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DET NORSKE VERITAS
CERTIFICATION AS

Att: CDM Executive Board

Your ref.:
CDM Ref 2101

Our ref.:
FEANT/RAFI/BRINKS

Date:
23 March 2009

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**Response to request for review
“Santa Rosa Hydropower Plant Project” (2101)**

Dear Members of the CDM Executive Board,

We refer to the request for review raised by three Board members concerning DNV's request for registration of project activity 2101 “Santa Rosa Hydropower Plant Project”, and we would like to provide the following response to the questions raised by these requests for review.

Comment 1: Further clarification is required on how the DOE has validated the suitability of the input values to the NPV calculation, both for the project activity and alternatives, and how the insurance proceeds for reconstruction has been dealt with in the NPV calculation and why it is not considered as an income.

DNV Response:

A detailed explanation of the investment analysis for each scenario is provided below. All the referenced evidences were provided to DNV.

Alternative 1: 16.3 MW Santa Rosa HPP.

- For this scenario, the project proponent would invest all the capital reimbursed from the insurance of USD 12 853 000 according to the letter from HSB Special Risk Claims dated 21 August 2004 /7/ plus an additional amount of USD 1.10 million related to insurance proceeds and USD 2 500 000 outlay by the company. The total investment of USD 16 453 000 was confirmed by the minutes of Board Meetings dated 15 June 2004 /2/ considering the investment necessary to Santa Rosa reconstruction;
- A 2.5% escalation factor is selected in order to obtain real values from nominal ones. DNV considers an escalator of 2.5% reasonable taking into account that values are expressed in USD;
- For a hydro power plant, the project proponent considers 40% of the investments as civil works portion and 60% as electromechanical equipment portion. DNV considers this approach reasonable. The depreciation structure is based on the Annex to the DINE Resolution N° 002/91 /3/. This Resolution assigns the following depreciation rates: buildings, structures and improvements 2.0%, dams and water conduits 2%, turbines and generators 2.5%, electrical equipment & accessories 3.0%, miscellaneous equipment 3.8% and Pelton Runners 12.5%. The first two items correspond to civil works and support the 2% depreciation rate used in the financial analysis. The last four items cover electromechanical equipment and in order to obtain a single representative depreciation rate COBEE estimated a budget structure of 57%, 20%, 10%, 13% respectively. The corresponding weighed depreciation rate is 4.0%.
- After the power station destruction and when different components were still under an accounting and condition evaluation, the following figures were collected and incorporated in the project financial analysis: original value of assets = USD 12.65 million; depreciation amount = USD 5.37 million; assets book value prior to event USD 7.28 million. DNV confirmed this information assessing the COBEE Project Accounting Closure for Surviving and Destroyed Assets report /4/. Applying the same depreciation rates and portions described above, the resulting depreciation results in USD 404 326/year.

- This scenario considers energy generation with a 12.5 MW capacity in the first two years, that are the construction years. As established in the terms of the insurance coverage /7/, the underwriters were obligated to pay the project participant the revenue that would have been generated by the power station, had it not been destroyed (business interruption), until the new project becomes operative, i.e. years 2004 and 2005 dedicated to construction.
- Regulated energy and capacity prices were estimated based in the Resolution SSDE 017/2002 /5/ issued by the Electricity Superintendence.
- The spot energy prices were estimated based in the CNDC Programme for May 2003 – April 2007 dated 13 March 2003 /6/.
- The incremental operating revenue is the result of the rate base umbrella. The rate base is the tariff setting scenario assigned to COBEE until December 2008, through Supreme Resolution No. 215064 /8/.
- Regarding the insurance proceeds for reconstruction, according to Law 843 /12/ and Supreme Decree N° 24051 /9/ regarding Income Tax regulations it is established that: “When the insurance proceeds do not cover the loss or exceed the book value of the loss, those differences are registered in the Income Statement of the year in order to establish the net income subject to taxation”. For the purpose of the project financial analysis, the difference of *insurance proceeds less book value of loss* has been included in the income statement of the respective year and has been referred to as *capital gain*. In practical terms, the following figures have been included in the income statement portion of the financial model:
 - Total investment (I): USD 16.45 million
 - Equity portion (E): USD 2.50 million
 - Insurance proceeds (I-E): USD 13.95 million
 - Book value of loss (B): USD 3.65 million
 - **Capital gain ((I-E)-B): USD 10.31 million**
- The application procedure for the CNDC Fee rate is established in Article 84 of the Ruling for the Electricity Market Operation /10/. Accordingly, in year 2003 COBEE gross revenue reached US\$ 25.51 million, CNDC fee reached US\$ 201 000 equivalent to 0.79% of the gross revenue. Consequently, the value of 0.80% was taken as representative for the project financial model. DNV confirmed this information by assessing the COBEE income statement for 2003 /13/.
- The SIRESE Fee rate is established on annual basis through a Resolution by the Superintendence of Electricity /11/.
- The transaction tax rate (IT) was established through Law N° 843 dated 30 April 2000 /12/, and corresponds to 3% of a product final price including VAT (13%); hence in order to obtain the real value of the transaction tax in the project model that does not include VAT, the 3% rate is divided by 87%, reaching 3.45%.
- The Income Tax rate of 25% (IUE) was established through Law N° 843 dated 30 April 2000 /12/.
- The “additional revenue to reach 9% rate base” is a calculation that shows how the regulator will define the amount to be taken as the closing value to achieve the 9% return established in the electricity code. In the case of alternatives 1 and 2 the closing values are high and negative considering the significant capital gain involved; however for alternative 3 the values are positive and low because the only variations are a result of the 6 382 MWh/year lost downstream.
- COBEE provided a financial report /13/, and DNV could confirm that the Santa Rosa Power Plant historical O&M costs for the last 3 years of operation, prior to the event, were USD 329 000 (2000), USD 301 000 (2001) and USD 334 000 (2002). Average O&M cost for those years was US\$ 321 000. Considering that the new power plant would include state-of-the-art technology, COBEE estimated future O&M costs equivalent to 60% of the historical figure; hence USD 192 000. DNV assessed the breakdown of the O&M costs and considers this approach reasonable.
- The Value Added Tax rate of 13% (IVA) was established through Law N° 843 dated 30 April 2000 /12/;
- Wheeling tool is the result of COBEE internal projection based in the wheeling toll at Kenko node presented in the CNDC Transaction Report dated January 2004 /14/.
- A Discount Rate of 15% was considered, corresponding to the minimum corporate discount rate used as cost of equity to analyze all COBEE projects. This is supported by the CAPM (Capital Asset Price Model) and similar benchmarks /18/.

Alternative 2: 12.5 MW Santa Rosa HPP with original characteristics.

- For this scenario, the project proponent would invest all the capital reimbursed from the insurance of USD 12 853 000, according to the letter from HSB Special Risk Claims dated 21 August 2004 /7/ plus an additional amount of USD 1.10 million related to insurance proceeds;
- The remaining assumptions are the same of alternative 1.

Alternative 3: Nor project activity or other alternative undertaken.

- For this scenario, the project proponent would not invest any capital at all. Under this situation, the underwrites are obliged to cover only the book value of the destroyed assets /7/, estimated as USD 3.65 million at the time of the investment decision. This value was confirmed to be by the COBEE Project Accounting Closure for Surviving and Destroyed Assets report as USD 4.22 million /4/. DNV considers the estimated value a conservative one.
- If the facility is not rebuilt, COBEE's power station immediately downstream will be affected by a reduction in energy generation (6 382 MWh/year) caused by the lack of flows diverted from the Santa Rosa high head scheme.

Alternative 4: 48 MW natural gas-fired thermal project.

- Scenario #4 comprises a 48 MW natural gas-fired thermal power plant, following the latest investment trend in the SIN. Investment was estimated as follows, according to the GTW Handbook, dated January 2003 /15/:
 - GE gas turbine LM6000PC Sprint; 48 MW USD 12.90 million;
 - From Operative Rule N° 19, 20% for complementary equipment, sub-total USD 15.48 million;
 - From Operative Rule N° 19, 50% for additional costs, sub-total USD 21.93 million;
 - COBEE estimate for transmission line cost equivalent to 20% of installed generating unit cost (15-20 km T/L), sub-total USD 26.30 million;
 - COBEE estimate for contingency equivalent to 10% of overall cost, total USD 28.93 million.
- Spreadsheet has inverted the names for variable and fixed O&M costs; the evidences provided to DNV that confirm the following values were the GTW Handbook, dated January 2003 /15/ and the CNDC Node Price Study November 2003 – April 2004 dated 23 October 2003 /17/:

Variable O&M costs were estimated as follows:

- 8 430 Btu/kWh
- 960 Btu/PC
- 0.90 US\$/MPC gas price
- 357 036 MWh project energy generation
- Result US\$ 2.82 million

Fixed O&M costs were estimated as follows:

- 1.040 US\$/MWh for base
- 1.454 US\$/MWh for semi-base
- 2.156 US\$/MWh for peak
- 7, 12, 5 hours/day duration of base, semi-base and peak periods, respectively
- Weighed O&M cost 1.50 US\$/MWh
- COBEE estimate for other fixed O&M costs is also 1.50 US\$/MWh

Result is 3.00 US\$/MWh

- The remaining assumptions are the same of alternative 1.

The following table presents a summary of the assumptions taken by the project proponent for all alternatives:

	Alternative 1 16.3 MW Santa Rosa HPP	Alternative 2 12.5 MW Santa Rosa HPP with original characteristics	Alternative 3 Nor project activity or other alternative undertaken	Alternative 4 48 MW natural gas-fired thermal project
Investment	Total: USD 16.45 million As a result of: insurance proceeds USD 13.95 m + equity USD 2.50 m	Total: USD 13.95 million As a result of: insurance proceeds USD 13.95 m	Total: USD 0 As a result of no investment since no project is undertaken	Total: USD 28.93 million As a result of market value for a GE LM6000 unit
Revenue	Considering regulated tariff up to 2008 and spot prices of COBEE long term study BC 0204 based on CNDC Mid term Study for Nov -03	Considering regulated tariff up to 2008 and spot prices of COBEE long term study BC 0204 based on CNDC Mid term Study for Nov -03	Considering the loss of revenue in relation to the other alternatives	Considering regulated tariff up to 2008 and spot prices of COBEE long term study BC 0204 based on CNDC Mid term Study for Nov -03
Expenses	Yearly nominal fixed cost of USD 192 000, also considers wheeling toll, CNDC and SIRESE fees	Yearly nominal fixed cost of USD 192 000, also considers wheeling toll, CNDC and SIRESE fees	Considers the savings in relation to the other alternatives	Yearly nominal fixed cost of USD 2.82 million, yearly nominal variable O&M cost of USD 1.039 million, also considers wheeling toll, CNDC and SIRESE fees
Depreciation rates	Regulatory depreciation rates	Regulatory depreciation rates	Regulatory depreciation rates	Regulatory depreciation rates
Taxes	Transaction tax 3.45% (grossed up) of revenues; income tax 25%	Transaction tax 3.45% (grossed up) of revenues; income tax 25%	Transaction tax 3.45% (grossed up) of revenues; income tax 25%	Transaction tax 3.45% (grossed up) of revenues; income tax 25%
Insurance Proceeds, capital gain and write-off	Total: USD 13.95 m With book value of destroyed asset of USD 3.65 m, capital gain results in USD 10.31 m	Total: USD 13.95 m With book value of destroyed asset of USD 3.65 m, capital gain results in USD 10.31 m	Total: USD 3.65 m Based on book value of destroyed asset of USD 3.65 m. Asset accumulated depreciation write-off USD 7.28 m	n/a
Discount rate	15%	15%	15%	15%

The following table lists the documentation that was reviewed during the validation related to the investment analysis assessment:

- /1/ Superintendency of Electricity: Bolivian Electricity Law 1604 dated 21 December 1994
- /2/ COBEE: Minutes of Board Meetings dated 15 June 2004 considering the investment necessary to Santa Rosa reconstruction

- /3/ Hydrocarbon and Energy Ministry: DINE Resolution N° 002/91
- /4/ COBEE: Project Accounting Closure for Surviving and Destroyed Assets
- /5/ Electricity Superintendence: Resolution SSDE 017/2002
- /6/ CNDC: Programme for May 2003 – April 2007 dated 13 March 2003
- /7/ Letter from HSB Special Risk Claims dated 21 August 2004
- /8/ Bolivian Government: Supreme Resolution 215064 dated 30 December 1994
- /9/ Supreme Decree 24051 dated 29 June 1995
- /10/ Supreme Decree 26093 dated 2 March 2001
- /11/ Electricity Superintendence: Resolution SSDE 184/2003
- /12/ Law 843 dated 30 April 2000
- /13/ COBEE: Financial Report of 2000, 2001, 2002 and 2003
- /14/ CNDC Transaction Report dated January 2004
- /15/ GTW Handbook, dated January 2003
- /16/ Electricity Superintendence: Resolution SSDE 121/2001
- /17/ CNDC: Node Price Study November 2003 – April 2004 dated 23 October 2003
- /18/ Harvard Business Review: “Does the Capital Asset Pricing Model Work?” – article by David W. Mullins Jr. suggesting a discount rate of 15.40% for electric utilities projects

Regarding the insurance proceeds, it was considered as an income for the alternative scenarios. Columns #53 (for Table A.5.1) and #51 (for the remaining tables) considers the payment of insurance proceeds, and this is also considered for the total revenue – Columns #56 (for Table A.5.1) and #54 (for the remaining tables).

Comment 2: The PP/DOE should further clarify how the similar projects have been identified and how the project activity has been differentiated from the similar project in the common practice analysis.

DNV Response:

According to Bolivian Superintendence of Electricity Annual Report (2004), 14 hydropower generating units were implemented in Bolivia after 1997. The project participants considered for common practice analysis the units implemented after 1998, with capacity range from 3.5 to 50 MW, connected to the Bolivian SIN and with medium and high head technologies, resulting in 12 generation units: Cuticucho, Botijlaca, Huaji (2 units), Kilpani, Landara, Kanata, Chojlla (3 units), Yanacachi and Santa Isabel. DNV verified the selection of projects from public information available in the Superintendence of Electricity Annual Report.

However, based on the Supreme Decree 26037 dated 22 December 2000, natural gas price decreased from a maximum of 2.32 to a maximum of 1.30 \$/TCF in 2001. Hence, the electricity price decreased resulting in less attractiveness for hydro power plants. The project participants have therefore limited the common practice analysis to projects from 2001. In the period from 2001 only two hydro power plants were built: Santa Rosa (the project activity) and Santa Isabel.

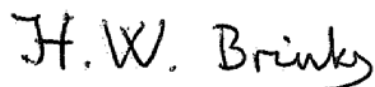
The main difference for these two projects is the lack of investment stimulus based on a commitment with the government. As part of the investment commitment during the privatization process of the electricity industry that started in 1994, new owners (private investors) had to comply with a minimum level of investment within a certain period, regardless of the investment financial feasibility hurdle. This commitment turned into a direct investment stimulus. DNV confirmed by the report of independent public accountants issued by Ernst & Young that the new power unit of Santa Isabel power plant was part of the investment commitment from CORANI, the project developer. This means that CORANI had no other choice but to invest in the new unit in order to attend its commitments. On the other hand, COBEE's commitments were already attended at the time of the Santa Rosa power plant reconstruction. Therefore, COBEE could decide not to rebuild the Santa Rosa power plant.

All correspondent evidences were provided to DNV, and therefore DNV confirms that the project activity is different from the other similar projects.

We sincerely hope that the Board accepts our above explanations.

Yours faithfully

for DET NORSKE VERITAS CERTIFICATION AS



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