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Att: CDM Executive Board

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CDM Ref 1326	MLEH/CK	28 December 2007

Response to request for review "Jorethang Loop Hydroelectric Project, India." (1326)

Dear Members of the CDM Executive Board,

We refer to the requests for review raised by three Board members concerning DNV's request for registration of the "Jorethang Loop Hydroelectric Project, India" (1326) and would like to provide the below initial response to these requests for review.

Comment No 1:
Further explanation is required on how the DOE has validated the alternatives presented under substep 1a of the additionality tool.

DNV Response:
Sub step 1a of the additionality tool requires the identification of alternatives to the project activity. As indicated in DNV's validation report, two alternatives have been identified to the project activity.

1. The proposed project activity not undertaken as a CDM project activity
2. The project is not implemented and the demand would have continued to be met by sources of current carbon intensive grid mix

In our opinion, the aforementioned two alternatives are deemed to be the only two credible and realistic alternatives to the project activity, for the following reasons:

- Other alternatives that could have been addressed specifically in the PDD are grid-connected power projects utilizing either renewable sources (wind, biomass) or fossil fuel-fired power plant supplying the same amount of electricity as the project activity. However, the state of Sikkim (location of the project activity) is located in the eastern part of India and lacks renewable resources such as biomass or wind. Moreover, the same amount of electricity (as the project activity) could not have been generated from these sources. As per regulations in India, bio-mass projects are government allotted projects based on licenses.
- There is a shortfall currently in the supply of coal and gas in India, as acknowledged by The Ministry of Power, in its review of progress of IPPs (Independent power producers) (http://powermin.nic.in/whats_new/pdf/ipp.pdf); the press release of The Government of India, Ministry of Power, where it is clearly

stated that shortfalls in coal and gas requirements will be met through imports (http://www.pib.nic.in/release/release.asp?relid=29829&kwd).

- It is also confirmed that there are no private sector owned thermal plants either, in the state of Sikkim (refer information obtained from the CEA Baseline Calculations *Baseline Carbon Dioxide Emissions from Power Sector - Version 2.0* Baseline Carbon Dioxide Emission from Power Sector-Version 2 (http://www.cea.nic.in/planning/c%20and%20e/Government%20of%20India%20website.htm)

- The PP, DANS Energy Private Limited (DEPL) was established with the specific objective of providing services to the hydro power sector in India. Please refer to the company profile attached as Annexure 1.
- As the project activity is feeding power to the eastern regional grid, the baseline for this project activity is the function of the generation mix of this grid. In the absence of the project activity, it is evident that the grid would be serviced by fossil fuel fired power plants. This is also evident from the fact that the weighted average of the "operating margin" and the "build margin" emission coefficient for eastern regional grid of India has been determined to be 1.06 tCO2e/MWh, which is the highest among all regional grids in India.

Therefore, as reiterated in the validation report, DEPL being a local hydro power developer, and considering the back ground of the investor, the technology and circumstances, the only realistic alternatives are as indicated as 1 and 2 above.
(http://www.cea.nic.in/planning/c%20and%20e/Government%20of%20India%20website.htm)

Comment No 2:
Further justification is required on how the DOE has validated the Prime Lending Rate as an appropriate benchmark for the project activity

DNV Response:
The prime lending rate (PLR) is the benchmark interest rate at which commercial banks in India lend for the implementation of large project activities. Therefore, for any project to be financially attractive, the IRR of the project must be higher than the rate of borrowing of the debt component (i.e. higher than the PLR). In other words, should a project's IRR not exceed the PLR, it would be deemed a financially unattractive project.

As addressed in the validation report, DEPL has considered the prime lending rate (PLR) specified by the Reserve Bank of India, determined at 12.75-13.25%, as the benchmark to assess the financial attractiveness of the project activity to demonstrate additionality (http://rbidocs.rbi.org.in/rdocs/Wss/PDFs/77110.pdf)

In DNV's opinion, the benchmark considered by DEPL is deemed acceptable and conservative for the following reasons:

- no risk premium associated with the project type or the project developer has been considered (which otherwise is a normal practice)
- commercial lending rates of private sector banks are higher than that of nationalized banks. (The PLR of ICICI Bank, India's largest private sector bank, was 15.75% from 1 April 07 (http://www.icicibank.com/pfsuser/aboutus/investorelations/pressrelease/icicibank_pressrealease/IBAR.pdf) and the PLR of HDFC Bank was 15% from 3 April 07 (http://www.hdfcbank.com/wholesale/default.htm#))

Comment No 3:
The investment and sensitivity analyses should be presented in a transparent manner to allow reproducing the analyses and obtaining the same results as provided for in paragraph 6 of the additionality tool.

DNV Response:
In DNV's opinion the IRR analysis presented by the project proponent is justified and is based on the following facts:

- DNV was able to confirm the investment analysis and the IRR's determined there-in through the detailed spread sheet calculations forwarded by the project proponent.
- The analysis presented also considers all the applicable benefits for the project activity.
- A sensitivity analysis (variation by 10%) has also been conducted for annual exports to the grid; electricity tariff; and project capital and operational costs. It has been demonstrated that that the IRR is always less than the PLR in each of the cases.

A MS Excel version of the project activity's financial model is attached as Annexure 2

Comment No 4:
Further justification is needed on the essential differences between the project activity and the existing similar projects, following sub-step 4b of the additionality tool

DNV Response:
Please refer to DNVs validation report wherein it is stated that *In the Eastern region, available hydro power potential is 5590 MW, out of which 963 MW (17.2%) has been developed and 642 MW (11.48%) is under development. In Sikkim, the hydro potential is 1283 MW, out of which only 28.83 MW is fully developed. Therefore, it is in our opinion demonstrated that investment in hydro power projects is not common practice and is deemed not to be a favourite investment decision.*

The project proponent has also compared the activity with other large hydro power projects, (installed capacity greater than 25 MW and less than 500 MW; please refer to Table B3, together with the sources), that have been developed or are in the process of being developed in Sikkim by the private sector to date. It has been demonstrated that the project activity, as compared to the other projects, has a higher installed cost per MW.

The reasons for higher installation cost of the project activity as compared to the other hydro projects are essentially due to:

- The project activity has a lower gross head as compared to the other projects (please refer to Annexure 3) leading to an increase in the cost of turbines for the project activity.
- The capital cost is also higher due to increased requirement of the sizes of tunnel, intake, surge shaft, pressure shaft etc, as compared to the other projects. This is necessitated due to the lower head of the project activity and consequent increased discharge of water.
- Increased costs due to different evacuation requirements in the project activity (220 kV transmission lines and associated facilities such as such as transformers, sub-station, switchgears etc) as compared to the other projects (132 kV transmission lines)

We sincerely hope that the Board accepts our aforementioned explanations.

Yours faithfully
for DET NORSKE VERITAS CERTIFICATION AS

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