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Att: CDM Executive Board

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Your ref.:	Our ref.:	Date:
CDM Ref 2112	BRINKS/CK	22 December 2008

Response to requests for review "24 MW Perla Mini Hydel Project, Karnataka, India" (2112)

Dear Members of the CDM Executive Board,

We refer to the issues raised during the requests for review by three Board members regarding our request of registration of the project activity "*24MW Perla Mini Hydel Project, Karnataka, India*" (2112) and would like to provide our initial response to the issues raised.

Comment 1: The DOE should clarify how it has validated the investment analysis, in line with EB 41, Annex 45, (a) the benchmark, in particular the appropriateness of the country risk premium of 8.2% and a 2000 report as a reference for an investment decision taken in 2006; (b) the method applied to account for the salvage value in line with the operational lifetime; and (c) the exclusion of tariff and O&M costs among the parameters for the sensitivity analysis.

DNV Response:

DNV would like to state that the guidelines provided in the "*Guidance on Investment Analysis*" of EB 41 Annex 45, have been followed in the validation of the project additionality. The following may be noted:

- The assessment period for the financial calculation of IRR has been taken at 20 years in line with the guidelines.
- The salvage value at the end of the assessment period has been considered to be 5% of the initial cost, after depreciating 95% of the equipment value during the assessment period of 20 years. The method adopted for the financial calculations is also as per the local accounting regulations and practices.
- The input values used in the financial calculation have been sourced from the detail project report (DPR). DNV has been able to verify the investment cost, as stated in the DPR and used in the financial calculations, against the quotations received from the contractors for the civil works (dated 16 June 2005) and other suppliers. Considering the fact that the time gap

between the decision making on 19 July 2005 (with reference to the Board resolution) and the actual construction start on 25 January 2006 (corresponding to the agreement for civil construction) was only six months, the data sourced from the DPR can be considered valid and appropriate. The conservativeness of the investment cost used in the financial analysis (at INR 971 million) was also verified from the company's audited balance sheet for the year 2007-08, during which the major investment (INR 1 115.315 million) was incurred and the construction was still in progress. The audited balance sheet for the year 2007-2008 has been attached as Annexure 01 to this response.

Hence DNV reiterates that the investment analysis has been assessed in accordance with the Guidance on Investment Analysis of EB 41 Annex 45.

a) The approach of arriving at the benchmark of government bond rates, increased by the suitable risk premium to reflect the project type is as per the Additionality tool and the selected risk premium of 8.2% was accepted because it was the most conservative of the risk premiums available at the time of decision making. Furthermore, DNV has verified the adopted approach of the third party independent charted accountant for arriving at the benchmark. The certificate from the third party charted accountant has already been attached as part of registration package.

In this context the following three relevant published studies on risk premium for India were available at the time of decision making:

i) Prof J.R. Verma (2006), Professor of Finance at Indian Institute of Management, Ahmdedabad and former Full time Member of Securities and Exchange Board of India study – demonstrates a risk premium of 8.75%[*].
ii) Prof. Rajnish Mehra (2006), University of California, Santa Barbara and National Bureau of Economic Research – addresses a risk premium of 9.7%[†].
iii) CRISIL (2000) study which has estimated the risk premium at 8.2%[‡].

Among the three published studies, 8.20% being the *lowest* risk premium is considered to be conservative by DNV. Subsequent study on risk premium (2008) published by Aswath Damodaran, which places the risk premium at 8.54%[§] also indicates that the risk premium chosen is conservative. Using Prof. Verma's risk premium, the benchmark would be 16.03% and based on Prof. Mehra's risk premium, the benchmark would be 16.98%. This shows that the chosen benchmark of 15.48% is deemed to be conservative. Thus, DNV could verify the appropriateness of the selected benchmark.

b) The salvage value at the end of the assessment period has been considered to be 5% of the initial cost, depreciating at 95% of the value of the equipment during the assessment period of 20 years. The method adopted for the financial calculations is as per the general practice adopted for the financial calculations based on local accounting regulations. The reference to the general practice adopted for arriving at the depreciation values has been attached as Annexure 02.

c) As required by the *"Guidance on Investment Analysis"*, the sensitivity analysis was carried out considering the possible variation in parameters of power generation and project cost of 10%. These

[*] Prof. Jayant R. Verma and Samir K. Barua, *A First Cut Estimate of the Equity Risk Premium in India* Indian Institute of Management, Ahmedabad, can be accessed at http://www.iimahd.ernet.in/~jrvarma/papers/WP2006-06-04.pdf
[†] *The Equity Premium in India*, Prof. Rajnish Mehra, can be accessed at http://www.academicwebpages.com/preview/mehra/pdf/Equity%20Premium%20in%20India.pdf
[‡] *Cost of Capital for Central Sector Utilities*, CRISIL Advisory Services can be accessed at http://cercind.gov.in/rep1304.pdf
[§] *Country Default Sprads and Risk Premiums*, Aswath Damodaran, can be accessed at http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html

parameters are considered to have material impact on the outcome of the analysis. DNV has considered that the exclusion of tariff for the sensitivity analysis is justifiable because:

The tariff for the project activity used in the financial calculations is as per the PPA (Power Purchase Agreement) which is valid for a period of 20 years and the tariff is fixed at INR 2.80 for a period of 10 years. The tariff is supposed to be revised from the 11th year. Although the tariff is governed by the PPA, there is always a possibility of suggesting a reduced tariff, as at the end of 10 years the project would be free from the debt component (loan liability) and would have only the equity component. Also the project participant is bound by the PPA and has to follow the tariff suggested by the regulatory agency KERC then, till the end of 20 years. Though the tariff is subject to revision after 10 years, the same tariff of INR 2.80 has been assumed for 20 years for financial analysis considering the fact that any assumptions on the tariff, applicable from the 11th year onwards, are highly uncertain as of today and do not provide a reliable basis for investment decisions. The KERC arrives at the tariff based on generalised assumptions on the fixed and variable cost involved in generation of the electricity from different type of sources. The total of the fixed and variable cost is fixed as applicable tariff. Going by the same assumptions the tariff from year 11 may be lower for the following reasons:

- No element of interest for loans involved;
- No capital cost repayment factor.

A sensitivity analysis has been carried out and the worksheet is enclosed as part of the PP's response to the request for review. With a 10% reduction in O&M cost, the IRR will go up to 13.58% which is below the benchmark.

Thus DNV could verify that the exclusion of tariff and O&M for sensitivity analysis is reasonable.

Comment 2: Further clarification is required on how the DOE has validated the barrier analysis.

DNV Response:

The project activity demonstrates additionality considering the existence of hydrological barriers and institutional barriers. DNV could assess the arguments under these barriers as a part of validation and further explanation on details are given here under:

Hydrological barriers

The PDD has stated the following arguments under hydrological barriers (a) limitations arising out of the water flow in the river, (b) creating an operating head and discharging tail race water in to the rive bed, (c) likely reduction in water non-availability in case of expansion of the capacity of MRPL, and (d) irrigation department's right over the discharge of water.

DNV has considered only the limitation arising out of the water flow in the river as a barrier since the arguments presented under this barrier could be checked with the data used for the DPR calculations and can also be substantiated with the gauged data from the Central Water Commission Government of India. The gauge is situated at Bantwal on Netravathi River. These hydrology data available for a period of 20 years have been considered for the calculations of the detailed project report. DNV has verified the data available for the working of DPR.

The design output through the canal is 491 cusecs and only 39.80% can be effectively utilised for power generation. The relevant data that has gone into the DPR calculations has been attached as

Annexure 03 to this reply. Thus, DNV has considered that water flow in the river can be a barrier for the project activity.

The other arguments presented in the PDD could not be substantiated with clear references and publicly available documents and, hence, not considered and reported in the validation report. In the agreement (page 6, section 7), entered into with the Department of Irrigation, the Department has categorically stated that no claim by the company for compensation or whatsoever would be entertained, when the quantity of flow of water is varied or when the water supply is entirely cut-off, depending on the irrigation needs. DNV has considered such an occurrence a rarity and hence did not accept this as a barrier.

Institutional barriers

The PDD demonstrates institutional barriers based on the tariff revisions done by KPTCL (Karnataka Power Transmission Corporation Limited). Initially, KPTCL was offering the tariff recommended by the Ministry of New and Renewable Energy (then, Ministry of Non-conventional Energy Sources), Government of India, which favored the development of renewable energy projects. Subsequently, the tariff was revised to Rs. 2.90 per kWh with an increase of 2% every year for escalation. This policy underwent further change and the price is now fixed at Rs. 2.80 per kWh without any escalation. This tariff revision is applicable to the existing projects with a firm power purchase agreement (PPA).

DNV has verified the details of the tariff revision through the Tariff order dated 18 January 2005 and the applicable tariff to the existing projects covered under the PPA has also been checked. The copy of the Tariff order has been attached as part PP's response.

In line with this tariff revisions for the existing projects, DNV could ascertain that the project may face uncertainties in future if the tariff rate is further reduced. As stated in the Validation Report, even though this barrier is applicable to all renewable energy projects in the state, it is detrimental in nature for the private sector participation in the renewable energy sector in the state.

Comment 3: The DOE should clarify how it has validated the common practice analysis, in particular the (a) selection of similar activities considering that the total capacity of the project activity is 24 MW; and (b) the essential distinction between the project activity and the remaining similar project activities that are constructed after 2000 but not registered or being requested for registration as CDM.

DNV Response:

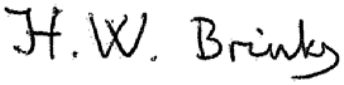
The list of private sector small hydro projects commissioned* in the state of Karnataka has been provided by KREDL which is a state utility department and the details are available in the public domain. DNV could verify the list of projects and ascertain that only four projects out of the entire list, having a capacity of more than 15MW, have been constructed between 2000 and the time of decision making of the project activity. All the four projects have been registered as CDM projects.

There were two other projects of similar capacity installed during 2007 and even these two projects are in the CDM pipeline. Thus, DNV could check that all the similar capacity projects installed after 2000 have considered CDM benefits and thus could confirm that the arguments in the PDD are correct. The list of similar capacity projects constructed between 2000 and year to date along with the UNFCCC reference number has been provided as part of the PP's response.

* Karnataka Renewable Energy Development Limited, http://www.kredl.kar.nic.in/VentureSmallHydro.htm

We sincerely hope that the Board find our elaboration on the above satisfactory and look forward to the registration of this project activity.

Yours faithfully
for DET NORSKE VERITAS CERTIFICATION LTD



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