



CDM Executive Board
UNFCCC Secretariat

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8th June 2009

Dear CDM Executive Board Members,

Re: Request for review for request for registration of “Salto Small Hydro Power Plant Project – A Brascan Energética S/A Project Activity (UNFCCC Ref. no. 2380)."

SGS has been informed that the request for registration of the proposed CDM project activity “Salto Small Hydro Power Plant Project – A Brascan Energética S/A Project Activity” (UNFCCC Ref. no. 2380) is under consideration for review because three requests for review have been received from members of the Board.

The requests for review are based on the reasons outlined below. SGS would like to provide an initial response to the issues raised by the requests for review:

Request for Review 1-3, Issue 1:

Further clarification is requested on the validation of the method/procedure followed to determine the benchmark and the suitability of the benchmark as compared to other similar CDM projects in Brazil.

SGS’ Response to Issue 1:

The explanation about the benchmark used was provided in the validation report and clarification submitted in the request for registration but additional clarification will be provided in this response. Brascan sought for the carbon credits to develop their hydro power plant projects and this was confirmed through another 5 registered CDM projects (www.unfccc.int, UNFCCC Ref. number 0477, 0543, 0519, 0520, 0830).

The benchmark selected for the analysis was the WACC - weighted average cost of capital, which is in accordance with the “Guidance of investment analysis”, paragraph 12 (*“Internal company benchmarks/expected returns (including those used as the expected return on equity in the calculation of a weighted average cost of capital - WACC), should only be applied in cases where there is only one possible project developer and should be demonstrated to have been used for similar projects with similar risks, developed by the same company or, if the company is brand new, would have been used for similar projects in the same sector in the country/region”*).

The detailed calculation of WACC (calculated as 21.57%) was verified (ref. 4 of the validation report) during the validation process. Assumptions, values and equations were checked and documented copies were provided to DOE and mentioned in the reference list of the validation report. The assessment team verified the assumptions and calculation of each component of the equation. Brascan considered the return of 20% (ROA – Return of Assets) to invest in new projects. As evidence of the expected return of 20%, a copy of the Brascan presentation in 2005 was provided. The ROA in the range of 20% was adjusted to the risk profile of the investment. The ROA was used as a reference value. The Benchmark value used in the project is the WACC and was calculated based on parameters observed in global financial markets. Based on these assumptions, the cost of capital in Brazil is close to a global cost of capital adjusted for local inflation and capital structure. The Cost of Debt considers risk free rate, levered debt premium, pre-tax cost of debt and consumer price index. The Cost of Equity considers risk free rate, equity risk premium, estimated country risk premium, adjusted industry beta and consumer price index. These parameters are based on available data that was confirmed by the validation team (BNDES quotations, cumulative inflation, emerging markets bond index). The calculation of WACC was provided with the request for registration as ref-4 WACC Salto.

WACC calculation:

- Cost of equity:

Risk-free Rate (1) = 6.9% (USA Treasury Bonds Index - 10-year U.S. Treasury Coupon Bond Yield - fonte: Bloomberg)

Equity Risk Premium (2) = 5.8% (Calculated considering with the energy market main companies financial information and betas. Source: Companies Information / Economática)

Consumer Price Index (3) = 7.8% (Calculated considering the difference between the average earnings of SP&500 vs 10-year T.Bond Yield (1928 - 2005 arithmetic average). Source: Damodaran NYU)

Country Risk Premium (4) = 8.4% (Average of the EMBI + Brazil (last six months) - Source: JP Morgan)

Levered Beta (5) = 1.00 (Levered Debt Premium related to the TJLP (Long Term Interest Rate))

$(1 + (5 \times 2) + 4) / 3 = \text{Cost of Equity } 21.1\%$

Target Equity / Total Capital 30.0%

- Cost of Debt:

BNDES Loans (8) = 9.8% (BNDES Loans cost (TJLP))

Consumer Price Index (3) = 7.8% (Calculated considering the difference between the average earnings of SP&500 vs 10-year T.Bond Yield (1928 - 2005 arithmetic average). Source: Damodaran NYU)

Levered Debt Premium (6) = 5.0% (Brazilian Inflation - Forecast for the next 12 months - Source: Central Bank).

Marginal Tax Rate (7) = 0.0% (The Target Debt/Equity considered by the energy market companies) *

$(8 + 4 + 6) = \text{Pre-Tax Cost of Debt } 14.8\% / 3 = \text{Cost of Debt } 14.8\%$

Target Debt / Total Capital 70.0%

Target Debt / Equity 233.3%

WACC = 21.57%

The use of the WACC as a benchmark is considered suitable to CDM projects in Brazil. Several approaches are being used in CDM projects in Brazil, and the WACC is the most commonly used in projects. Recent similar CDM projects in Brazil were analyzed through the Brazilian DNA website (<http://www.mct.gov.br/index.php/content/view/57967.html>) and among eight hydro power plant projects with LoA issued by the Brazilian DNA in 2008-2009, six projects used WACC as a benchmark.

Request for Review 1-3, Issue 2:

The DOE is requested to clarify further how it has validated that all the input values to the investment analysis are appropriate for the underlying project activity, in particular the investment cost and the electricity tariff. In doing so, DOE shall validate and cross check, based on reliable and credible evidence, the appropriateness of the input values and the application of sensitivity analysis on the plant load factor and the electricity generations from the project.

SGS' Response to Issue 2:

The financial indicator IRR (internal rate of return) was calculated using the spreadsheet "Salto cash flow" (Ref 4). The cash flow shows that Salto project activity was planned with an expected IRR of 18.3%. The company internal benchmark is the WACC of 21.57%. The WACC and IRR were calculated on the same basis.

The analysis was recalculated by a financial expert and confirmed to be correct. The assumptions used and spreadsheets with formula were also checked by the assessment team. The conclusion of the assessment team is that the project cannot be considered financially attractive with this result of 18.3% IRR, lower than the benchmark of 21.57%. As mentioned in the validation report, the investment cost were verified through

the contract between Salto Jauru Energética and Consórcio Construtor Salto dated 20th December 2005. The electricity tariff was confirmed through the power purchase agreement (ref. 14 of the validation report) VPPI Nº011/2006 between Salto Jauru Energética and CEMAT. The input values used in the investment analysis were considered appropriate and confirmed through documented evidences listed in the validation report (ref. 4, 5, 6, 14, 18 of the validation report).

The WACC and IRR were calculated on the same basis, considering inflation. The assumptions used to calculate the IRR also considered inflation. The value of 4.92% is the inflation differential to convert from USD to R\$. The financial spreadsheet presented was prepared by Brascan at the time of decision to implement the project activity. The period of 22 years was adopted for the analysis as a practice in Brascan Company. It was confirmed on-site that other projects developed by the company adopted the same period of 22 years.

The sensitivity analysis (Ref 4) was performed according to the guidance for investment analysis; it was considered increasing in the project revenues (energy tariff) and reduction in costs. The investment was not considered in the sensitivity analysis because this is not a parameter expected to change or can increase only, once the investment is defined in contract. The increase of 10% in revenues would be a result of an increase of electricity generation or an increase of electricity price. Both are again not reasonable situations. The electricity generation is limited to the installed capacity and the amount delivered to the grid is defined by the licenses and agreements signed with governmental agencies (ref. 7 of the validation report – The information in this document is: DESPACHO Nº 1.079, 21/12/2004 which states that the installed capacity of SHP Salto is 19MW and the assured energy is 14.16MW). Hence it was concluded that the sensitivity analysis was not applicable to the plant load factor and the electricity generation from the project. It was confirmed that the project IRR remained lower than the benchmark even in the case where these parameters change in favour of the project activity. The maximum IRR calculated in the sensitivity analysis was 18.4%, still lower than the benchmark. Please refer to ref-4 – Salto Cash Flow submitted with the request for registration.

The assessment team verified the spreadsheet with calculation to confirm the data applied. It was justified that besides of the values and range of variation of parameters, an increase in project revenue or a reduction in running costs are not expected to occur, once the project costs are defined and the energy tariff (project revenues) are fixed according to the signed contracts, so variations or increase in the value are not authorized.

Request for Review 1-3, Issue 3:

Further clarification is requested from the DOE on how they have validated that the 11 projects in the state of Mato Grosso have applied CDM incentives and therefore the project is not the common practice. In doing so, the credible evidence and sources of such information shall be provided.

SGS' Response to Issue 3:

The DOE validated that there were 11 projects in the state of Mato Grosso which had applied CDM or Proinfa incentives through the following sources: ANEEL (Agencia Nacional de Energia Eletrica, www.aneel.gov.br), BNDES website (www.bndes.gov.br), ELETROBRAS (www.elektrobras.gov.br) and UNFCCC website (www.unfccc.int). A table with all similar projects was provided in the PDD considering the years of 2005-2007. Through the websites above it was confirmed that the region had 11 projects in the state of Mato Grosso that have applied CDM or Proinfa incentives (Small Hydro Power Plants: Faxinal II, Ombreiras, Salto Corgão, Aquarius, Canoa Quebrada, Garganta da Jararaca, Sacre 2, Senador Jonas Pinheiro, Braço Norte IV, José Gelásio da Rocha, Rondonópolis). There is no similar project compared to the proposed project activity. From this result, it was demonstrated that the project activity is not a common practice.

Small hydropower plants that are claiming CDM incentives and started operations from 2005 to 2007:

SHPP	CDM PROJECT	UNFCCC LINK
Faxinal II	Faxinal II Small Hydroelectric Power Plant	http://cdm.unfccc.int/Projects/Validation/DB/UX5FMWDY006B4TBW16JM4ESXHKWU6Y/view.html
Ombreiras	ARAPUtanga Centrais ELétricas S. A. - ARAPUCCEL - Small Hydroelectric Power Plants Project	http://cdm.unfccc.int/Projects/Validation/DB/XZSCGC87CDM04G1KB5I8XKBEMJ47V6/view.html
Salto Corgão	Passo do Meio, Salto Natal, Pedrinho I, Granada, Ponte and Salto Corgão Small Hydroelectric Power Plants (the Brascan Project Activity)	http://cdm.unfccc.int/Projects/Validation/DB/C49QWBUE67W8IONTYZ8GPJQHU1UWRZI/view.html
Aquarius	Aquarius Hydroelectric Project	http://cdm.unfccc.int/Projects/Validation/DB/HL3H6D6O18HNXYOD9XKZDVX7P1P14Z/view.html
Canoa Quebrada	Atiaia Energia S/A - Buriti and Canoa Quebrada Small Hydropower Plants	http://cdm.unfccc.int/Projects/Validation/DB/NKSQQI77SRXGU79UYBN6K7NH8ZJ9ST/view.html
Garganta da Jararaca	Garganta da Jararaca, Paranatinga II e Porto das Pedras Small Hydroelectric Power Plants (SHPP) – Atiaia Energia S.A. Project Activity	http://cdm.unfccc.int/Projects/Validation/DB/1NYKHK2HDI4U32NOR1QEA918QEOCHP/view.html
Sacre 2	Brasil Central Energia S.A. – Sacre II Small Hydro Power Plant Project	http://cdm.unfccc.int/Projects/Validation/DB/8EWE2TKTCNZT2SQ7PR5UJGZ70FE70H/view.html
Braço Norte IV	Braço Norte IV Small Hydro Plant	http://cdm.unfccc.int/Projects/Validation/DB/OTZ9K9NN8O95AUF67JY92DGCST5PE/view.html

Small hydropower plants that are claiming PROINFA incentives and started operations from 2005 to 2007:

SHPP	ANEEL LINK
Senador Jonas Pinheiro	http://www.aneel.gov.br/cedoc/bren2004065.pdf
José Gelásio da Rocha	http://www.aneel.gov.br/cedoc/bren2004065.pdf
Rondonópolis	http://www.aneel.gov.br/cedoc/bren2004065.pdf

Request for Review 1-3, Issue 4:

DOE is requested to clarify how they have validated the data vintage applied, in calculating the emission factor of the grid, is the latest data available at the time of submission of PDD for validation.

SGS' Response to Issue 4:

The validation started on 2nd March 2007 (<http://cdm.unfccc.int/Projects/Validation/DB/LFPCDGLWQ6VE8CUNRTV9675SLH2VSB/view.html>) with PDD submission for global stakeholder consultation. At this time the most recent data available to calculate the ex-ante emission factor was dated of 2003-2005.

In the PDD the most recent value available was used. The verified ex-ante emission factor calculated was 0.2611 tCO₂e/MWh (ref. 9 which was already submitted with the request for registration). There are registered projects which were published at the similar time period that used the same data 2003-2005 (UNFCCC e.g. ref.1134).

With the explanation provided above, we hope that all concerns of the EB have been addressed. We do however apologize if this was not sufficiently clear from the validation report.

Fabian Gonçalves (+55 11 3883 8887) will be the contact person for the review process and is available to address questions from the Board during the consideration of the request for review in case the Executive Board wishes.

Yours sincerely,

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