

Request for registration 7684 Construction and operation of the Hydraulic Power Plant Chicoasén II

To whom it may concern;

Following you will find for each comment received on your e-mail dated on 22/02/2013 a clarification or indication of the modifications performed in documentation.

1) The DOE is requested to further substantiate how it has validated investment comparison analysis to be an appropriate investment analysis option to demonstrate additionality for the project activity, considering that:

- a) the applied methodology ACM0002 page 4 specifies the grid as the baseline for the proposed project activity.

ACM0002 page 4 establishes that the baseline for this proposed project activity is the *electricity delivered to the grid by the project activity 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 in the "Tool to calculate the emission factor for an electricity system".*

The "Comisión Federal de Electricidad (CFE)" is a Mexican public enterprise responsible of the electricity generation and distribution. To accomplish this goal, CFE must build power plants, transmission lines and substations to produce transmit transform and distribute electricity through the country. It is its obligation to equilibrate the final consumers demand in terms of quality, quantity and price¹.

Calculations included in section B.5. of the PDD Sub Step 3c show that the project activity has a levelized cost of 131.17 USD/ MW. The official references quoted at the PDD (Table A.1 of COPAR 2011) clearly show that conventional power generation systems using fossil fuels such as natural gas or coal are considerably more attractive than the proposed project activity (55 to 83 USD/MWh), demonstrating that the baseline scenario for the increasing power demand in Mexico would be the operation of grid –connected power plants with the addition of fossil based generation sources.

In order to improve clarity, this information has been included in the PDD (please see document P124_VAL_162)

- b) VVM version 1.2, paragraph 105 requires the PDD to identify credible alternatives only if the applied methodology does not prescribes the baseline scenario, hence, alternatives other than the grid need not be considered; and

As previously explained, ACM0002 page 4 establishes that the baseline for this proposed project activity is the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources. Given that CFE is responsible for the addition of these new sources and it has been demonstrated that the addition of fossil based technologies, which are the current practice, are the most likely baseline scenario, the PDD is in line with VVM version 1.2.

¹http://www.cfe.gob.mx/ConoceCFE/1_AcercadeCFE/CFE_y_la_electricidad_en_Mexico/Paginas/Conoce-sobre-electricidad.aspx

- c) Guidelines on the assessment of investment analysis version 5 paragraph 19 states "if the proposed baseline scenario leaves the project participant no other choice than to make an investment to supply the same products or services, a benchmark analysis is not appropriate and an investment comparison analysis shall be used." Please refer to VVM version 1.2 paragraph 105, and the Guidelines on the assessment of investment analysis version 5 paragraph 19.

The guidelines affirms that "if the proposed baseline scenario leaves the project participant no other choice than to make an investment to supply the same products or services, a benchmark analysis is not appropriate and an investment comparison analysis shall be used." That sentence is not applicable to this project activity because no benchmark analysis was used.

On the other hand, the rationale for this same paragraph states that: "The purpose of an investment analysis in the context of the CDM is to determine whether the project is less financially attractive than at least one alternative in which the project participants could have invested."

As it has been repeatedly affirmed, the additionality analysis confirms the previous statement as it demonstrated that the project activity is not the most financially attractive alternative in which the project participants can invest.

2) The DOE is requested to further substantiate the input values to the investment analysis, in particular to justify the source of the input values by confirming that all the values used were available at the time of the investment decision, and to provide thorough assessment of each key input value, describing in details the methods used to verify the suitability of the values and the source and the nature of the documents used. Please note that this applies to both the project activity and the alternative scenario(s). In addition, please clarify the inconsistency in the levelized cost of the project activity which is indicated as 108.57 \$USD/MWh in the validation report while it is 131.17 \$USD/MWh in the PDD. Please refer to VVM version 1.2 paragraphs 111 (a), (b), and (c) and the Guidelines on the assessment of investment analysis version 5 paragraph 6.

Validation Report has been modified in order to correct the levelized cost, it was a mistake of the validation team, since the team was working on others projects at the same time.

Values used in the investment analysis:

- Installed Capacity (240 MW). It has been checked with the Feasibility Report, which indicates that it is expected to install three (3) Kaplan turbines with 80MW each one. It can also be crosschecked with document P124_VAL_025 Environmental Impact Assessment, chapter 2, page 7, approved by Mexico's Ministry of Environment (SEMARNAT) on July 2011.
- Investment (395,095,00 USD\$). It has been checked with the Budget for bidding for the construction, which indicates that the total amount for the construction of the HPP it is estimated to be 395,095,000 USD\$. This data were obtained directly from CFE and this is the amount by which the construction works will be bid for. This information can also be crosschecked with the feasibility study (document P124_VAL_066, page 12, July 2011) approved by Mexico's Ministry of Finance (SHCP). Further crosschecking has been done by comparing the investment/ capacity ratio of the project (1,646 USD/ KW) with publicly available information for similar projects (1,750 – 6,250 USD/ KW, from Energy Technology Systems Analysis Programme, May 2010, table no. 2 available at: <http://www.iea-etsap.org/web/e-techds/pdf/e07-hydropower-gs-gct.pdf>) proving that the information included in the PDD is conservative.

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- Plant Load Factor (27%) HPP Chicoasén II will operate at the same plant load factor than the HPP Ing. Manuel Moreno Torres which is upstream. The plant load factor 27% represents 6.6 daily hours, 5 days per week, and 52 weeks per year of operation. This information is consistent with the feasibility study (document P124_VAL_066, page 24, July 2011) approved by Mexico's Ministry of Finance (SHCP).
 - Project economic life (50 years), CFE knowledge indicates that the expected lifetime for a HPP project is over 50 years. This information is consistent with the feasibility study (document P124_VAL_066, page 63, July 2011) approved by Mexico's Ministry of Finance (SHCP). Further crosschecking has been done by comparing this figure with publicly available information for similar projects (30 years economic life, May 2010, table no. 2 available at: <http://www.iea-etsap.org/web/e-techds/pdf/e07-hydropower-gs-gct.pdf>) proving that the information included in the PDD is conservative.
 - Discount rate (12%), it is obtained from the feasibility report and also from the COPAR 2011 (Document P124_VAL_046 page 1.1, May 2011).
 - Self-consumption (0.5%). It was checked with the feasibility report, which indicates that the self-consumption factor will be 0.5% and the COPAR (Document P124_VAL_046 page 3.7, May 2011).
 - O&M Total (10 KUSD\$/MW), It has been checked with the Economic Model for Project Activity. This information is consistent with the COPAR (Document P124_VAL_046 pages 5.4 and 5.5, May 2011). Further crosschecking has been done by comparing this figure with publicly available information for similar projects (35 – 85 KUSD/ MW year, May 2010, table no. 2 available at: <http://www.iea-etsap.org/web/e-techds/pdf/e07-hydropower-gs-gct.pdf>) proving that the information included in the PDD is conservative.
 - Present Value Factor (0.18240). It has been checked with the Economic Model for Project Activity, the value is calculated using the COPAR.
 - Water use cost (841,50 USD\$/MW). It has been checked with the Economic Model for Project Activity, the value is calculated using the COPAR. This figure is consistent with Mexico's Law: "Ley Federal de Derechos 2010" (Document P124_VAL_142 page 234, published on December 28th, 2009; including these costs in its Chapter VIII: Water).

The previous data confirms that information was available at the time of the investment decision as required by Guidelines on the assessment of investment analysis version 5 paragraph 6, and that the accuracy of financial calculations has been reviewed in line with VVM version 1.2

In order to improve clarity, this information has been included in the validation report, please see updated validation report, section 3.7.2.2 of document: Validation Report.