

**BEFORE THE APPELLATE TRIBUNAL FOR ELECTRICITY
(APPELLATE JURISDICTION)**

Appeal No. 148 of 2010

Dated : 5th April 2011

**Coram: Hon'ble Mr. Rakesh Nath, Technical Member
Hon'ble Mr. Justice P.S. Datta, Judicial member**

In the matter of:

South India Sugar Mills Association
(Karnataka)
Registered office at:
No. 133/6, 1st Floor,
Farah Winsford,
Infantry Road,
Bangalore - 560001

...Appellant

Versus

1. Karnataka Power Transmission Corporation Ltd.
Registered office at:
Kaveri Bhavan
Bangalore – 560009
2. Bangalore Electricity Supply Company Ltd.
Registered office at:
CFC Building
Nrupathunga Road,
Banagalore – 560001

3. Mangalore Electricity Supply Company Ltd.
Registered office at:
Paradigm Plaza
A.B. Shetty Circle
Mangalore-575001

4. Chamundeswhari Electricity Supply Company Ltd.
Registered office at:
No. 927, L.J. Avenue, Ground Floor,
New Kantharaj Urs Road
Saraswathipuram,
Mysore – 9

5. Gulbarga Electricity Supply Company Ltd.
Registered office at:
Main Road,
Opposite Parivar Hotel
Gulbarga – 585101

6. Hubli Electricity Supply Company Ltd.
Registered office at:
P.B. Road
Navanagar
Hubli – 580029

7. The Karnataka Electricity Regulatory Commission
Office at:
6th and 7th Floor
9/2, Mahalakshmi Chambers
M.G. Road, Bangalore – 01
Bangalore

...Respondent(s)

Counsel for the Appellant : Mr. Basana Prabhu S. Patil,
Mr. Prabhulinga K. Navadgi
Mr. Nishant Patil
Mr. Ajay Rudraiah

Counsel for the Respondent(s): Mr. N. Sriranga
Mr. Vankat Subramania T.R.
Mr. Raghvendra S. Srivastava

JUDGMENT

HON'BLE MR. JUSTICE P.S. DATTA, JUDICIAL MEMBER

1. What should have been the tariff for co-generation units in the State of Karnataka and whether the Karnataka Electricity Regulatory Commission who is the respondent no.7 in this appeal has rightly determined the tariff in respect of the units co-generating electricity in that State by its order dated 11.12.2009 are the questions posed before us in this appeal preferred by the South India Sugar Mills Association (Karnataka), a Society registered under the Societies Registration Act, 1960 which is a conglomeration of 30 Co-generators.

2. According to the appellant, the total generation of electricity from co-generation is about 400 MWs. In the matter of fixing the price of non-firm power particularly from the non-

conventional sources, the Central Electricity Regulatory Commission (CERC) framed CERC (Terms and Conditions for Tariff Determination from Renewable Energy Sources) Regulations, 2009 which came into effect from 16th September, 2009. The State Commission, the Respondent No.7 herein, undertook an exercise for determination of tariff for various categories of renewable energy projects and the Appellant – Association submitted its proposal which is listed below:

- (a) The generation, transmission, distribution and supply of electricity should be conducted on commercial principle.
- (b) The generators because of their having invested large sums of money would like to have maximum profit out of co-generation.
- (c) Price in the market, issuance of about 45 trading licenses all over the country, establishment of two power exchanges through which power is sold on hourly basis, renewable power obligation under National Power Policy, use of

environmental friendly fuel, localized availability of power generation and contribution of such power in reduction of transmission losses, promotion of co-generation as per the National Power Policy, open access, and the ability of the various State Governments to purchase power at the market price are the factors which have to be kept in mind along with what have been stated in (a) and (b) above.

- (d) The principle behind the provision of Section 61 (b) of the Electricity Act, 2003 (for short 'the Act').
- (e) Fixation of tariff at Rs. 2.80 during the last initiative was against the commercial principle and the market reality.
- (f) The principle enunciated in Section 61(c) of the Act.
- (g) The State Government was purchasing power from the sugar co-generation plants at Rs. 6.50 per /kwhr which was revised from Rs. 7.25 kwhr

between the period from December, 2008 and May, 2009.

- (h) The State Government and the distribution companies have been purchasing power from outside the State at Rs. 8.00 per unit.
- (i) Project cost, plant load factor, cost of fuel, operation and maintenance on investment, auxiliary consumption, return on equity, working capital, maximum alternative tax on return on equity, term loan, interest on term loan and escalation factors.

3. The State Commission fixed the tariff at Rs. 3.59 per unit for the first year with allowable escalation at Rs. 4.14 at the end of 10 years. The Commission while fixing the tariff at Rs. 3.59 took into consideration (i) Project Cost at Rs. 3.65 crores including transmission infrastructure per MW (ii) plant load factor at 60% (iii) operation and maintenance expenses at 3% of the capital cost including insurance with an annual escalation of 5% (iv) interest on working capital at 13.25% p.a,

(v) auxiliary consumption at 8% (vi) fuel price at 1025 per MT of bagasse (vii) fuel cost escalation at 5% per annum and (viii) fuel consumption at Rs. 1.6 kg per unit. According to the appellant, adoption of the above parameters were not tenable and against the realities.

4. The appellant find the following faults with the Commission's order:

- (j) The provision of Section 61 (a) of the Act has been completely overlooked because the CERC Regulations which had come into being much earlier to the passing of the impugned order was thoroughly overlooked.
- (k) The Commission held that the figure of Rs. 4.14 would be applicable in respect of the factories which have already signed Power Purchase Agreement and which are 10 years old. The Commission was not right in holding that in the event of the units which have signed Power

Purchase Agreements and would like to have the present tariff for themselves would not be entitled to escalation.

- (l) The important fact is that the CERC while fixing tariff for the State of Karnataka itself has arrived at the figure of Rs. 4.89 per KWH for the first year. Thus, the tariff fixed by the State Commission must not be lower than that and the principles behind the provisions of Section 62 of the Act have not been taken into account.
- (m) The State Commission was absolutely unjustified by fixing project cost of a plant at Rs. 3.65 crores per MW. Tamil Nadu Electricity Regulatory Commission determined the cost at Rs. 4.67 crores per mega watt excluding the evacuation cost. The Andhra Pradesh Electricity Regulatory Commission determined the project cost at Rs. 3.25 crore per MW and the Kerala Electricity Regulatory Commission fixed Rs. 3.50 crores per MW as project cost. In fact, the State

Commission attempted to take an average of the figures of the last aforesaid two Commissions ignoring the fact that the in the State of Karnataka itself a sample case was available to guide the Commission.

- (i) The appellant submitted the case of Alagawadi Beerehwar plant to show that in that plant the project cost was much more than Rs. 5.38 crores per MW and this was not disputed by the Commission.
- (ii) It is the duty of the Commission to consider the actual cost incurred by various units of the recent years for the purpose of arriving at a figure.
- (iii) If project costs of other States were at all needed for the Commission then the neighbouring State of Tamil Nadu was sufficient enough to guide the State Commission. The Tamil Nadu State Electricity Regulatory Commission issued

a comprehensive tariff order for bagasse based co-generation plants upon deliberation of a study paper called **“Power Procurement by Distribution Licensee from Bagasse based Co-Generation Plants and allied issues relating to Captive Use and Third Party Sale”**.

- (iv) In the case of Chamundeswari Sugars Ltd., the cost per MW has come to Rs. 130.66 crores for installation of 26 MW power plant, and per MW the cost comes to Rs. 5 crores.
- (v) For the GMR Industries which set up a 24 MW Co-Generation Plants in the State, the cost came to Rs. 4.62 crores per MW.
- (vi) In respect of Bannari Amman Sugars Ltd., which is bordering the State of Tamil Nadu and which has installed capacity of 28.80 MW, the cost per MW came to Rs. 4.57

crores and the cost of the power of evacuation is borne by the Tamil Nadu Electricity Board.

- (vii) The Central Commission while fixing the tariff for the Co-Generation facility has taken Rs. 4.45 crores as a project cost excluding the cost of evacuation of power.

5. In the context of the above, it was highly unreasonable for the State Commission to fix the project cost at Rs. 3.65 crores per MW, whereas the CERC fixed it at Rs. 4.45 crore per MW. The Kerala model was of no value because there has not been set up any co-generation plant in that State during the last 10 years. Again, the Andhara Pradesh figure cannot guide the Commission because its determination of cost at Rs. 3.25 crores per MW took place as early as in the year 2004. On the contrary, the Tamil Nadu figure appears to be closer to the reality. The IREDA while commenting on the consultative document from the Tamil Nadu Commission by a letter dated 9th February, 2009 stated that co-generation projects were

being set up generally with boiler configuration of 87 ata or 110 ata and the corresponding benchmark capital cost are in the range of Rs. 4.33 crores per MW to Rs. 5.00 crores per MW. Further, the Ministry of New and Renewable Energy, Government of India suggested that the investment cost may be linked to escalation indices for major inputs like steel and cement. M/s. Rajshri Sugars indicated that the capital cost of a project commissioned in January, 2009 is Rs. 5.00 crores per MW. Again, the South India Sugar Mills Association have stated that the capital cost of projects currently under implementation is in the range of Rs. 5.25 crores per MW. Also, the Maharashtra State Electricity Regulatory Commission made provisional fixation at Rs. 4.79 for every unit. The escalation considered by the State Commission for capital cost as parameter is an increase from Rs. 300 lakh per MW (which was fixed in the year 2005) to Rs. 365 lakh per MW in the present tariff order and in terms of percentage it comes approximately to 4.33 % which is very low and far from the ground reality and has been oblivious of the current inflation

rate. It is thus pleaded that the correct fixation should be at Rs. 5.25 crores per MW.

6. With regard to plant load factor the State Commission assumed that the CERC has fixed it at 60% which is not correct; the CERC has fixed the PLF at 53% being applicable to the State of Karnataka. There was no reason for the State Commission to depart from this.

7. With respect to fuel price for bagasse the State Commission fixed Rs. 800 as the basic price but it was the price fixed in the year 2004 and then by increase of 5% escalation cost the Commission arrived at Rs. 1025 per metric tonne which is totally unjustifiable. The fixation of the price at Rs. 800 per metric tonne was challenged before this Tribunal earlier and the Commission's order was set aside though Special Leave Petition was filed before the Hon'ble Supreme Court by the Karnataka Power Transmission Corporation Ltd.

8. The Commission totally lost sight of the fact that the Sugarcane (Control) Order 1966 adopted the value of bagasse while fixing the price of sugarcane and under para 3 of that Control Order, one of the parameters while fixing the sugarcane price is the realization to be made from the producer by the bye-products like bagasse, molasses or their imputed value. So far as Karnataka is concerned, the fair and remunerative price for the year 2009-10, has been fixed at Rs. 1414/- and the declared price which is actually paid by each of the sugar factories to the sugarcane farmer is between Rs. 2,000 to 2,100 per metric tonne in North Karnataka and Rs. 1950/- in South Karnataka.

9. The Commission did not consider the formula prescribed in the report of TERI Committee. According to the formula, the price of coal being readily available by the statutory authority has to be divided by the calorific value of the coal with that of bagasse. The notional price of bagasse could be easily arrived at Rs. 2,000/- per metric tonne.

10. The price escalation of bagasse is linked up with the escalation of price of sugarcane but the State Commission simply increasing by 5% on the basis of the last year price fixed the tariff at Rs. 1025 per metric tonne which is not the reality.

11. As regards fuel consumption, the figure of Rs. 1.60 per kg is not correct. In this connection, the Appellant Association got a technical expert report of M/s. Tecsol Engineers Pvt. Ltd., to evaluate the parameter of fuel consumption/specific heat rate in power generation.

12. This Tribunal also made valuable observation in this connection in Appeal No. 20 of 2006 in the order dated 7th September, 2006 (we shall consider the findings of the Tribunal at the appropriate place of this judgment).

13. If the average calorific value of biomass is taken at 3,300 Kcal/Kg, the Station Heat Rate works out to 4488 Kcal/Kwh. At the same rate, with the average calorific value of fuel

(Bagasse with 50% moisture content) in respect of co-generation plant the SHR comes to 2,250 Kcal/Kg. Then, at that rate, the specific fuel consumption would be Rs. 1.99 kg per KWh. The State Commission by its tariff order has fixed the specific fuel consumption at 1.6 kgs/KWH based on sugar season operation which is similar to a biomass based power plant, as such the same operational parameter will hold good for the co-generation plants. The expert opinion rendered by Professor P.J. Paul, Chief Programme Executive, ABETS attached to Indian Institute of Science, Bangalore provided the same information both in respect of biomass as well as co-generation units. Some plants in the State of Karnataka have been installed with highly efficient equipments supplied by Indian and foreign manufacturers, like BHEL, Shin Nippon, Triveni, etc.

14. Thus taking into consideration all these factors the tariff per unit comes to Rs. 5.64.

15. Though all the Power Purchase Agreements provide for an opening of letter of credit by the distribution companies, the co-generation units have found that no letter of credit has been opened. Further, every sugar factory which has been supplying power to the State utility is suffering from delayed payment as a result of which they become defaulter to their financial institutions and they also delay in making payments to sugarcane farmers.

16. Of the seven Respondents, the respondent Nos. 1 to 6 who are the distribution licensees have come up with a joint counter-affidavit, the contents of which can be conveniently put as under:

- (i) The order impugned of the Commission suffers from no defects as it has taken cognizance of various provisions of the Electricity Act, namely, Sections 61, 62 and 63, the National Electricity Policy and the Tariff Policy.
- (ii) The present appellant has no locus standi to present the appeal as the appellant is not any

individual co-generator and the memo of appeal does not specify as to how it came to be affected by the order impugned.

- (iii) The exercise made by the Commission is towards fixation of normative rates for generation of power by various non-conventional sources of energy that comprise a unit of co-generation.
- (iv) The fuel for generation of power is a bye -product of the main activity of a co-generator which is a business other than the function of co-generation. In case of sugar factories, bagasse derived from the process of extracting sugar is a bye-product having high calorific value and the same is used for generation of power. Thus, co-generation is ancillary to the main business of the generating company.
- (v) While fixing the capital cost, the Commission reasonably found that the capital cost proposed by the appellant could not be relied upon as it is based on data concerning a single project and does not

reflect the true cost. The Commission considered every aspect of the matter including those placed by the appellant before the Commission. The appellant failed to establish as to how the cost varied from Rs. 4.75 to 5.550 crores per MW. The Commission did not simply take into consideration the price fixed by the neighbouring State Commissions but also considered the annual inflation rate and the cost of power project per mega watt.

- (vi) As regards plant load factor, the Commission while fixing it at 60% considered the proposal of various entities including the appellant which itself proposed at 55% after reducing from 75%. It was the case of the appellant that the seasonal period for generation would be 180 days and that for the off season would be 60 days. In the earlier order also, the Commission reckoned 60% as PLF.
- (vii) With respect to fuel price, it is contended that sugar factories work as co-generator only in the season

and during the off season there is no co-generation. Therefore, bagasse would be required during the off season and to make good shortage of fuel during the season. As the bagasse produced during the season is available free of cost, the same being a in-house bagasse, the fuel cost allowed by the Commission for such in-house bagasse during the season is only notional.

(viii) As regards fuel consumption it is the case of the appellant that as the State Commission by way of the impugned order has fixed the specific fuel consumption at Rs. 1.60 kg. per KWH based on non-sugar operation which is similar to a biomass based power plant, the same parameters applicable to biomass plants would hold good for co-generation plants as well, but the same are incomparable as not only the raw materials are different but also the parameters for computation of costs involved are not comparable, as such both cannot be equated together.

- (ix) With respect to payment security mechanism it is the case of the respondents that the State Commission in its standard approved draft has already dealt with the issue and no additional payment security mechanism is required. Further, the appeal relates to challenge of a tariff order with which payment security mechanism bears no relevance.
- (x) In support of the case of the appellant, no documentary evidence has been produced worth considering. The report of the technical expert was not available before the tariff fixation. No data, details and materials were furnished before the Commission by the appellant.
- (xi) There is no legal question involved in the appeal. The Commission passed the impugned order in right perspective upon having consideration of the materials so far made available before it. The State Commission duly considered also the CERC Regulations while coming to the decision in

question. The rates fixed by the CERC for the control period is generic levelised generation tariff which cannot be applied ipso facto to the co-generators who are under the jurisdiction of the State Commission.

- (xii) The Commission considered the cost incurred by the generators throughout the year and the impugned order has duly taken care of the situation of the generators achieving a reasonable return out of the business.
- (xiii) Reference to different sugar factories, namely, Chamundeshwri Sugar, GMR Industries, Bannari Amman Sugars Ltd., Tamil Nadu State Commission's Study Report and its order determining the tariff for renewable source of energy are all beside the point. No order of the other Commissions is binding on the Karnataka State Commission and in fact the Commission has come to an independent view upon consideration of the relevant materials.

(xiv) CERC recommended 60% PLF in case of availability of the plant for 180 days in season and 60 days off season which the appellant itself suggested before the Commission.

17. Accordingly, the first six Respondents jointly contend that the Appeal is not of any substance.

18. The seventh Respondent, the Karnataka State Regulatory Electricity Commission is not represented by any counsel, nor has there been any counter by the Commission. In fact, the lengthy submissions of the Respondent Nos. 1 to 6 by their learned advocate Mr. S. Sriranga are adoption of the reasonings of the State Commission in the impugned order.

19. Upon the pleadings as aforesaid of the parties, the issues that arise for consideration are as follows:

- a) Whether the appeal as framed is maintainable ?
- b) Whether the State Commission was justified in fixing the cost of biomass based cogeneration unit at Rs.3.59

per unit when the existing power purchase agreement holders are getting tariff between Rs.4.15 to Rs.4.64 per unit as alleged by the Appellant?

- c) Whether the determination of tariff by the Commission is justifiable based on relevant material and evidence as alleged by the appellant?
- d) Whether the determination of tariff by the Commission corresponds to legal principles and the national tariff policy?

20. We propose to make a comprehensive analysis of the subject covering all the issues. When we ask, whether the provisions of law have been complied with or not we are to analyse and marshal the facts so as to see whether determination of the fact is in consonance with the position of law. Mr. Prabhuling K. Navadgi appearing with Mr. Nishant Patil learned Counsel for the appellant has questioned the modality of working out of the project cost as made by the Commission saying that the modality in the nature of taking into account the fixation of cost by Andhra Pradesh Regulatory

Commission and Kerala Regulatory Commission and thus putting an increase by a certain percentage on the tariff determination for renewable source of energy as was made in the year 2004 by the Commission is, so to speak, not a determination on the basis of materials and evidence a plethora of which was furnished before the Commission; as such determination thoroughly unreasoned and that too by careful overlooking of all such materials must not stand the scrutiny of the law. The learned Counsel has taken us to the annexure to the memorandum of appeal in relation to the issue of project cost in support of his submission that by no amount of reasoning project cost can be fixed in the manner as made by the State Commission. It is submitted that the plant load factor must be taken as 53% in line with the Central Electricity Regulatory Commission Regulations, 2009 in so far as it is applicable to the State of Karnataka. As regards fuel price, it is submitted that the reasoning given by the Commission on this account is anything but the reason worth considering because the amount of Rs.1025 per MT has simply been arrived at by putting escalation at 5% upon the

basic price of Rs.800 as was fixed in the year 2004. It is submitted that unfortunately the Commission chose to ignore the materials which the appellant provided. With respect to fuel consumption, exception has been taken to the manner in which it has been fixed on the ground that the calculation provided by the appellant before the Commission showed clearly that specific fuel consumption for a co-generation plant must not be less than Rs.1.82 kg/kwh which is in line with the recommendations of Central Electricity Authority Expert Committee. Again, the Commission has not structured the minimum alternate tax as a factor for tariff fixation. As regards fuel cost escalation, escalation by 5% is acceptable provided fuel price is objectively fixed.

21. The Commission, arguments continue, would not have committed mistake blatantly if at least this Tribunal's judgment and order dated 7th September, 2006 passed in Appeal No. 20 of 2006 had been duly taken note of. It is submitted that the entire exercise undertaken by the

Commission is without any foundation of facts and materials; accordingly the order impugned demands interference.

22. The respondent No. 1-6 through their Counsel Mr. Raghvendra S. Srivastava submitted that the appellant forgot that the concept of cogeneration is that power generation is ancillary to the main business of the generating company and bagasee is the bye-product of sugarcane having high calorific value. Thus, fuel for power generation in case of renewable source of energy bagasee is not procured from outside unit, accordingly, cost of bagasee has to be one having notional value. Secondly, it is submitted that with regard to the project cost the cost of single project as was furnished by the appellant was not sufficient. The Commission duly took note of the annual inflation rate and cost per mega watt. As regards plant load factor, the Commission fixed it at 60% taking note of the fact that according to the appellant seasonal period for generation would be 180 days and off season would be 60 days.

23. Thirdly, the price of fuel was rightly fixed at Rs.1025 per MT and the basis for the same is that sugar factories work as cogeneration plant only in the season and during the off season there is no cogeneration. When bagasse produced during the season is available free of cost, the fuel cost for the in-house bagasse would be notional. As regards fuel consumption, the Commission has correctly fixed at Rs.1.60 kg/per unit. The aspect of payment security mechanism has no relevance with that of tariff determination. The rates fixed by CERC for the controlled period is generic levelised generation tariff and it is not applicable to the non-Central Government Companies. It is submitted that the Commission rightly held that the tariff so determined would be applicable with relevant escalated rate on the date of commercial operation. In view of the order of this Tribunal in Appeal No. 129 of 2005 the present tariff would be applicable with relevant escalated rate on the date of commercial operation, but where the project has completed the first ten years of tariff period and PPA is valid for another 10 years, the tariff applicable would be continued for the remaining period of the

PPA without escalation because of the fact that the debt has already been serviced leaving scope of marginal increase in operation and maintenance expenses.

24. The first objection of the Respondent No. 1 to 6 that the appeal is not maintainable on the ground of it not having been preferred by any individual and the association of sugar factories does not have locus standi to prefer the appeal against the order for determination of tariff for the co-generation units attached to those factories is itself not maintainable in view of the fact that the appellant undisputedly is a society registered under the Karnataka Societies Registration Act, and an incorporeal body having capacity to sue and be sued. As we find from Annexure B, C and D of the memorandum of appeal, the association has 30 members having sugar mills in Karnataka, and the sugar factories with cogeneration units in Karnataka are 34 in numbers. In terms of the resolution of Committee the Secretary of the Association has been duly authorized to present this appeal. The appeal has been preferred thus by a

registered body in its representative capacity to urge therein common view points. It is not an unregistered body, not are the members obscure and uncertain. The objection is thus repelled.

25. The National Tariff Policy framed by the Government of India in the Ministry of Power duly published on 06.01.2006 vide Resolution no. 23/2/2005-R&R(Vol. III) dated 06.01.2006 inter alia puts as follows:

“ 4.0 OBJECTIVE OF THE POLICY

The objectives of this tariff policy are to:

- (a) Ensure availability of electricity to consumers at reasonable and competitive rates;*
- (b) Ensure financial viability of the sector and attract investments;*
- (c) Promote transparency, consistency and predictability in regulatory approaches across jurisdictions and minimize perceptions of regulatory risks;*
- (d) Promote competition, efficiency in operations and improvement in quality of supply.”*

26. These objectives of the National Tariff Policy find its exact reflection in Section 61 which is reproduced below:

“61. Tariff regulations.- *The Appropriate Commission shall, subject to the provisions of this Act, specify the terms and conditions for the determination of tariff, and in doing so, shall be guided by the following, namely:-*

- (a) the principles and methodologies specified by the Central Commission for determination of the tariff applicable to generating companies and transmission licensees;*
- (b) the generation, transmission, distribution and supply of electricity are conducted on commercial principles;*
- (c) the factors which would encourage competition, efficiency, economical use of resources, good performance and optimum investments;*
- (d) safeguarding of consumers' interest and at the same time, recovery of the cost of electricity in a reasonable manner;*
- (e) the principles rewarding efficiency in performance;*
- (f) multi-year tariff principles;*

- (g) that the tariff progressively reflects the cost of supply of electricity and also reduces cross-subsidies in the manner specified by the Appropriate commission]*
- (h) the promotion of co-generation and generation of electricity from renewable sources of energy;*
- (i) the National Electricity Policy and tariff policy;*

Provided that the terms and conditions for determination of tariff under the Electricity (Supply) Act, 1948 (54 of 1948), the Electricity Regulatory Commission Act, 1998 (14 of 1998) and the enactments specified in the Schedule as they stood immediately before the appointed date, shall continue to apply for a period of one year or until the terms and conditions for tariff are specified under this section, whichever is earlier.”

27. In this connection we have been taken to the relevant paragraph of the order of this Tribunal passed on 7th September, 2005 in Appeal No. 20 of 2006 which we quote below:

*“We have perused the CEA’s report on **“Operations Norms for biomass based power plants”** dated September, 2005, prepared by a Technical Expert Committee with representatives from State utilities and Equipment manufacturers. The norms are based on actual operation data of plants for 3 years (from January, 2002 to December, 2004) and site related conditions like ambient conditions, fuel quality, equipment and technology specific factors etc. It covered the plants located in States of Tamil Nadu, Karnataka, Andhra Pradesh, Rajashtan and Chhattisgarh. We find that the report has taken into account the guidelines issued by MNES to state Govts. in 1994-95; considered the Andhra Pradesh Regulatory Commission’s (APERC) orders dated 20.06.2001 and 20.03.2004 on Non-conventional Energy Sources’ Projects; held discussions with manufacturers of plant-equipment (M/s Thermax; BHEL, Triveni); consultants (M/s Avant Grade), ASCI Hyderabad and Indian Renewable Energy Development Agency (IREDA), etc. and had made visits to the selected plants before recommending norms for biomass-based power plants. The approach adopted is fairly scientific and will promote generation of electricity from biomass. As already noted, it is the mandate of the Act of 2003 more particularly Section 86(1)(e) of the Act of 2003 read with Section 61(h) thereof and Preamble*

thereto and the various policy guidelines to promote generation of electricity from renewable sources of energy including biomass. The appropriate Commission is bound to give effect to the statutory direction of the Act of 2003 to promote generation of electricity from renewable sources of energy. We find that this spirit of legislation is being defeated while regulating electricity purchase and procurement process of distribution licensees including the price at which the electricity is procured from the generating companies using renewable sources of energy, including biomass. Appropriate Commission is also directed to notify a set of Regulations specifying terms and conditions for the tariff determination of Non-Conventional Sources in compliance to the Section 61 of Electricity Act-2003.

Where the Power Purchase Agreements (PPAs) between the distribution licensees and generating companies utilizing renewable sources of energy are in conformity with MNES guidelines or various policy guidelines as detailed above, the agreements are not required to be tinkered with but where the agreements are one sided and are not in consonance with the MNES guidelines or aforesaid policy guidelines and the terms thereof do not promote generation of electricity from renewable sources of energy, it is the bounden duty of the appropriate

Commission to invoke the provisions of Section 86(1)(e) to issue appropriate directions with a view to promote generation of electricity from renewable sources of energy. This call for re-opening of the power purchase and wheeling agreements by the Commission for suitable amendments in keeping with the provisions of Section 86 (1) (e) of Electricity Act-2003.

Keeping in view the principle that the generation of electricity from renewable sources of energy needs to be promoted, we accept these operational norms as recommended by the CEA's report as basic norms and the Appropriate Commission to act upon them subject to minor adjustments relating to the local site conditions and further refinement after operational data of 5 years operation of biomass plants in the state aggregating to 100 MW is available. The following normative figures as recommended by CEA be adopted:

- (a) Capital cost at the rate of Rs. 4 crores/MW.*
- (b) O & M expenses including insurance to be 7% of the cost of capital with the annual escalation at the rate of 5%.*
- (c) Auxiliary power consumption to be taken as 10%.*
- (d) Normative Gross Heat Rate (Kcal/Kwh)-4500.*

(Station Heat Rate to be taken based on the actual P.G. Test report of the projects).

(e) Plant Load Factor (PLF) of 80% for recovery of the full fixed cost.

(f) Depreciation at the rate of 7.84% p.a. until the debt is repaid. Beyond that 20% is to be spread over the remaining life of the plants. (As permitted by the GOI notification relating to Depreciations norms for generating companies dated 29.03.1994).

(g) Specific fuel consumption of 1.36 Kg/Kwh with average calorific value of fuel as 3300 cal/Kg.”

28. The main grounds of appeal relate to (a) Project Cost (b) Plant Load Factor (c) fuel price and (d) fuel consumption. With respect to fuel cost escalation the appellant is agreeable to escalation by 5% per annum provided the initial price of bagasse is determined on objective basis. With respect to the operation and maintenance expenses, interest on working capital and auxiliary consumption, the appellant does not dispute with the determination made by the State Commission. Therefore, our main focus will be with respect to the first four points.

29. Project cost is the principal issue. In support of the appellant's case that the project cost per mega watt should be Rs. 5.25 crores the appellant has furnished evidence which are being discussed herein.

(i) The Central Electricity Regulatory Commission through its regulations called CERC (Terms and Conditions for Tariff Determination from Renewable Energy Sources) Regulations, 2009 has arrived at the figure of Rs. 4.89 per KWh which means, commercial principles were duly recognized while determining the tariff at Rs. 4.89 per KWh for the first year. It has rightly been argued by the Appellant that where there is no regulation of the State Commission for determination of Tariff with respect to the renewable source of energy the principles and methodologies specified by the CERC shall be the guiding factor for the State Commission. It appears that the Central Electricity Regulatory

Commission Regulations 2009 had already been given effect to prior to the passing of the impugned order and it is not understood as to why the State Commission cannot get itself inspired by the determination of tariff by the Central Commission. The Central Commission, as we find from its Regulations 2009, duly recognized the costs of bio-mass in determination of tariff. According to the CERC Regulations, the normative capital cost for the biomass power projects shall be raised to Rs. 450 lakh per MW for the year 2009-10 during the first year of the control period, and shall be linked to indexation formula for adjustment in capital cost for the control period with the changes in wholesale price index for steel and electrical machinery. There is a detailed formula under the head “capital cost indexation mechanism”. The Central Commission has taken care to provide that while working out interest on working

capital in respect of biomass power and non-fossil fuel cogeneration cost of fuel is one of the components. Therefore, the submissions of the Respondent that there has to be taken only the notional value of bagasse is not correct. As against this, the State Commission has taken the capital cost for putting up a cogeneration plant at Rs. 3.65 crores per MW.

- (ii) The appellant lays greater stress on the determination of the project cost for cogeneration in Tamil Nadu by the Tamil Nadu Commission at Rs. 4.67 crores per MW which excludes the cost of evacuation of power. It is not in dispute that an expert committee was formed for non-conventional energy sources and particularly with respect to bagasse based cogeneration plant by Tamil Nadu State Commission. It could not be disputed that a consultative paper on "Power Procurement for Distribution Licensee from Bagasse Based Cogeneration Plant and allied

open access issues relating to captive use any third party sale” was prepared and circulated at the behest of Tamil Nadu Electricity Regulatory Commission and after threadbare study and analysis capital cost was fixed at Rs. 4.67 crores per MW.

- (iii) Then the Appellant produced the certificate of a Chartered Accountant of Sri Chamundeswari Sugar Ltd. which determined the capital cost per MW at Rs. 502.5 lakhs. Reference has been made by both the parties to the fixation of capital cost by Andhra Pradesh Regulatory Commission and Kerala Regulatory Commission. Now the submission of the learned counsel for the appellant is that the cost fixed by Andhra Pradesh at Rs. 3.25 crores per MW was the cost determined in the year 2004 and it is unwise to borrow such figure which is not recent in origin. As regards the Kerala cost, it has been submitted that the Kerala figure is not even a recent past

because during the last 10 years preceding the determination of tariff fixation by the Karnataka State Commission there has not been any cogeneration units for generation through biomass in Kerala. It is true that Andhra Pradesh and Kerala have their figures at Rs. 3 crores plus but neither of these have calculated the cost with reference to the cost of the components with respect to any cogeneration plant set up recently in any of the said two states. As against the project cost of Andhra Pradesh and Kerala, evidence to the contrary is in abundance which equally cannot be ignored and it is not that the evidence that is produced here was not tendered before the Commission at the time of hearing. It is not our purpose to say what exactly should be the project cost for the sugar factories generating electricity through biomass. We can only point out whether the project cost fixed by the Commission is a true reflection of the ground

realities. Now, Sri Chamundeswari Sugar Ltd. which has 26 MW turbine generator was set up on 30th September, 2008 at the cost of Rs. 520.5 lakhs per mega watt, while GMR Industries Ltd. which was set up in the year 2007 for 24 MW power shows the project cost at Rs. 4.62 crores per mega watt. Again, Bannari Amman Sugar Ltd. situated in Tamil Nadu has set up 28.80 MW power unit assessed their cost at Rs. 4.57 crores per MW excluding the cost of evacuation which is borne by Tamil Nadu Electricity Board. Again, the appellant submitted the case of Alagawadi Beereshwar plant to show that there the project cost was more than Rs 5.38 crores per MW. If we look at the statement of object and reason of Central Electricity Regulatory Commission (Terms and conditions for Tariff Determination for Renewable Energy Sources) Regulations, 2009 we find that for the first year of the control period 2009-10 the normative capital cost for non-fossil

fuel based cogeneration project has been specified at Rs. 4.45 crores which excludes the cost of power evacuation facility. Instead of considering these materials what seems to have prevailed with the Commission is the cost fixation of Andhra Pradesh and Kerala which is quite age old fixation. The argument of the learned counsel for the Appellant that actual project cost must be taken into consideration instead of fixation by escalation percentage cannot be disputed. The matter of the fact is that the State Commission's tariff determination as was done in the year 2004 was almost similar to Andhra Pradesh which also did the same exercise in 2004 and the State Commission by percentile increase put the figure at Rs. 3.65 crores per MW. If we go between the lines of the Commission's order we find that the Commission took note of its earlier project cost of Rs. 3.00 crores per MW and after having taken into account of the data of Kerala, Andhra

Pradesh, Tamil Nadu and the claim of the stake holders the Commission preferred to put a percentile increase upon earlier project cost of Rs. 3.00 per MW so as to arrive at the figure of Rs. 3.65 crore per mega watt. We fail to understand why the Commission did not go into the details of the material and examine the same analytically as were available before it. The learned counsel for the appellant takes us to an order dated January 11, 2010 passed by the Maharashtra Electricity Regulatory Commission in Case no. 123 of 2008 wherein the State Commission after taking into consideration the order passed by the CERC made provisional fixation of tariff at Rs. 4.79 per unit. There a submission was made by the Cogeneration Association of India at Pune that project cost increased to Rs. 4.5 crore per MW or higher than that and wholesale price inflation index for fuel, power, light and lubricant, rose by 35% from

239.20 in the financial year 2002-03 to 324.00 in the financial year 2006-07. This submission was taken duly note of by the Maharashtra State Electricity Regulatory Commission (MERC). Against this, the escalation of cost considered by the State Commission appears to be 4.33% as compared to the original cost of Rs. 3.00 crore which was fixed in the year 2004. The legitimate question has arisen whether the said percentile increase corresponds to the reality which includes the correct inflation rate. According to the appellant they have got the price index data from the office of the Economic Advisor, Ministry of Commerce and Industry, Government of India showing the average inflation for the commodities like ACSR conductor, switch gear, material handling equipments, steel and cement at 65.74%. We do not know whether this paper was shown to the State Commission at the time of hearing. However, investment cost has to be

linked to escalation indices for major inputs such as steel and cement. A cogeneration plant set up by one M/s Rajsri Sugar, according to the Appellant, indicated that the capital cost of the project in January, 2009 is Rs. 5.00 crore per MW. Taking a total view of the matter it appears to us that the State Commission has not gone into the depth of the matter; and instead fixed project cost by percentile increase having due regard to its own determination for the year 2004-05 which was almost similar to Andhra Pradesh and Kerala. It is for the State Commission to again consider whether the said percentile increase was after taking into consideration of all the materials placed by the appellant. Regulation 35 of the CERC Regulations 2009 provides in detail capital cost indexation mechanism in the case of biomass power project for adjustment in capital cost over the control period with the changes in wholesale price index

for steel and electrical machinery. The State Commission's impugned order is too cryptic to give berth to all the materials and evidence as were produced before the Commission. The Commission opined that its fixation at Rs. 3.65 crores per mega watt is reasonable, but no reason has been assigned to show how its order on this count is, according to the Commission, reasonable. In the circumstances we are of the view that the matter needs a review, re-look and revisit with regard to such material and others as might be placed before the Commission once again when we remit the matter to it for such reconsideration.

30. As regards the Plant Load Factor the Commission found that at the initial stage the appellant had estimated 270 day of operation and thus projected the PLF at 75% but subsequently it revised its estimate on the ground that cogeneration plants cannot run beyond 240 days (180 days season and 60 days off

season) since boilers are prone to frequent failure and need regular maintenance. Accordingly, the appellant proposed PLF at 55%. The Commission observed that the CERC has specified PLF at 60%. The State Commission observed that in its earlier order it had approved PLF at 60%. Our attention in this connection has been drawn to CERC Regulations, 2009, which was notified on 16th September, 2009. According to the Regulations 2009 for biomass based power projects Plant Load Factor for determining fixed charge component of tariff would be 60% during stabilization, 70% after stabilization and 80% from the second year onwards. Now, while determining the generic levelled generation tariff under Regulation 8 of the Regulations, 2009 the CERC fixed PLF at 53% considering 150 days (crushing) and 60 days (off season), whereas for Tamil Nadu and Maharashtra it is 60% taking 240 days as operating days, and 45% in the case of Uttar Pradesh and Andhra Pradesh considering 180 days as operating days. The CERC in its Regulations, 2009, Clause 49 provided that for the purpose of determining fixed charge the Plant Load Factor for non-fossil fuel based generation projects shall be computed on

the basis of plant availability for number of operating days considering operations during crushing season and load factor of 92%. For Karnataka, the operating days have been fixed at 210 days. It appears that the State Commission has been retained its earlier determination of PLF at 60% without any change on the basis of the representation of the Appellant that cogeneration plants can run up to 240 days. With operating days as 240, the PLF according to the formulations of the Central Commission would work out to be 60%. We do not think that the Commission committed any material irregularity in the matter so as to call for interference on this count.

31. With respect to fuel price the appellant is too much aggrieved. We have earlier overruled the submissions of the respondent No. 1 to 6 that the value of baggasse should be notional on the ground that baggasse produced during the season is available free of cost. This submission goes against the determination of tariff on cost plus principle. The contention that simply because the generation of power is

made by cogeneration unit the fuel price is ignorable is against the principle that the determination of tariff has to be on the commercial principle. Now, it has rightly been suggested that the value of bagasse is also taken into consideration for fixation of price of sugarcane. Our attention has been drawn to the Sugarcane (Control) Order 1966, paragraph 3 which duly takes cognizance of the value of the by-products of sugarcane like molasses and bagasse. Our attention has further been drawn to the copy of the bill of Shree Doodhganga Krishna Cooperative Sugar Factory for the year 2009-10 which shows the price of cane per metric tonne at Rs. 2025/- during the period from 1st January, 2010 to 15th January, 2010. Bill of another concern, NSL Sugars Ltd. for the period from 18th February, 2010 to 21st February, 2010 shows the cane price at Rs. 1950 per metric tonne and the billing price was at Rs. 1795/- per metric tonne. Further, CERC in their tariff order for the period 2009-10 assessed the fuel price at Rs. 1163/- per metric tonne for the State of Karnataka and others and the price is higher than Uttar Pradesh, Madhya Pradesh, Andhra Pradesh and Maharashtra. Definitely study was conducted by

the CERC on the price of non-fossil based cogeneration projects in different states before arriving at the figure of Rs. 1163/- which is applicable to Karnataka. Now, our attention has been drawn to a letter dated 4th May, 2009 issued by Shri Doodhganga Krishna Sahkari Sakkare Karkhane, Niyamit to a concern intimating the acceptance of the price of loose bagasse of 2008 -09 season at Rs. 2700/- per metric tonne (with moisture content less than 50%). The same concern accepted the price from another supplier at Rs. 2600/- per metric tonne at about the same time. On 06.05.2009 one Tara Industries supplied loose bagasse to the same Shri Doodhganga Krishna Sahkari Sakkare Karkhane, Niyamit at Rs. 2000/- per metric tonne. Alarmingly, one The Nandi Sahkari Sakkare Karkhane, Niyamit placed purchase order to a concern of Belgaum for supply of loose bagasse for the crushing season 2009-10 at Rs. 3400/- per metric tonne inclusive of bagasse material cost, all taxes and duties, loading and unloading and transportation up to the factory side. The Government of India in its Ministry of Consumer Affairs, Food and Public Distribution in its letter date 31st October, 2009 to the Chief Secretaries of the Sugar

Producing States intimated that the Government fixed the fair and remunerative price of sugarcane payable by sugar mills for 2009-10 sugar season at Rs. 129.84 per quintal linked to a basic recovery rate of 9.5%. It appears that in the impugned order the State Commission put an escalation price at the rate of 5% upon Rs. 800/- as basic price to arrive at the figure of Rs. 1025/- per metric tonne. The observation of the Commission that there is no expenditure actually incurred for in house bagasse from the accounting point of view because it is available during the season free of cost cannot be rejected outright. It is further submitted that the State Commission also did not consider the report of TERI Committee according to which the price of coal being readily made available by the statutory authority, by dividing the calorific value of the coal with that of bagasse the notional price of bagasse come to Rs. 2000/- per metric tonne. The Central Commission in the Regulation 2009 provided that the price of Bagasee shall be linked to index formula as given in Regulation 54 and alternatively for each subsequent year of the control period the normative escalation factor of 5% per annum shall be

applicable on the option of the project developer. Either the normative escalation factor of 5% per annum is allowed or the price is linked to index formula as given by the Central Electricity Regulatory Commission there is hardly any scope and necessity for re-examination of the matter by the State Commission because State Commission put escalation of 5% to put figure on Rs. 1025 per MT which cannot be considered to be unreal and unjustified.

32. As regards fuel cost escalation nothing much has to be said except saying that subject to determination of the fuel cost truly reflecting the position in the market escalation at 5% has not been objected to.

33. With respect to fuel consumption which is equally assiduously canvassed by the learned Advocate for the Appellant, the Commission has fixed Rs.1.60 per Kg. per unit. It appears that the Commission retained the same figure as it earlier fixed. It noted the fuel consumption approved by the Tamil Nadu Electricity Regulatory Commission and Andhra

Pradesh Electricity Regulatory Commission at Rs. 1.67 and Rs. 1.60 respectively. It also noted the station heat rate of 3600 kCal/kWh approved by the CERC which works out at 1.60 kg./unit. According to the appellant if the average calorific value is taken as 3300 kCal/kg, the station heat rate works out to 4488 kCal./kWh and at the same rate the average calorific value of fuel (bagasse with 50% moisture contents) for a cogeneration plant comes 2250 kCal./Kg. and the specific fuel consumption accordingly comes to 1.99 kg/kWh which is arrived at by dividing the station heat rate by calorific value of fuel with 50% moisture content. According to the appellant, the State Commission by its tariff order has fixed the specific fuel consumption at 1.6 kg/kWh based on non-sugar operation (no process steam) which is similar to a biomass based power plant, as such the same operation parameter must hold good for cogeneration plant also. The figure of 1.99 kg./kWh as has been put forward by the appellant is actually the report of a technical consultant named M/s. TESCOLE Engineers Pvt. Ltd., Bangalore, dated 08.02.2010 in the form of a letter dated 08.02.2010 addressed

by the Director of the said concern to the appellant. According to this report, with average calorific value of fuel as 3300 kCal./kg. the fuel consumption is fixed at 1.36 kg. which is multiplied by the biomass calorific value of 3300 kCal/kg. to arrive at the station heat rate at 4488 kCal./unit which when divided by 2250 i.e. the calorific value of bagasse with 50% moisture we get a figure of 1.99 kg/kWh as specific fuel consumption for cogeneration plant. This report further refers to the expert opinion rendered by Prof. P.J. Paul. Chief Programme Executive, AVETS attached to Indian Institute of Science Bangalore, who provided the said TECSOL, the information both in respect of biomass as well as cogeneration unit. The TECSOL is finally of the opinion that for biomass / cogeneration plant having no supply of process steam and with bagasse with 50% moisture as fuel the specific fuel consumption will be in the range of 1.82 to 2.0 kg./kWh. We do not think that the Commission has committed any material irregularities in fixing fuel consumption at Rs. 1.60 per kg. per unit. The CERC has specified station heat rate of 3600 K. Cal/unit and calorific value of 2250 K. Cal / Kg. Thus for the

CERC, the fuel consumption per unit works out to 1.60 Kg. / unit. The same has been the fixation of the State Commission. The assumption of the appellant are too much off the mark, and we do not find any cogent reason to interfere with the fixation.

34. In view of what we have said above it is but necessary for the Tribunal to remit the matter to the commission for whom it would be necessary to re-examine the following issue as is canvassed before us on the basis of the material as would be available before the Commission so that a reasoned analysis is rendered:

(a) Project cost,

We do not interfere with the findings of the Commission on

(b) Plant Load Factor

(c) Fuel Price.

(d) Fuel Consumption.

We make it clear that we have not indicated as to what would be the exact figure in respect of each of the components; we only clearly say that the Commission has over looked all such evidence as were placed before it by the appellant and without examining them it arrived at a decision which accordingly it is difficult to sustain.

36. Therefore, the appeal is allowed in part and the impugned order to the extent indicated above is set aside. The case is remanded back to the Commission for re-examination on the issue as aforesaid through re-hearing upon consideration of the relevant materials as would be placed before it by the appellant. No cost.

(Justice P.S.Datta)
Judicial Member

(Mr. Rakesh Nath)
Technical member

Dated 5th April, 2011

Index: Reportable/Non-Reportable.

ZA/PK