province China (2091)

Dear Members of the CDM Executive Board,

We refer to the requests for review raised by three Board members concerning Tuv Sud's request for registration of project activity 2091 "**Dongshan Hydro Power Project in Guangdong Province China**" and would like to provide below initial response to these requests for review:

Request 1:

The DOE should clarify how it has validated suitability of the input values to the investment analysis in line with EB 38, para. 54, including the calculation of investment and O&M costs assumed. In particular the suitability of investment cost and O&M cost need further substantiation as investment costs is calculated at approximately 11.1 Mio RMB/MW, about 4.3 Mio RMB/MW higher than the average cost of 6.8 Mio RMB/MW; and O&M costs at 1.7% of the total investment costs, which is lower than the average ratio of 2.5% of similar projects (VR p12).

Response from PP:

1. The input parameters used in the financial analysis are taken from the feasibility study report (FSR) developed by a qualified design institute Guangdong Province Water Design Institute with A level of Engineering Survey Certificate(190106-kj) and A level of Engineering Design Certificate(190106sj) and Certificate of Quality Management System and approved by Guangdong Province Development and Reform Commission on 6th June 2005. The input parameters in FSR are in conformity with national/local sector rules and provided by an independent and recognised third-party source. All the parameters adopted for financial analysis is completely consisent with the parameters in the FSR.

2. The FSR of the proposed project was approved on 6th June 2005 and thus only 4 moths prior to the decision to proceed with the project activity which was on 18 October 2005. Given this relative short period of time between approval of the FSR and the decision to

proceed with the project activity it is unlikely in the context of the project that the input values would have materially changed and that it is thus reasonable to assume that the FSR has been the basis of the decision to proceed with the investment in the project.

3. As for investment cost and O&M cost, it differs from region to region(mainly due to construction condition and economic development level). Though it seems unusual to national average value, but it's common in Guangdong province. The input parameters used in the financial analyses were compared with the data reported for other CDM projects in the same region, i.e. 4 other hydropower projects in the Guangdong Province, by comparing investment costs per MW, percentage of O&M costs relative to total investment costs. The information of them is as follows:

Reference No.	Installed capacity (MW)	Total investment (Mio RMB)	investment costs per MW (Mio RMB/MW)	O&M cost (Mio RMB)	Percentage of O&M costs
Project 1536	14	154	11.00	4.49	2.91%
Project 1817	24.9	418.2557	16.79	8.6784	2.07%
Project 1980	20	229.70	11.485	4.0056	1.74%
Project 2213	18	214.8124	11.93	3.85	1.79%
The proposed project	75	882.2092	11.76	15.736	1.78%

Data source: UNFCCC: http://cdm.unfccc.int/Projects/projsearch.html

It is shown from above table that the investment costs per MW, percentage of O&M costs relative to total investment costs of the proposed project is similar to the sample projects. So the total investment and O&M cost to total invest of the project is reliable.

4. The project is still under construction at present, so it is impossilbe for cross check by the actual figure of total investment and the O&M cost. However, it can be cross checked by the following way:

For total investment

By the end of 2008, 80% of the total engineering has been finished. And the actual investment is RMB 749.7 million after confirmation by a third party Supervision Department. During construction period, the price growth rate of main construction materials was significant. Meanwhile, as the national standard of compensation for land occupation was increased, the compensation fee was increased. According to the enclosed evidence from the third party Supervision Department, the total investment of the proposed project would reach RMB 953 million, RMB 70.56 million higher than that in FSR.

For O&M costThe O&M cost is calculated according to the parameters from the approved FSR. The annual O&M cost includes (1) payroll,employee welfare,housing fund, labor union fund; (2)Water resource fee; (3)Maintenance fee; (4)Reservoir Maintenance cost; (5)Insurance premium; (6)Material fee and (7)Other cost. All these parameters are derived from the FSR and are consistent with the relevant national regulations.

According to the FSR, the power station will have a fixed staff of 56 persons each of those will receive an average payroll of 20,000 Yuan RMB/year. Rate of employee welfare is 14% of the payroll and also with housing fund (10% of the payroll) and labor union fund (17% of the payroll). The cost of maintenance and overhaul fee has been estimated according to a percentage of 1% of the total fixed asset value and the costs for the materials set to be 4 Yuan/kW; the remaining costs account for 12 Yuan/kW which also matches with the local regulations. So the annual O&M costs have been estimated basing the calculation on provable parameters and reliable assumptions according to the local regulations

Furthremore, according to the Annual Report for Chinese Power Industry published by State Information Center the O&M cost of hydropower stations in China is in the range of 0.04 yuan/kWh ~ 0.09 yuan/kWh at present. The Annual O&M cost of the proposed project is 0.051 yuan/kWh(15.736million yuan/308,940,000kWh), so it is in the average range of 0.04 yuan/kWh ~ 0.09 yuan/kWh which is reasonable and appropriate.

Request 2:

The DOE is requested to clarify how the reported values of annual electricity generation and annual grid-connected electricity are appropriate in the context of the underlying project activity taking into account a difference of over 13%.

Response from PP:

1. The values of annual electricity generation and annual grid-connected electricity are taken from and fully consistent with the FSR of the proposed project. These two values are determined by the quallified Guangdong Province Water Design Institute based on 50 years (year 1951-year 2000) of historical hydrological data from the Hengshan Hydrometric Station and performance of power generators. The FSR was reviewed by Guangdong Province Water Resource Office on 28th April 2005 before it is finally approved by Guangdong Province Development and Reform on 6th June 2005. Thus, these two values are deems as valid and appropriate.
2. the annual grid-connected electricity is estimated in the FSR by the following formula:
Annual grid-connected electricity generation = (annual electricity generation) x (Electricity Coefficient) x (1-power consumption rate (%)) x (1-Line loss (%))

Electricity Coefficient = 0.9

According to the FSR and the ***Statement on the electricity coefficient, power consumption rate, line loss rate of Dongshan Hydropower Project*** issued by Guangdong Province Water Design Institute on 15th January 2009, the annual power generation is just calculated based on years of historical hydrological data and power generation capaicity of generators. It is a theoratical data. Whilst the grid-connected electricity amount has to take into consideration of dispatchment of power grid, grid power balance, routine maintenance, and/or breakdowns. The proposed project is categorized as grid-connected daily regulation station. The Electricity Coefficient falls between 0.8~0.9. The design institute adopt most optimist data 0.9 to do calculation, which is most conservative for investment analysis.

According to the ***Statement on the Effective Electricity Rate for Hydropower Stations in Meizhou City Guangdong Province*** issued by Meizhou City Power Supply Bureau of Guangdong Power Grid Company on January 22 2009, the effective electricity rates of all hydropower projects fall into the range of 80%~ 90%. This is caused due to electricity dispatch and electricity balance by our bureau, also considering the statistics data of the actual effective electricity rates of all operated hydropower projects in our city these years. Detailed reasons are as follows:

a. Most of hydropower stations in Meizhou City local grid are run-of-river river-bed stations without adjusting capability or with little adjusting capability. The local grid is vulnerable and single; and the absorption and transmission capacity of local grid is very limited. The electricity generated by hydropower stations in rainy

season can not be all connected to the local grid, which resulted in the surplus water resources lost.

b. The grid connected electricity was directly influenced and limited by the demand of power load. All the hydropower stations are dispatched by the dispatch department of our bureau according to the demand of power load and the regulations of power supply and demand. When the demand of power load was decreased, the grid connected electricity was decreased accordingly. Especially in rainy season the water resource was plentiful, but all the generated electricity cannot supply to the power grid because of the limit of the demand of power load which also resulted in the surplus water resources lost for stations without adjusting capability or with little adjusting capability.
c. The addition of capacity of hydropower stations was developed quickly, but the development of local grid lagged behind. The contradiction between the power generation and power transmission and distribution was outstanding.
d. Generator overhaul and emergency shutdown etc are also the influence factors.

Power Consumption Rate = 1%

According to the FSR and the Statement on the electricity coefficient, power consumption rate, line loss rate of Dongshan Hydropower Project issued by Guangdong Province Water Design Institute (IRL 11) on 15th January 2009, the self power consumption rates of the proposed hydropower station accounts for 1% of the total installed capacity.

According to the paper of "the relationship between House Service System and Power Generation Output in Hydraulic Power Plant" published on the Northeast Electric Power Technology(Authoritative Power Periodical), the Power Consumption Rate of hydropower stations in China is in the range of 0.3% ~ 2%, the Power Consumption Rate of the project is 1% which is in the range of 0.3% ~ 2% so the data is valid and appropriate.

Line Loss Rate = 3%

According to the FSR and the Statement on the electricity coefficient, power consumption rate, line loss rate of Dongshan Hydropower Project issued by Guangdong Province Water Design Institute (IRL 11) on 15th January 2009, the electricity of the project will be transmitted to Xinling 220kV substation, and the transmission Line between the proposed project and the substation is 36km, and the transmission voltage is 110kv, so the line loss rate was calculeted to be 3% based on the length of the transmission line and the voltage.

Therefore,the annual grid-connected electricity= the annual electricity generation×The effective electricity rate×(1- power consumption rate) ×(1- The line loss rate)= 308,940MWh×90%×(1-1%)×(1-3%)=267,008MWh.

Request 3:

A full interlinked spreadsheet of the investment analysis should be provided.

Response from PP:

The full interlinked spreadsheet of the investment analysis is provided.

Yours faithfully
for CARBON ASSET MANAGEMENT SWEDEN AB, part of the Tricorona Group

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