Pioneer Genco Limited

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January 4, 2008

The Secretariat
CDM Executive Board
UNFCCC,
Bonn, Germany

Dear Sir,

Sub: Request for review for: "Someshwara small hydropower project (24.75MW) in Karnataka, India " (1273) – submission of response to the comments raised by the review team – Reg.

Please refer to your communication dt.21st December, 2007 notifying us that the proposed CDM project activity "Someshwara small hydropower project (24.75MW) in Karnataka, India" (Ref. no. 1273), submitted by us for registration, is under consideration for review. In this connection, we are pleased to furnish our response to the issues raised by members in the enclosure.

Thanking you,

For Pioneer Genco Limited

(K.C.Shibu)
Chief Executive officer

Encl: as above

Attachments: 1. IRR analysis
2. Tariff Order from Karnataka Electricity Regulatory Commission

Sl. No.	Comments	Replies
1.	Further clarification is required on whether the salvage value assumed on the 10th year represents the projected cash flows for the remainder of the life of the project	Salvage value in the project activity case represents assumed realizable value of assets at the end of the cash flow period and in this case 10 years. However it may not represent the projected cash flows for the reminder part of life of the project because project proponent (PP) has followed the principle generally adopted while making financial analysis to prepare IRR analysis for the loan period and assume salvage value at the end of the assessment period. The PP has considered a project life of 10 years because (a) it coincides with the amortization period of the loan and (b) more importantly, the PPA is subject to review after 10 years. The review at the end of 10th year places the Project in a zone of uncertainty, as nothing is certain at the end of the 10th year. If the downward revision in tariff in the recent past and two part tariff structure followed by other Utilities are any indication, then it is most likely that the tariff may be reduced significantly. Apart from tariff uncertainty, even the very survival of the project could become a question mark considering the ongoing dispute between the States of Tamil Nadu and Karnataka on sharing of Cuvery river water as the project is located on the last stretch of the river Cauvery before it enters the state of Tamilnadu and the Mettur dam. Therefore, it is utmost important for the PP to recover the investment and earn the benchmark return at the earliest and in any case before the end of 10th year. Having said that, the basis for assuming the salvage value at 5% of total investment needs to be justified. It is a common practice to take 5% of the cost of capital assets as salvage value. This practice (of taking the salvage value at 5%) also finds support in a few articles published on the subject. *D. Gregg Dight*, in his article on *Appraising Equipment for Structured Finance Transactions Creating Residual Value Curves to Reflect Physical Depreciation, Obsolescence and Useful Life*, for example, states, "Salvage Value is a relatively basic concept defined as the recoverable value of an asset at the end of its useful life. There are rules of thumb that appraisers have developed over time based on experience and trends within many equipment markets. Most assets commonly seen in structured finance transactions will have *a scrap value assumption of 5-10% of original cost*. This estimate creates an "endpoint" to which a residual value curve can be constructed"[1] (emphasis added). To summarize, PP's assumption of a salvage value of 5% of total assets was based on the following reasons:

[1] http://www.marshall-stevens.com/pdf/pub_ValueCurves.pdf

		a) The assets have been built based on the site specific activity. b) The project civil works and plant and machinery have been designed based on the site hydrology and geology. c) The plant and machinery is subject to much higher wear and tear caused by various geographical barriers (as explained in the PDD) faced by the project activity. d) Finally, the cost of fixed assets are historical in nature and none can determine accurately its scrap value, as it depends on the condition of the asset, the price prevailing at that time, the demand, the technology developments and economic conditions prevailing at that point of time. However, even if salvage value at the end of 10th year is taken at 50% of the residual value of plant and machinery (after depreciation) project IRR works out to only 14.67%, which is lower than the benchmark return of 17.11%. (Soft copy of IRR analysis is enclosed). Alternatively IRR analysis is made for 20 years based on similar assumptions except tariff. In respect of tariff from 11th year onwards, the same has been calculated based on cost + approach followed by KERC. The project IRR is working out to-14.57% compared to bench mark of 17.11%. IRR analysis is enclosed).
2.	Further clarification is required on how the input values for the investment analysis have been validated	The input values for the investment analysis are based on the Detailed Project Report prepared by Tata Consulting Engineers (TCE), a reputed consulting organization (of Tata Group), the loan sanction letter, Provisions of IT Act, Companies Act etc and the same have been furnished to the validator for verification.
3.	Further clarification is required as to how the calculation of the weighted average cost of capital (WACC) has been validated	The benchmark analysis compares the Weighted Average Cost of Capital (WACC) with the Internal Rate of Return (IRR) of the project to prove that the proposed CDM project activity is unlikely to be financially attractive without CER revenue. WACC is computed using the following formula $$K_o = \sum_{i=1}^{N} X_i K_i$$ where K_o is the WACC; X_i is the proportion of the sources i in the capital structure; K_i is the return on the source i and N is the number of sources constituting the capital structure Since the project activity is being financed by 2 different sources, the WACC will be $$Ko = \sum[(X_P K_P) + (X_e K_e)]$$

		Where X_P is the proportion of debt in the total sources of finance; K_P is the rate of interest payable thereon; X_e is the proportion of equity in the total sources of finance; and K_e is the cost / return expected thereon While the rates of interest payable on various loans and the proportion of each source of finance are known and is available in the loan sanction letter, the cost of (*expected return)* equity (K_e) is a derived figure. The expected return on equity investment has been arrived at as the <u>average</u> of the following on the basis of the latest available data. • average yearly return of the Indian stock market (S&P CNX Nifty) over three year period[2], i.e., April 2002-March 05, and • a risk-adjusted return computed from estimated risk levels (which correspond to the risk perception[3] of investors) of Government Securities and equity. In the attachment the risk adjusted return has been approximated by multiplying the risk free return with the ratio of the respective risk levels which is working out to 7% x 82/25 = 22.96%. Nevertheless, the expected return of 26.25% on equity is considered conservative for the following reasons: Security analysts classify the risk into systematic and unsystematic risks. While the former cannot be minimized or eliminated, the intensity of the latter can be reduced substantially, if not eliminated altogether. A private equity investment into a single project involves both systematic and unsystematic risks. The risks are substantially high in the case of an infrastructure projects, such as the one under consideration, as it suffers risk of delays in commissioning, technical performance risks, hydrological risks affecting power generation, regulatory risks affecting revenues (tariffs, water flow) and costs (e.g. taxes), etc. On the other hand, investment in a basket of listed stocks (it is possible to purchase Nifty futures and options – the market return proxy considered in the present case) is bereft of unsystematic risk. It is for this reason that private equity investors require returns substantially above those offered by the market. However, the return PP has assumed is less than 20% above those offered by the market. The documentary evidence in respect of market return, risk free return and the references used in estimating the expected return are furnished to Validator.

[2] A period of 3 years has been taken into account because "About one-fourth of share owners had been holding at least some of their shares for over 10 years and another one fourth for 5 to 10 years. Thus, about one half of our sample shareowners had held some of their shareholding for over 5 years. *About three fourths had shares which had been held for over 3 years (emphasis added)* - L.C. Gupta, Indian Shareowners- A Survey, Society for Capital Market Research and Development, New Delhi (1991) P. 133

[3] How Good Are Mutual Funds, L.C. Gupta and Utpal K. Choudhury, Society for Capital Market Research and Development, New Delhi (2001), p.48

<table>
<tr><td></td><td></td><td>The inputs values for the calculation of WACC are basically interest rate and the return on equity. Interest rate is as per the loan sanction letter of the financial institution (Loan Sanction letter furnished to DOE for verification). The return on equity is based on stock market index (S&P CNX Nifty) and risk free rate is based on the yield to maturity (YTM) on Government securities with a tenor of more than 10 years issued during the year 2004-05. The said information is available in the NSE and RBI websites.</td></tr>
<tr><td>4.</td><td>Further clarification is required on how the barriers have been validated to be consistent with the common practice analysis</td><td>In Karnataka, both the public sector companies namely Karnataka Power Corporation Limited and Visveshwaraya Vidyut Nigam Limited, mandated for implementation of hydro power projects, implement large hydro projects only. (Relevant information already furnished in the PDD) Development of small hydro power projects, therefore, has been left to private investors.

Small hydro power projects have not become a common practice in Karnataka, because the barriers faced by the project proponents are so many. Other wise, there is no reason as to why as much as 84% of the projects approved by the nodal agency should become non-starters. This is what the publication of KREDL, the nodal agency for the promotion of small hydro projects in Karnataka, reveals. The publication states that only projects involving installed capacity of 139 MWs have been implemented till the year 2002-03 over many years as against projects involving installed capacity of 876 MWs allotted by the agency (Source: http://kredl.kar.nic.in/Docs/Year%20wise%20details.xls). Many of the projects are implemented when attractive tariff regime was in place which was reduced substantially subsequently. Reasons for such a poor take-off rate should be found in barriers and this is what the PP has demonstrated in the PDD.

The barriers, highlighted by the PP are, therefore, consistent with the common practice analysis. While the former lists out the reasons (barriers), the latter reveals the net result (that small hydro power projects is not a common practice in Karnataka). It is in the above background that the barrier and common practice analysis given in the PDD should be viewed.

PP has demonstrated in the PDD, with published statistics, that penetration of small hydro projects in Southern region or in the State of Karnataka is not *a common practice.* The relevant statistics given in the PDD are as follows:

Installed Capacity as on 31st January 2003

<table>
<tr><th>Sl. No</th><th>Region</th><th>Hydro</th><th>Thermal</th><th>Nuclear</th><th>Wind</th><th>Total</th><th>Small Hydro[4]</th><th>% of SHP to installed capacity</th></tr>
<tr><td>1.</td><td>All India</td><td>26,660.23</td><td>76,525.11</td><td>2,720</td><td>1,628.36</td><td>107,533.70</td><td>1463.44</td><td>1.36</td></tr>
<tr><td>2.</td><td>Southern Region</td><td>10,012.84</td><td>16,638.22</td><td>780</td><td>1,020.7</td><td>28,451.76</td><td>451.03</td><td>1.58</td></tr>
<tr><td>3.</td><td>Karnataka</td><td>2,938.75</td><td>2,728.42</td><td>130</td><td>68.6</td><td>5,865.77</td><td>156.90</td><td>2.67</td></tr>
</table>
(Source: http://powermin.nic.in/reports/pdf/ar02-03.pdf)</td></tr>
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		As seen from the data given above, contribution of small hydro power projects to overall power generation has not been significant, not only in the context of the country as a whole, but with reference to the Southern grid and more specifically the State of Karnataka. In this context a word of caution is in order. The percentages given above are in relation to the installed capacities. It is a well known fact that plant load factor (PLF) of small hydro projects is always less, sometimes as low as below 30% as considered by Karnataka Renewable Energy (Page No.9 of KERC tariff guidelines enclosed). Therefore, if the actual generation is taken into consideration, the contribution of small hydro power projects to over all power generation would be negligible. The reasons for such a poor implementation rate are reported to be hydrological barriers (dependence on monsoon and river flow as the projects are located normally at the tail end), geological barrier (hard terrain), infrastructural barrier (absence of physical, social and institutional infrastructure) and consequent health hazards. Such barriers are reported to have dissuaded many entrepreneurs from implementing the project. These are the reasons, which have been cited as barriers in the barrier analysis in PDD. The project activity has faced several barriers such as hydrological, geological problems with respect to involvement of large excavation as well as situation of power house at an elevation of 55 Meters, power evacuation problems requiring payment of augmentation charges etc. are unique to this project and not being faced by other hydro projects as per the information of the PP. It is against this background that PP has justified the barriers faced by the project and the need for CDM benefits to render it attractive.