

**Appellate Tribunal for Electricity**  
**(Appellate Jurisdiction)**

**Appeal No. 146 of 2011**

**Dated:3<sup>rd</sup> April, 2012**

**Present: HON'BLE MR. JUSTICE P S DATTA, JUDICIAL MEMBER**  
**HON'BLE MR. V J TALWAR, TECHNICAL MEMBER,**

Shree Krishna Captive Energy Pvt. Ltd.  
No.29, Hospital Road  
'Maliks Building' 1<sup>st</sup> Floor,  
Bangalore-560 001  
Karnataka

...Appellant

Versus

1. Haryana Vidyut Prasaran Nigam Ltd.  
Shakti Bhawan, Sector-6  
Panchkula-134109  
Haryana
2. Uttar Haryana Bijli Vitran Nigam Ltd.  
Shakti Bhawan, Sector-6  
Panchkula-134109  
Haryana
3. Dakshin Haryana Bijli Vitran Nigam Ltd.

Vidyut Sadan, Vidyut Nagar

Hissar-125005

Haryana

4. Governmetn of Haryana

Department of Renewable Energy (HAREDA)

SCO No. 48, Sector-26

Chandigarh-160019

5. Haryana Electricity Regulatory Commission

Bays 33-36, Sector 4

Punchkula-134112

Haryana

...Respondents

Counsel for the Appellant : Ms. Radhika Koloru

Counsel for the Respondent : Ms Shikha Ohri

## **JUDGMENT**

### **PER V J TALWAR TECHNICAL MEMBER**

1 Shree Krishna Captive Energy Pvt. Ltd., is the Appellant herein. The Haryana Vidyut Parasaran Nigam Limited is the Transmission

Licensee in the State of Haryana and is the 1<sup>st</sup> Respondent herein. 2<sup>nd</sup> and 3<sup>rd</sup> Respondents are the Distribution Licensees in the state of Haryana. 4<sup>th</sup> Respondent is the Government of Haryana. Haryana Electricity Regulatory Commission (Commission) is the 5<sup>th</sup> Respondent.

- 2 The Appellant, Shree Krishna Captive Energy is a Biogas based Generating Company and is developing five 400 KW Otto cycle based Biogas projects with the support of five gaushala trusts in the State of Haryana. The Appellant filed a petition before the State Commission for determination of tariff for its proposed Biogas plants.
- 3 The State Commission through its Impugned Order 5.7.2011 determined the tariff for the Biogas based generating projects of the Appellant. Aggrieved by this Impugned Order dated 5.7.2011 of the State Commission, the Appellant has filed this Appeal.
- 4 The Appellant has raised the following issues in the present Appeal for our consideration:
  - i. Capital cost
  - ii. Operation & Maintenance (**O & M**) Expenses
  - iii. Auxiliary consumption
  - iv. Interest on Term Loan
  - v. Projects Life of the plant
- 5 We shall now deal with each of the above issues one by one: First issue before us for consideration is **related to capital cost of the project.**

- 6 The Learned Counsel for the Appellant has submitted the following contentions in support of its claim of higher capital cost:
- a. The State Commission should have fixed the capital cost of Rs. 55.8 million for each of its 400 kW plants. However, the State Commission has fixed the capital cost at Rs 43.6 million only by prorating the norm of Rs 109 million per MW. While prorating the normative cost of 1 MW plant on straight line method, the State Commission has ignored the fact that there are certain costs of the plant which are not related to the capacity of the plant.
  - b. The Learned Counsel for the Appellant would argue that the State Commission has acknowledged that HAREDA the submissions of HAREDA that the cost of Otto Cycle based plant would be more than Rs 130 Million/MW. However, the State Commission preferred to ignore the submissions of HAREDA, which is the state owned coordinating agency for development of renewable sources of energy. Even if a cost of Rs 130 Million/ MW is considered and prorated to 400 kW, it would work out to be Rs 52 Million/ MW.
  - c. Instead, the State Commission adopted the capital cost of Rs 109 Million/MW which is marginally higher than the capital cost the State Commission had adopted for another similar plant which was based on Poultry litter based plant. Capital cost of any plant would depend on the technology adopted and,

therefore, capital cost of the poultry litter based plant cannot be adopted for Biogas based plant of the Appellant.

- 7 The learned counsel for the State Commission submitted that In the State of Haryana, there are at present no Regulations for fixation of tariff from Biogas based power plants. The Appellant is one of the first to be setting up a Biogas based power plant and therefore, the State Commission went into the specific costs and expenses projected by the Appellant, the existing norms prevailing for biomass based power plants in the State and similar Orders passed for Biogas power plants by Regulatory Commissions of other States.
  
- 8 In view of rival contentions of the parties, let us examine the findings of the State Commission on this issue which read as under:

*“2. Capital cost: The petitioner has submitted the capital cost of 400 KW project based on DPR is Rs. 55.80 million without considering grant/subsidy etc. Accordingly per MW capital cost of the project works out to Rs. 139.5 million. The Distribution licensees and HVPNL while objecting to the proposed project cost submitted that capital cost of Biogas project has been considered as Rs. 80 million /MW by the Madhya Pradesh Electricity Regulatory Commission (MPERC) when the same should also be considered by HERC for the purpose of tariff determination. In response to this the petitioner submitted that more than 86% of project cost is that of plant and machinery which is not in their control. On the issue of project cost HAREDA submitted that the capital cost of OTTO cycle based Biogas power projects is more than Rs. 130 million per MW. **However, after adjusting the project cost for MNRE subsidy the capital cost works out to Rs. 109.5 million per MW.***

.....

*The Commission has analysed the Capital cost of the project as provided by the petitioner and observes that Biogas based power plants are relatively new and still in the development and demonstration stage in India. However, such plants based on cow dung as primary fuel has considerable local benefits and hence development of such power plant is in the interest of the farmers, gaushalas, local bodies as well as for fostering distributed generation which is expected to go a long way in reining in line losses of the distribution system of the State power Utilities.....*

*The Commission has considered the above submissions and is of the view that the MNRE guidelines for setting up power projects based on biomethanation process for power generation from cattle dung, urban waste etc considers capital expenditure norm of Rs. 100 million per MW for computing GOI subsidy. In the instant case it is observed that the proposed project cost of Rs. 55.80 million for 400 KW project each at different locations comprises of Rs. 42 million for plant and machinery including power evacuation system, Rs. 2.75 million on account of securing land and feedstock preparation, Rs. 6 million for Organic manure and disgestate treatment system and the balance Rs. 5.05 million for various expenses including miscellaneous assets, finance cost etc. Thus, in effect this would tantamount to Rs. 139.5 million/MW cost as against MNRE norm of Rs. 100 million / MW and Rs. 105 million / MW tentatively determined by the Commission on which feedback from the stakeholders was invited. The Commission, after careful consideration of the submissions of the parties is of the considered view that the proposed capital expenditure for Biogas plant and machinery, securing land and feedstock and the Organic treatment plant etc. should not exceed Rs. 105 million/MW which is slightly higher than the MNRE norms and in line with the project cost approved by the Commission for the similarly technology/process project vide order dated 21st September, 2010. The petitioner in the hearing had dwelt at length on expenses on account of Interest during Construction (IDC), Margin Money for working capital, preliminary expenses, contingencies etc. The Commission is of the view that all such expenses was not considered while reckoning with the project*

*cost while making the same Haryana specific as against the MNRE norms. Thus, the Commission is of the considered view that some provision needs to be made for cost of land and IDC. However, any such costs including contingencies and cost escalation due to time over run which cannot be accurately determined until the project is commissioned should ideally be funded out of initial equity required to be deployed by the promoters before the same is leveraged for raising the loan. Thus, the Commission finds it difficult to agree with the contention of the petitioner to allow any additional expenditure over and above the project cost as determined by the Commission for the purpose of determining tariff.*

***In view of the above the Commission allows Rs. 43.6 million as capital cost for 400 KW power project based on normative cost of Rs. 109 million/MW marginally above Rs. 105 million / MW tentatively determined by the Commission. After taking into consideration Rs. 12 million as MNRE Subsidy the capital cost for computation of tariff has been considered as Rs. 31.6 million.”***

- 9 Perusal of the findings of the State Commission reproduced above would indicate that the Appellant's contention that the State Commission has ignored the detailed capital cost breakup provided by the Appellant and the same has not been considered is incorrect. Bare reading of the State Commission' order, would make it clear that the costs breakup provided by the Appellant were duly considered. The State Commission has given reasons for not allowing the IDC, contingencies and preliminary expenses etc as these expenses are funded from the equity contribution of the Appellant as is the normal practice. Further, the Appellant has also sought margin money for working capital, financing cost etc. These expenses are not allowed and the State Commission has rightly allowed the interest on working capital as a separate parameter which covers the margin money for

the working capital. Further, the financing cost etc. will be serviced through the interest on loan which also has been duly allowed by the State Commission.

- 10 The Central Electricity Regulatory Commission has notified its Terms and Conditions for Tariff determination from Renewable Energy Sources Regulations, 2012 on 6.2.2012. As per these Regulations, the capital cost for Biogas based projects likely to be commissioned in the year 2012-13 would be Rs 110 Million/MW. Thus the cost adopted by the State Commission for the Appellant's project and the capital cost considered by the Central Commission is almost the same.
- 11 In view of our observations above, we do not find any ground to interfere with the findings of the State Commission.
- 12 Next issue for our consideration is **Operation and Maintenance expenses.**
- 13 The grievance of the appellant in regard to this issue is that the State Commission has approved only Rs 0.81 Million per year as O&M expenses against its demand of Rs 3.46 Million per year. The details submitted by the Appellant towards O&M expenses shows that majority of expenditure considered as O&M expenses relates to Spares of different sections of the plant. It is not the industry practice to include the cost of spare in O&M expenses. Spares are included in working capital. The Appellant has also submitted some additional information related to requirement of periodic maintenance and also

the literature from leading manufacturer. This information was also not placed before the State Commission.

- 14 The State Commission has relied on its Tariff Regulations for Biomass based plants. The relevant portion of the Impugned Order is reproduced below:

*“(d) O & M expenses: The petitioner has proposed O & M expenses at 6.2% of the capital cost with an annual escalation of 5%. In the DPR submitted to the Commission the petitioner has also submitted that manpower requirement shall be of 7 persons with annual cost of Rs. 0.95 million. The O & M expenses for the 1<sup>st</sup> year of operation has been proposed at Rs. 3.46 million. The Commission after careful consideration of the proposed O and M expenses by the petitioner observes that the rate and amount of proposed O and M expenses appears to be unreasonably high and is not supported by any documentary evidence from any bios as based power plant. Thus, the Commission has considered O&M expenses of Rs. 2.025 million per MW in line with HERC / CERC Regulations for biomass based energy generation projects with an annual escalation of 5.72 % which the Commission considers to be reasonable in the case of Biogas based power projects too. Therefore, the Commission allows Rs. 0.81 million as O & M expenses for 400 KW Biogas based power project.”*

- 15 Bare reading of the above finding of the State Commission would reveal that the State Commission has adopted the norms for O&M expenses provided in the its Regulations for Biomass based projects and prorated them to arrive at O&M expenses for 400 kW plant. Accordingly, the State Commission has approved Rs 0.81 Million as O&M expenses. O&M expenses include Employees cost, A&G

Expenses and Repair and Maintenances. The Appellant has submitted that it would be employing 7 persons to run the plant which would be kept running for 24 hours a day. The Appellant had provided Rs 0.95 Million as Employee costs in its submission before the State Commission. Thus, average monthly emoluments for each employee would work out to be Rs 11,300 only which appears to be quite reasonable. With Rs 0.81 Million as O&M expenditure, the Appellant would not be able to meet even the employee's costs.

16 Admittedly, the State Commission has not specified Tariff Regulations for Biogas based generating projects. Section 61 of the Act requires the State Commission to specify the Tariff Regulations and while doing so it is to be guided by the Regulations specified by the Central Commission. On 6.2.2012 the Central Commission has recently notified Regulations for determination of Tariff for generation from renewable sources of energy. In these regulations the Central Commission has adopted Rs 4.0 Million/MW as O&M expenditure. Prorating Rs 4.0 Million/MW to 400 kW would work out to be Rs 1.6 Million, which appears to be quite reasonable to meet employee cost and other expenses.

17 This Tribunal in its judgement in Appeal No. 131 of 2011 has observed that once the State Commission has framed and notified the requisite Regulations after meeting the requirement of prior publication under Section 181(3), it is bound by such Regulations while fixing Tariff under Section 62 of the Act and the Central Commission's Regulations have no relevance in such cases. However, the State Commission may follow the Central

Commission's Regulations on certain aspects which had not been addressed in the State Commission's own Regulations. Admittedly, the State Commission has not framed Regulations for determination of tariff for Biogas based projects. Therefore, the State Commission may adopt the norms specified in the Central Commission's Regulations, 2012.

- 18 In the light of above discussions we deem it appropriate to remand back the matter to the State Commission to determine the O&M expenses keeping in view our observation.
- 19 Next issue is **related to the Auxiliary Consumption**. The State Commission has approved Auxiliary Consumption at 11% against demand of 13% by the Appellant.
- 20 The learned counsel for the Appellant made following submissions in support of the claim:
  - a. The Appellant had set forth an auxiliary consumption norm of 13%. The State Commission instead has adopted a norm of 10% in line with the CERC norms for biomass based plants admittedly in the absence specific Norms for Biogas based Plants.
  - b. The State Commission has ignored the facts that higher auxiliary consumption is entailed by the various associated processes including running of auxiliary motors, digestate treatment system, waste heat recovery, fertiliser unit, water treatment etc.

- c. The digestate treatment unit takes up about 3% auxiliary consumption, with the Biogas plant comprising digester and electricity generation unit consuming 10% auxiliary consumption. Therefore, 13% for Biogas plants is in keeping with the norms.
- d. Auxiliary consumption on account of digestate treatment is required to be considered since the solid obtained from the process is factored into the fuel costs.
- e. The State Commission had allowed an auxiliary consumption of 12.74% in the case of Green Indus poultry litter based 5.6 MW Biogas plant duly taking note of the fact that additional power was consumed on account of the zero effluent discharge system.

21 Per contra, the Learned Counsel for the State Commission submitted the following contentions:

- a. The contention of the Appellant that the State Commission has merely followed the Regulations and has not considered the additional processes in the case of Biogas generator is also incorrect. The State Commission has allowed a margin of 2% for the additional processes. It is reiterated that the Biogas plant has not yet been set up and the actual figures are not known. At this stage, instead of merely accept in the projected/expected figures of the Appellant, the State Commission has proceeded by benchmarking the auxiliary

consumption to the HERC Regulations for biomass plants and with an additional 2% margin.

- b. The reliance placed by the Appellant on the Order of the State Commission dated 21.9.2010 in the case of the 5.6 MW poultry litter based Biogas power plant of Green Indus Bio Energy Limited giving a higher auxiliary consumption of 12.74 % was specific to the facts placed by Green Indus before the State Commission. The State Commission has also allowed the higher auxiliary consumption to Green Indus specifically on account of the zero effluent discharge system being installed in the said plant. In the case of the Appellant, this system has not been installed. Hence, the Appellant is drawing an apple to orange comparison for seeking higher auxiliary consumption before this Hon'ble Tribunal.

22 In the light of rival contentions of the parties, let us examine the findings of the State Commission on the issue which are reproduced below:

*“(e) Auxiliary Power Consumption: the petitioner has proposed auxiliary power consumption @ 13% which has been objected to by the distribution licensees. In response to the objections on auxiliary power consumption, the petitioner has submitted that apart from power generation there are several other processes in the proposed project which will require power generated from the power plant. The Commission is of the view that Inherent technology, various operational efficiencies including that of auxiliary motors, O&M practices and energy conservation measures adopted by the generator largely determines the level of auxiliary power consumption. The Commission observes that as far as this parameter is concerned there is no*

*divergence in the recommendations of the CEA, CERC as well as HERC regulations for biomass-based power projects. Consequently, in the absence of any norms for Biogas power projects, the Commission, keeping in view the associated processes including fertiliser unit, waste heat recovery system, reject water treatment system etc. which has several spin-off benefits and the norms for biomass-based projects, has considered auxiliary power consumption for Biogas power projects as 10% which is marginally higher than 8% tentatively determined by the Commission while inviting comments/objection on the petition for determination of tariff for the instant Biogas project.”*

- 23 Admittedly, the generation of power from Biogas is new technology and normative parameters for such plants such as Auxiliary Consumption, Operation and Maintenance Charges, requirement of working capital have not been fixed by the State Commission. However, The Central Commission in its Regulations for determination of Tariff from Renewable Sources of Energy, 2012 has considered auxiliary consumption for Biogas based projects at 12%. As pointed out above, the State Commission may consider the norms adopted by the Central Commission where it has not framed its own regulations.
- 24 Next issue before us is **related to Interest on term loan**. The State Commission has allowed 11% rate of interest on loan against 12.75% projected by the Appellant. The Central Commission's 2012 Regulations provide interest on loan as average State Bank of India (SBI) Base Rate prevalent during first six months of the previous year plus 300 basis points. In the absence of its own Regulations, the State Commission may consider the interest rate specified in the Central Commission's Regulations.

- 25 Next Issue for our consideration is **related to project life of the plant**. The Appellant has submitted that the life span of Otto Cycle based Biogas plants is 15 years. The State Commission has specified the project life of the plant as 20 years and has specifically provided that the PPA shall be valid for whole life of the plant i.e.20 years. The impugned order specifically states that the Appellant and its succeeding owners will remain accountable for the entire life of the project as per terms of the PPA. The Appellant cannot be beholden under a PPA which asserts a project life of more than 15 years.
- 26 The State Commission has dealt with this aspect in the Impugned Order in detail. Relevant portion of the Impugned Order read as under:

*“1. **Project life:** the petitioner had initially submitted that the useful life of the project is 15 years. However as per revised information submitted by them vide letter dated 1<sup>st</sup> March, 2011 the life of a typical gas engine is about 10 years and the life of electromechanical equipment associated with Biogas power plant ranges from 10 to 15 years. It has been submitted in the petition that the loan repayment period is 10 years and the project shall be handed over to the Gaushalas after the initial period of 10 years of the project is over.*

*The distribution licensees and HVPNL have raised objections regarding project life as submitted by the petitioner and requested the Commission to consider the same as 20 years as tentatively determined by the Commission while inviting comments/objection from the stakeholders.*

*The issue of useful life of the project has been examined at length. The Commission observes that as per the approved*

*DPR submitted by the petitioner the assumed plant life is 15 years and the payback period is 10 years. The petitioner seems to have relied on some assumptions without submitting facts and figures emanating from any actual Biogas plant operating in the country. More so, as is evident from conventional and non – conventional fuel based power plants operating in the country the useful life of the project is often extended much beyond the stated/nameplate useful life of the plant. The Commission is of the view that with good O&M practices, a Biogas plant life can easily extend to twenty years and more. However it is true in the case of most plant and machinery as they get older the O & M expenses increase. To take care of this, the Commission, from second year onwards allowed O&M escalation of 5.72 % per annum on cumulative basis, in line with the CERC norms, despite the fact that in the first few years of operation the major component of O&M i.e. repair and maintenance expenditure is not expected to witness any exponential increase. The Commission has also taken note of the fact that a few other SERCs while determining tariff for Biogas plant has considered twenty years as project life.*

*The Commission has taken note of the fact that the petitioner intends to transfer the power plants and the associated facilities after 10 years to the Gaushalas and is of the view that any such transfer of ownership ought to be within MNRE / HAREDA guidelines and should not be for any speculative gains. Moreover, after allowing accelerated depreciation during first ten years of operation as well as making provision for loan payback within the same period thereby making the tariff front loaded the electricity consumers of Haryana should not be devoid of the benefits from 11<sup>th</sup> to 20<sup>th</sup> years of operation while the rate of depreciation as well as interest cost on term loan would taper off.*

*In the light of the above the Commission finds no reason to deviate from the projects life of twenty years tentatively determined by the Commission while inviting comments/objections from the stakeholders in the instant matter. All calculations have, therefore, been done by taking into account the project life as such. The petitioner and or the succeeding owners will remain accountable for all matters relating to the project for the entire life of the project and as per terms and conditions of PPA for sale of power.”*

**27** Perusal of the above finding would indicate that the State Commission has considered all the aspects of the issue and have concluded that the project life would be for 20 years. The Central Commission’ Regulations 2012 has also specified 20 years as project life of the Biogas based projects.

**28** In the light of above, we donot find any reason to interfere with the findings of the State Commission.

**29 Summary of Our Findings:**

**30 Our findings on the various issues raised in this appeal are summarised in the Table given below:**

S No.	Issue	Appellant's Projections	Commission's Approval	CERC's Regulations 2012	Tribunal's Observations
1	Capital cost	Rs 53 Million	Rs 43.6 Million	Rs 44 Million	Commission may consider norms as per CERC Regulations
2	Auxiliary Consumption	13%	10%	12%	
3	O & M Charges	Rs 3.46 Million	Rs 0.8 Million	Rs 1.6 Million	
4	Interest on term loan	11%	12.75%	SBI base rate + 300 Basis points	

5	Project Life	15 years	20 years	20 years	
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- 31 The Tribunal, while making above observations is well aware of the fact that these Regulations have been notified recently and therefore, were not available to the State Commission at the time of Impugned Order. The Tribunal has also not found fault with the State Commission's impugned Order. We are recommending to reconsider the tariff fixed for the Appellant's plant being a renewable source of energy and the Act has mandated the Appropriate Commissions to promote generation from renewable sources of energy and specify minimum Renewable Purchase Obligation. The State Of Haryana does not have much potential for Small Hydro (less than 25 MW) projects, Solar or Wind Turbine projects. As such Biomass and Biogas Based projects are to be encouraged. Tariff Policy notified under Section 3 of the Act also provide for preferential tariff for such generation sources.
- 32 In view our observations above the Appeal is partly allowed to the extent mentioned above. However, there is no order as to costs.

**(V J Talwar )**  
Technical Member

**(Justice P S Datta)**  
Judicial Member

Dated: 3<sup>rd</sup> April, 2012

REPORTABLE/~~NOT REPORTABLE~~