

BALAJI ENERGY PRIVATE LIMITED

1-2-234/13/37 & 38, IInd Floor, Aravind Nagar Colony, Domalguda, Hyderabad - 500 029.
Tel : 27606449, 65501776, Fax : 040 - 27603280

September 7, 2007

The Secretariat,
CDM Executive Board,
UNFCCC,
Bonn, Germany.

Dear Sir,

Sub: Request for review for "10.0 MW Somasila Hydro Power Project for a Grid system by Balaji Energy (P) Ltd. (1201) – Submission of response to the comments raised by review team - Reg.

Kindly refer to the communication from the Executive Board in respect of "10.0 MW Somasila Hydro Power Project for a Grid system by Balaji Energy Pvt. Ltd., in India. We furnish in the enclosed table, the issues raised and our response thereof.

We trust the response meets with your requirements.

Thanking you,
For **Balaji Energy (P) Ltd.**,



(L. Venkata Rami Reddy)
Managing Director

Annexures:

1. Certified copy of the Board Resolution
2. Copy of the Regulatory Commission order fixing the maximum PLF for small hydro projects in Andhra Pradesh
3. PDD incorporating the corrections

Site : Somasila Dam, Somasila Village, Anantha Sagar Mandal, Nellore District, A.P.

TIN No. : 28590214674

CST No. SEC/02/01/3116/2002-2003, Dt. 7-9-2002

Sl. No.	Comments	Replies
1.	<p>As the investment barrier is the key barrier used to demonstrate the additionality of the project activity further evidence is required to support suitability of the weighted average cost of capital as the benchmark</p>	<p>The PDD has established the Additionality of the project based both on barrier analysis and investment analysis. Investment barrier is one of the barriers identified by the PP to demonstrate the Additionality of the project.</p> <p>The EB has sought the submission of further evidence regarding the <i>suitability</i> of the WACC as the bench mark. The return derived from the project is computed through the financial parameter, Project IRR. The adequacy or otherwise of this return can be established only through a comparison with a benchmark or cut-off rate.</p> <p>Since Project IRR is used to demonstrate the Additionality of the project and since the project is financed by <i>both</i> equity and loan, the appropriate cut-off rate is the WACC, because <i>WACC alone</i> represents the weighted average of the costs of various sources of financing in the financing structure. In other words, WACC represents the minimum rate of return which the project should earn to merit consideration as failure to earn the minimum rate of return is indicative of the erosion in the value of shareholders' investment. Therefore, no other benchmark is more suitable than WACC in cases where project IRR is used to demonstrate the Additionality.</p> <p>The foregoing establishes the suitability of WACC as <i>the</i> benchmark for demonstrating the Additionality of the project. As regards <i>further evidence</i> to support the suitability of WACC as the benchmark, perhaps the most appropriate evidence is the publications on corporate finance. The most respected publication in financial management by James Van Horne while discussing the 'Acceptance criterion' underlines the need to compare the IRR with a cut-off or hurdle rate. The book states.</p>

“Acceptance criterion generally employed with the Internal-Rate-of-Return method is to compare the Internal Rate of Return with a required rate of return, known also as the cut-off or hurdle rate. If the internal rate of return exceeds the required rate, the project is accepted; if not it is rejected” (James C. Van Horne, Financial Management and Policy, 6th Edition, Page 111)

The cut-off rate or hurdle rate in this particular case is the weighted average cost of capital, because

”A firm's WACC is the overall required return on the firm as a whole and, as such, it is often used internally by company directors to determine the economic feasibility of expansionary opportunities and mergers. It is the appropriate discount rate to use for cash flows with risk that is similar to that of the overall firm”. (<http://www.investopedia.com/terms/w/wacc.asp>)

“Investors use WACC as a tool to decide whether or not to invest. The WACC represents the minimum rate of return at which a company produces value for its investors. Let's say a company produces a return of 20% and has a WACC of 11%. That means that for every dollar the company invests into capital, the company is creating nine cents of value. By contrast, if the company's return is less than WACC, the company is shedding value, which indicates that investors should put their money elsewhere.” (<http://www.investopedia.com/articles/fundamental/03/061103.asp>)

The foregoing evidence conclusively establishes the suitability of WACC as the benchmark to demonstrate the Additionality of the project.

2.	Further details and evidence regarding the consideration of the CDM in the decision to proceed with the project activity are required	<p>CDM revenue was considered necessary for the project activity as it faced a number of barriers even before the start of the construction. The project was envisaged to install machines at the down stream side of the Somasila Dam in the river bed itself by connecting the generating machines by laying penstocks and connecting them to the river vents provided in the piers number 17 and 18. These vents in the piers were provided to release the water for the ayacut (irrigation) requirements of Sangam Weir. When the project proponent submitted the lay out drawings for approval, the Chief Engineer, Central Design Organization of Irrigation Department raised an objection that the vents were not means of power generation as notified by CWC, Government of India. The whole exercise went waste and the proponent was forced to find out alternate water conductor system. The approved conductor system consisted of an intake channel from the reservoir, construction of intake structure with gates, construction of a tunnel down stream of intake channel, construction of intake structure at the exit of the tunnel, construction of surge shafts at a suitable location, erection of penstocks to connect the turbines. This delayed the implementation of the project and escalated the cost. This apart, the project also faced regulatory barriers in that the tariff was revised downwards.</p> <p>The Project Proponent had considered the CDM benefits as a means to overcome the above barriers and accordingly passed a resolution in the meeting of the Board of Directors held on January 16, 2002 wherein a resolution was passed on the following lines:</p> <p>“...It has been decided that the concept is new, the company may take necessary steps to register the project under the above treaty so that the additional benefits proposed under the protocol may help in reducing the hardships the project is expected to bear, particularly the cost over runs due to change of project design and any other barriers”</p> <p>(A copy of the certified resolution of the Board of Directors is enclosed as Annexure - 1)</p>
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3.	Further clarification is required in relation with the maximum amount of renewable energy that can be generated as declared by PP	<p>Considering a design head of 17 meters and a design discharge of 69.61 cumecs, based on 56 years hydrological data and 75% dependability, the maximum power generation by the project would be 31 million units (MUs) (Source: Approved DPR by NEDCAP).</p> <p>Somasila dam was constructed during 1972-78 across Penna river with an impounding capacity of 77.988 TMC of water to irrigate about 164,000 hectares of land. The Full Reservoir Level (FRL) of Somasila dam is +100.58 meters and Minimum Draw Down Level is +82.3 meters. Based on hydrological data available for a period of 56 years, it was observed that the highest impounded level was only 93.57 Meters. The net inflow into Somasila reservoir was computed by the AP Irrigation Department for 56 years from 1928 to 1984. The following extract from the approved DPR is relevant at this juncture.</p> <p><i>“The proposal is to generate electricity utilizing the discharges actually let down for down stream utilization to meet the irrigation demands of Pennar delta and Kavali canal system. The net flows into Somasila reservoir is worked out by Andhra Pradesh Irrigation Department for 56 years from 1928-29 to 1983-84. Based on the inflows computed by Irrigation Department, APSEB has worked out monthly working table for 56 years, i.e., from 1928-29 to 1983-84. Power potential worked out by the APSEB has been retained for this proposal”</i></p> <p>With 10 MWs of installed capacity the project activity is expected to generate maximum of 87.60 MUs at 100% Plant Load Factor. A design head of 17 meters and a design discharge of 69.61 cusecs (cubic meters per second) were envisaged in the project activity. Considering data for 56 years and based on 75% dependability, erstwhile Andhra Pradesh State Electricity Board (APSEB) who had notified the scheme for private participation had estimated the generation at 31 MUs. Therefore, the project has considered 31 MUs as power generation from the project activity, which works out to about 35% PLF while calculating ex-ante</p>
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		<p>emission reductions for the crediting period. (Source: Approved DPR by NEDCAP). Even the state regulatory commission has fixed the maximum plant load factor for the hydro projects in the state at 35%. The scope for increasing the power generation beyond 35% PLF would arise <i>only</i> when the FRL increases due to flood discharges and the reservoir is required to meet any drinking water needs at the up stream. This is the reason for considering 20% PLF variation in sensitivity analysis.</p> <p>(Copy of the Regulatory Commission order fixing the maximum PLF for small hydro projects in Andhra Pradesh is enclosed as Annexure - 2)</p>
4.	<p>The Monitoring Plan should be adjusted to reflect the circumstance that this project activity involves electricity being exported to two sub-stations</p>	<p>Necessary corrections have been incorporated in the Monitoring Plan reflecting the export of electricity through two sub-stations. The modified PDD is enclosed. The import of power during off season and maintenance period is drawn from only one substation and is recorded by same meter.</p> <p>(Revised PDD highlighting the corrections incorporated is enclosed)</p>

Extract of the Minutes of the Meeting of Board of Directors

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BALAJI ENERGY PRIVATE LIMITED

True Copy of Minutes of the Meeting of Board of Directors of Balaji Energy Private Limited held at 3-6-462/3(Upstairs), Street NO.5, Himayatnagar, Hyderabad-29 on Wednesday, the 16th January, 2002 at 4.30 P.M.

Present:

- 1) Sri C.Karunakar :Director- In Chair
2) Sri.B.Sarath Babu :Director

1) Chairman of the Meeting:

Sri C.Karunakar took the chair to preside over the Meeting.

2). Confirmation of the Minutes of the previous meeting held on 28.12.2001.

Minutes of the previous Meeting of the Board of Directors held on 28.12.2001 were received confirmed and signed.

3). Leave of absence:

Leave of absence was granted to Sri.M.Kiran Reddy and Sri L.Venkata Rami Reddy, Director.

4) Additional benefit under Kyoto Protocol

The Company is establishing a 10 MW Small Hydro Project at Somasila, Nellore District as a dam toe project. The Chairman of the Meeting of Sri.L.Venkata Rami Reddy has explained that the project has faced many unforeseen barriers even before the start for construction. It was pointed out that originally the project is envisaged to install the machines at the down stream side of the Somasila Dam in the river bed itself by connecting the generating machines by laying penstocks and connecting them to the river vents provided in the piers number 17 and 18. These vents in the piers are provided to release the water for the ayacut (irrigation) requirements of Sangam weir. When the project developer submitted the lay out drawings for approval, the Chief Engineer, Central Designs Organization of Irrigation department raised an objection that the vents provided are not means for power generation as notified by CWC, Government of India. The whole exercise went waste and the proponent was forced to find out alternate water conductor system. The approved water conductor system now consisted of an intake channel from the reservoir, construction of intake structure with gates, construction of a tunnel down stream of intake channel, construction of intake structure at the exist of the tunnel, construction of surge shafts at a suitable location, erection of penstocks to connect to the turbines. This has delayed the project implementation as well as cost over runs.

The Board was further informed that hydro project support in reducing green house gas emissions and there is an

CERTIFIED TRUE COPY
BALAJI ENERGY (P) LTD

[Signature]

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Director 28590214674

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international treaty known as Kyoto Protocol under UN Body to support such type of project. It has been decided that the concept is new, the company may take necessary steps to register the project under the above treaty so that the additional benefits proposed under the protocol may help in reducing the hardships the project is expected to bear, particularly the cost over runs due to change of project design and any other barriers.

5) To appoint a Whole Time Director for Managing routine affairs of the company.

Chairman stated that Article No.21 of the Articles of Association contemplated, the appointment of Whole Time Director for attending to the day to day management of the Company, and suggested for consideration of appointing one of the directors as a whole time director, who would function under the control and direction of the Board of the Company

After some discussion and keeping in view that the Company could have Managing Directors or Whole Time Director in accordance with the Articles of Association, the following resolution was passed

"Resolved that Sri. L. Venkata Rami Reddy, Director be and is hereby appointed as a Whole Time Directors in accordance with Articles 21 if the Articles of Association for a period of 3 years with effect from January 16,2002 on the following terms and conditions

1) Basic Salary:Rs.9,000/- per month. The scale of pay is
Rs.9000-500-9500-1,000-10,500-1,500

2) Perquisites:

- a) House Rent Allowance:Rs.3,200 per month
- b) Bonus :To be paid as per the Company Norms
- c) Telephone: Reimbursement of residence Telephone Bill restricted to Rs.1,500/- on bi monthly bill
- d) Conveyance:Rs.800/- per month

"Resolved further that Sri L.Venkata Rami Reddy, Whole Time Director ,be and is hereby delegated the following powers and functions (which should be exercised by him subject to the control, supervision and direction of the board of Directors)

- i) To look after day-to-day affairs of the company and to do all the things necessary for the smooth functioning of the Company.
- ii) To apply, sign, execute, endorse all the papers, documents, agreements with all the Government, Semi government Departments including Sales Tax and Indian Renewable Energy Development Agency Ltd., New Delhi and file necessary returns/forms required different statutes.

There being no further business, the meeting concluded with a vote of thanks to the Chair.

Date:5th April, 2002
Place:Hyderabad

ATTACHED TRUE COPY
BALAJI ENERGY (P) LTD.

C.Karunakar
Chairman of the Meeting


Director

Site : Somasila Dam, Somasila Village, Anantha Sagar Mandal, Nellore District, A.P.

TIN No. : 28590214674

CST No. SEC/02/01/3116/2002-2003, Dt. 7-9-2002

**Regulatory Commission order fixing the maximum PLF for small hydro projects
in Andhra Pradesh**

ANDHRA PRADESH ELECTRICITY REGULATORY COMMISSION
11-4-660, 4th & 5th floors, Singareni Bhavan, Red Hills, Hyderabad.

ORDER

R.P No 84 / 2003 in OP No 1075 / 2000 dated 20-03-2004

The Commission initiated suo-motu proceedings for determination of tariff applicable to Non-Conventional Energy Projects of Andhra Pradesh to take effect from 01-04-2004 onwards.

The Commission having heard the Non-Conventional Power Project Developers, Non-Conventional Energy Development Corporation of Andhra Pradesh Ltd. (NEDCAP) and Transmission Corporation of Andhra Pradesh Ltd. (APTRANSCO) who appeared before the Commission on 22-12-2003 and 23-12-2003 and the general public during the public hearing on 19.3.2004 and having considered the objections and the oral and written submissions made by the parties passed the following Order.

BACKGROUND:

Government of India (GOI) formulated a policy framework in 1993-94 for promotion of generating capacity from non-conventional energy (NCE) sources with the objective of conserving fossil fuels and to reduce environmental pollution arising out of the emissions following the combustion of fossil fuels. The policy framework provided for certain incentives and facilities for promoting capacity addition through NCE sources including renewables. The incentives included subsidy (capital / interest) for setting up generating plants based on non-conventional (including renewable) sources. Among other parameters under the policy framework, the tariff payable for power from the NCE sources was predetermined in 1993-94 to take effect from 01-04-1994 with escalation year-on-year.

Tariff fixation for mini – hydel projects:

65) Capital Cost :

M/s. NEDCAP and APTRANSCO indicated a project cost of Rs. 4.5 Crs / MW. During the hearing, the developers requested that higher capital cost must be allowed for smaller plants. The Commission agrees to the fact that the cost of smaller projects is likely to be more than that of the larger projects due to economies of scale. However, MNES has been providing more capital subsidy for new smaller projects and less for the new bigger projects thereby nullifying the impact of difference in project cost to some extent. Similarly, for existing projects, MNES is providing different rates of interest subsidy for smaller and larger projects. If one goes by the actual project capacities and the various levels of subsidy, it would lead to adopting different project costs and the corresponding tariff numbers. Hence the Commission is inclined to adopt same project cost both for larger and smaller projects. The Commission therefore considers that a uniform capital cost of Rs.3.625 Crs / MW (Rs. 4.5 Crs less capital subsidy of Rs. 0.875 Crs) would be reasonable for mini-hydel projects, whether small or large.

66) Plant Load Factor:

In case of Hydel power plants, the PLF depends mostly on monsoon, rainfall in the catchment area, changes in hydrology factor etc, apart from the size of the plant.

APTRANSCO assumed a PLF of 40% while NEDCAP indicated a PLF of 35%.

The developers stated that the actual average PLF is much less than 35%.

The average PLF that was achieved from 1996 as per APTRANSCO's filing is as follows:

Year	PLF
1996	31%
1997	36%
1998	40%
1999	47%
2000	40%
2001	33%
2002	22%

The average PLF of the above 7 years works out to 35%. Even though the inflows in the catchment area was extremely encouraging for the years prior to 1997 and the generation for the year 2003 was disappointing, the Commission intends to consider mainly the normal monsoon years and considers PLF of 35%. The Commission also recognizes the fact that the output of power from mini hydel plants is dictated by irrigation needs.

A benchmark parameter of 35% is considered reasonable for computation of tariff based on cost plus approach. Further, it has come to the notice of the Commission that some plants have been working with a plant load factor of over 90%. The Commission is of the opinion that different plants operating with different capacity factors cannot be equated. The Commission therefore proposes a two tier tariff, distinguishing the plants which are operating up to 35% and above 35% PLF.

67) Auxiliary consumption:

- i) APTRANSCO stated that it considered auxiliary consumption at 1%
- ii) NEDCAP indicated auxiliary consumption at 0.5%.
- iii) The developers however during hearing sought for consideration of transformation losses in addition to auxiliary consumption.