Query

1. *Further information is required to justify the suitability of the applied benchmark.*

   Reply

   As per the Tariff Order issued by Electricity Regulatory Commission of Andhra Pradesh (APERC) in 2004, the commission, in order to provide a element of security, a Return on Equity of 16% should be considered by the project proponents for all Biomass Based Power Projects to be installed. The copy of the Order is enclosed for ready reference.

   Considering the above benchmark, the project proponent calculated the return on equity which was mere 10.41% without the CDM revenue and 21.79% after considering CDM revenue with the prevailing market price for CERs. This shows that the project proponent requires the CDM revenue for sustainability of the project activity.

2. *Further clarification is required to explain how the participant was able to proceed with the project activity for 6 years prior to submitting a PDD for validation.*

   Reply

   The construction of the project started during the year 2001. The plant was synchronized with APTRANSCO on 26th May 2003. Commercial operation started on 2nd June 2003 and is in operation from 3 years only (NOT 6 YEARS). The project activity was struggling for financial sustainability since the commercial operation started and the same is evident from the information provided below:

(All Figures in Indian Rupees (INR))

	2003-04	2004-05	2005-06
Raw Material	60,675,486	62,659,832	45,420,879
Salaries	1,215,455	1,134,764	1,564,001
O&M	5,314,864	6,238,052	8,718,409
Interest	15,244,673	14,113,984	10,447,177
Depreciation	14,647,349	17,740,928	17,863,147
Total	97,097,827	1,01,887,560	84,013,613
Capital Cost of Project	1,85,000,000	1,850,000,00	1,85,000,000
Total Generation (kWh)	30181200	32750700	29656200
Cost of Generation			
Raw Material	2	1.9	1.5
Salaries	0	0	0.1

O&M	0.2	0.2	0.3
Interest	0.5	0.4	0.4
Depreciation	0.5	0.5	0.6
Variable Cost	3.2	3.1	2.8
Fixed Cost	0.61	0.56	0.62
Total Cost of Generation	**3.81**	**3.66**	**3.42**
INCOME (INR/kWh)	3.4	3.4	3.4
PROFIT / LOSS	**-0.41**	**-0.26**	**-0.02**
Loss per year on generation	**(123,742.92)**	**(85,151.82)**	**(5,931.24)**

As can be seen from the table above, the company was incurring a loss of INR 100,000/- every year since the year of commissions i.e. June 2003.

Considering the financial burden on the power plant and the additional fee which is to be paid to the consultant and DOE, BAOL then took a decision to go ahead with the preparation of the required documents on our own. As the requirements for documentation kept changing and there was no proper guidance, BAOL could not complete the documentation process and build up the confidence to proceed with the validation of the project activity.

In 2006, when the first project from Andhra Pradesh got registered, BAOL considering the time lost due to the attempts made by it in preparing the documents, appointed a consultant in October 2006, to facilitate in availing CDM benefits.

3. *A sensitivity analysis for IRR calculation in PDD is requested to guarantee the robustness of the conclusion.*

Reply

The project proponent in order to prove the financial barrier for the project activity, used the Return on Equity (ROE) as the tool to demonstrate the same. The ROE was calculated based on the following assumptions:

Assumptions		
Location - State	Andhra Pradesh	
Place	Vijayawada	
Project Size	4.5	MW
Cost of Project per MW	411.11	Lacs
Total Project Cost	1850.00	Lacs

Means of Finance		
Debt (Lakhs)	**70%**	**1300.00**
Equity (Lakhs)	**30%**	**550.00**
Total Project Cost (Lakhs)		**1850.00**
Opearating Parameters		
Total Generation for the project at 100% PLF	356.4	Lacs KWH p.a.
Plant Load Factor	80.00%	
Total Generation for the project at above PLF	285.12	Lacs KWH P.A.
Auxillary Consumption	12.00%	
Total generation after auxillary consumption	250.91	
Life of the plant assumed	20.00	Years
Operation and Maintenance Costs		
O&M Cost	563	Lacs p.a. for first year
Excalation	2%	Year on Year for 15 years
Insurance cost		
Total Considered	0.60%	Including service tax
Insurance cost	11.10	For first year
Insurance cost	11.10	For 2nd Year to 5th Year
Reduction in insurance	0.50%	From 6th year to 15th Year
Financial Parameters		
Interest on Term Loan		
Rupee Loan	10.25%	
Working Capital		
Working Capital Interest	10.25%	
Margin Money on WC	25.00%	
Tariff		
For First 10 years	3.40	
from 2013 onwards	3.40	
Depreciation Rate		
Asset to be written off	90%	
Depreciation rate(SLM)	10.00%	
As per companies Act		
Plant and machinery - SLM	10.34%	
Plant and machinery - WDV	27.82%	
As per Income Tax Act		
Depreciation for the first year	80%	
for Balance years(WDV)	18.75%	
Taxation		
Corporate Tax		
Corporate Tax	33.66%	
MAT		
Taxation	11.22%	

Based on the estimations, it was seen that the ROE was observed as 9.80%. Considering the benchmark of 16% as return on equity (as per APERC Order), the projects return on equity was much less than the prescribed benchmark.

Sensitivity Analysis

In order to see the variations in the rate of return, a sensitivity analysis was carried out to check the robustness of the conclusions drawn from the calculations.

Decrease in Plant Load Factor (PLF): As per APERC Order, all biomass based power projects in Andhra Pradesh should consider 80% PLF as threshold for fixed cost coverage. As regulated by the order, the PP considered 80% as the standard PLF of the plant to calculate the rate of return. At 80% PLF the ROE was observed to be 7.48%.

	75% PLF (- 5%)	80% PLF (Standard)	85% PLF (+ 5%)
ROE	1.23%	10.41%	19.18%

As can be seen from the table above, 5% variation in the PLF of the power plant would drastically change the ROE. In order to reach / cross the benchmark of 16% ROE, the PP has to operate the plant at 85% PLF through out the period with a estimated auxiliary consumption of 12%.

As per the APERC Tariff Order, the PP will be paid a fixed rate as per the Power Purchase Agreement (PPA) signed with Andhra Pradesh Transmission Co. Ltd. (APTRANCO) for the power generated at 80% PLF. However, generation in excess of 80% will be paid at variable cost of INR 1.20 and an increment of INR 0.2150 per unit.

Increase in O&M cost: The O&M cost was escalated from 2%, as assumed by the PP during the calculation, to 4%. The results of the same were as follows:

	O&M with 2% escalation	O&M with 4% escalation
ROE	10.41	-1.86%

This showed that a mere 2% increase in the O&M cost would take the ROE to a negative (-) 1.86%.

Thus it is imperative that the present incentive is not sufficient and the sustainability of the project would be at risk without CDM revenue.

4. *Further clarification is required in order to support the confirmation that the small-scale project activity is not a de-bundled component of a large scale project activity*

   Reply

   The biomass based power project of Balaji Agro Oils Ltd., is not a part of the larger project activity. The project is a stand alone project and is not part of any expansion plan. Also, there are no projects of similar category and technology/measure from the same project proponent and within a project boundary of 1 km of the existing project. The project activity stipulates to all the requirements of a de-bundled project.

5. *Further evidence and justification showing that the CDM revenue was considered for the project investment is required.*

   Reply

   In view of the future financial sustainability of the project considering the issues such as tariff policy by APERC, O&M cost which includes raw materials, administration costs, etc and consistency of the plant load based on the quality of the raw materials available to the company, the board of directors which comprised of Managing Director, Director – Finance, Director – Technical and key members of the project activity took a common decision to seriously consider the revenue from sale of carbon credits which would help them bridge gaps in the revenue flow during the operation of the power plant. A board note containing the minutes of the meeting to this effect was also submitted to the DOE during the validation process and the same was accepted by the DOE.

6. *Annual monitoring of the surplus of biomass in Andhra Pradesh is required as it is established in paragraph 18 of the General guidance on leakage in biomass project activities (version 2, EB 28).*

   Reply

   Biomass assessment in the region (Krishna District) will be carried out annually based on the latest available literature / data from the government sources to determine if the biomass is at least 25% larger than the total quantity utilized by the project activity as well as existing users, as it is established in paragraph 18 of the General Guidelines on leakage in biomass project activities (Version 2, EB 28).

   In the absence of the official data, a biomass assessment study will be carried out by employing third party assessors who have past experience of doing such work.

   The <u>revised monitoring plan including the above parameters</u> has been provided in the PDD for ready reference.