

In the Appellate Tribunal for Electricity,
New Delhi
(Appellate Jurisdiction)

Appeal No 91 of 2015 with IA Nos. 140 of 2015 and 560 of 2016

Dated: 3rd July, 2017

Present: Hon'ble Mrs. Justice Ranjana P. Desai, Chairperson
Hon'ble Mr. I.J. Kapoor, Technical Member

In the matter of :-

Raichur Bio Energies Pvt. Ltd.
Sy. No. 837, Gadwal Branch
Raichur – 584 102
Karnataka

... Appellant

Versus

- 1. Karnataka Electricity Regulatory Commission (KERC)**
9/2,6th & 7th Floor, Mahalaxmi Chambers,
M G Road,
Bangalore- 560 001 **...Respondent No.1**

- 2. Karnataka Power Transmission Corporation Ltd. (KPTCL)**
Kaveri Bhavan, K G Road
Bangalore- 560 008 **...Respondent No.2**

- 3. Gulbarga Electricity Supply Company Limited (GESCL)**
Station Road,
Gulbarga – 585 101 **...Respondent No.3**

- 4. Karnataka Renewable Energy Development Ltd. (KREDL)**
#39, “Shanthigruha” Bharath Scouts
& Guides Building, Palace Road
Bangalore – 560 001 **...Respondent No.4**

Counsel for the Appellant(s): Ms. Pritha Srikumar Iyer
Ms. Nayantara Narayan
Mr. Sharad Bansal
Ms. Neha Mathen

Counsel for the Respondent(s): Mr. Anand K. Ganesan
Ms. Swapna Seshadri
Ms. Akshi Seem
Mr. Sandeep Rajpurohit
Ms. Aditi Mohapatra
Ms. Neha Garg for R-1

Ms. Pratiksha Mishra
Ms. Srishti Govil
Mr. Balaji Srinivasan
Ms. Vaishnavi Subramanyam
Mr. Sri Ranga S. for R-2 & R-3

Mr. Gurudas S. Kannur
Mr. Nithin Sarvanan
Ms. Preeti Singh for R-4

JUDGMENT

PER HON'BLE MR. I.J. KAPOOR, TECHNICAL MEMBER

1. The present Appeal is being filed by M/s Raichur Bio Energies Pvt. Ltd. (hereinafter referred to as the “**Appellant**”) under Section 111 of the Electricity Act, 2003 challenging the Order dated 1.1.2015 (“**Impugned Order**”) passed by the Karnataka Electricity Regulatory Commission (hereinafter referred to as the “**State Commission**”) in the matter of determination of generic tariff in respect of Rankine Cycle based Bio-mass Renewable Energy Projects with water cooled condensers.

2. The Appellant, M/s Raichur Bio Energies Pvt. Ltd. is a Generating Company within the meaning of sub section 28 of Section 2 of the Electricity Act, 2003.
3. The Respondent No.1 i.e. Karnataka Electricity Regulatory Commission (KERC) is the Electricity Regulatory Commission for the State of Karnataka exercising jurisdiction and discharging functions in terms of the Electricity Act, 2003.
4. The Respondent No. 2 i.e. Karnataka Power Transmission Corporation Ltd. (KPTCL) is the State Transmission Utility discharging functions in terms of Section 39 of the Electricity Act, 2003.
5. The Respondent No.3 i.e. Gulbarga Electricity Supply Company Limited (GESCL) is the Distribution Licensee in the State of Karnataka.
6. The Respondent No. 4, i.e. Karnataka Renewable Energy Development Ltd (KREDL) is the nodal agency of Government of Karnataka (GoK) for development of renewable sources of energy in the State of Karnataka and is registered under the Companies Act, 1956.
7. **Facts of the present Appeal:**
 - a) The Appellant is setting up a 9.0 MW Biomass based power project (hereinafter referred to as the 'Biomass Project') in Raichur district, in the State of Karnataka. The capacity of the Biomass

Project was initially sanctioned at 4.5 MW in 2001, which was increased to 9.0 MW by GoK vide its order dated 16.1.2012.

- b) The State Commission vide its order dated 10.7.2014 in petition No. OP 18/2013 fixed generic tariff for biomass power plants with air cooled condensers.
 - c) The State Commission on 1.1.2015 issued Impugned Order which also includes generic tariff for Rankine Cycle Based Biomass Plants with water cooled condensers (hereinafter termed as the 'Biomass Plants'). The generic tariff of the Biomass Plants was arrived by a way of fixing various normative parameters.
- 8.** Aggrieved by the Impugned Order passed by the State Commission, the Appellant has preferred the present appeal on following issues:
- a) Application of differential rates of Interest on term Loans (IOL) and Interest on Working Capital loan (IWC).
 - b) Fixing the rate of interest on term loans as 12.5% without taking into consideration the commercial realities of lending.
 - c) Fixing the capital cost by taking into account the costs fixed by other Electricity Regulatory Commissions without considering the local costs and commercial circumstances.
 - d) Fixing the O&M expenses and the escalation thereon in violation of the norms required to be applied in this regard.

- e) Fixing the fuel costs and the escalation thereon completely ignoring the material placed on record.
- f) Fixing the specific fuel consumption at 1.21 kg/unit without having regard to the fuel analysis certificates and other material placed on record.

9. QUESTIONS OF LAW

The Appellant has raised the following questions of law in the present appeal:

- a. **Whether the State Commission has erred in applying differential rates of interest on term loans and on working capital, without there being any rational basis to justify such a distinction?**
- b. **Whether the State Commission has erred in fixing the rate of interest on term loans as 12.5% without taking into consideration the commercial realities of lending?**
- c. **Whether the State Commission has seriously erred in fixing the capital cost, and has erred in taking into account the costs fixed by other Electricity Regulatory Commissions, without having regard to local costs and commercial circumstances?**
- d. **Whether the State Commission has seriously erred in fixing the O&M expenses and the escalation thereon, in violation of the norms required to be applied in this regard?**

e. Whether the State Commission has seriously erred in fixing the fuel costs and the escalation thereon, completely ignoring the material placed on record in this regard?

f. Whether the State Commission has seriously erred in fixing the specific fuel consumption at 1.21 Kg/unit, without having regard to the fuel analysis certificates and other material placed on record which indicated a higher figure in this regard?

10. The Appellant has sought following reliefs by setting aside the Impugned Order:

- a) Interest on term loan and working capital loan be considered at 13.5% per annum.
- b) Capital Cost be fixed at Rs. 6.50 Cr./MW.
- c) O&M expenses be fixed at Rs. 40 lakh/MW.
- d) GCV of biomass fuel be fixed at 3000 kCal/kg.
- e) Station Heat Rate be fixed at 4300 kCal/kWh.
- f) Fuel Price be fixed at Rs. 3000/ MT.

11. We have heard at length the learned counsel for the parties and considered carefully their written submissions, arguments put forth during the hearings etc. Gist of the same is discussed hereunder.

12. The learned counsel for the Appellant has made following arguments/submissions for our consideration on the issues raised by it:

- a) The Appellant has validly filed this appeal before this Tribunal, notwithstanding the fact that the Appellant had not participated/represented in the hearing proceedings related to Impugned Order before the State Commission. This Tribunal in judgement dated 20.5.2013 in Appeal No. 88 of 2012 in case of Tata Teleservices Vs. Rajasthan Electricity Regulatory Commission and Ors. has held that a 'person aggrieved' under Section 111 of the Electricity Act, 2003 includes a party who has not filed objections before the State Commission or participated in public hearings.
- b) The State Commission failed to consider the CERC Regulations, 2012 and has deviated from the same without giving any reasons. By doing so the State Commission has violated its own Regulation 9(3) of KERC (Power Procurement from Renewable Sources by Distribution Licensee and Renewable Energy Certificate Framework) Regulations, 2011 which contemplates that the State Commission shall be guided by the principles and methodologies specified by CERC, National Electricity Policy and Tariff Policy. This Tribunal has also held the same in case of Starwire (India) Ltd and Ors. Vs. Haryana Electricity Regulatory Commission and Ors. vide judgement dated 1.3.2011 in Appeal No. 16 of 2010. The State Commission also failed to consider the report ('Study on the sustainability of Biomass based power generation in Karnataka') of TERI.
- c) The State Commission vide Impugned Order has fixed annual rates for IOL @ 12.5% and IWC @ 13.5%. These figures are grossly undervalued and away from commercial realities in

operation of the Biomass Plants. Due to low success rate and operational risks of the Biomass Plants, obtaining loans from banks at lower rates is very difficult. The IOL @12.5% has been arrived by the State Commission based on interest percentage in tariff order for wind and solar projects. The State Commission while fixing rate for IOL has ignored the Central Electricity Regulatory Commission (CERC) order dated 28.2.2013, wherein CERC has suggested rate for IOL of 13.5% in view of difficulties faced by the Biomass Plants. Hence, the State Commission ought to have fixed rate for IOL @ 13.5%.

- d) The State Commission has also erred in fixing different rates of interest for IOL and IWC. This is not supported by realities of commercial lending which does not make any difference between interest charged by banks on term loans and working capital loans. The same was also brought to the notice of the State Commission during the course of hearings.
- e) The State Commission approved the capital cost of Rs. 5.70 Cr./MW for the Biomass Plants which is grossly inadequate as compared to the actual cost involved in establishing such projects. For this, the State Commission has erred in relying on tariff orders of other Electricity Regulatory Commissions which operate in different circumstances. The State Commission also failed to take cognisance of increased costs as well as interest during construction. Due to increase in cost of materials and civil works the cost of the Appellant's Biomass Project would be around Rs. 6.5 Cr./MW to Rs. 6.65 Cr./MW. The Capital cost should have been fixed to at least Rs. 6.5 Cr./MW.

- f) The O&M expenses of Rs. 30 Lakh/MW with annual escalation of 5.72% fixed by the State Commission is grossly inadequate. During the hearings before the State Commission, O&M expenses of Rs. 42-45 Lakh/MW was suggested by the stakeholders with supporting documents keeping in view of the ground realities of operation of Biomass Plants which is labour intensive and dependent on engagement of technical experts which is costly. The State Commission has also ignored O&M expenses of Rs. 40 Lakh/MW fixed by CERC in 2014. The O&M ought to have been fixed at Rs. 50 Lakh/ MW with annual escalation of 15%.
- g) The State Commission erred in fixing the fuel cost at Rs. 2000/MT with annual escalation of 5.72% and ignored the details placed before it. The industry participants requested to fix the same at Rs. 3000/MT keeping in view of additional labour involved in processing the biomass fuel and additional transportation cost from far areas. CERC has also suggested higher rate for fuel in its regulations which was ignored by the State Commission. The State Commission also failed to consider the report of TERI while finalising the fuel price. This Tribunal in case of Indian Biomass Power Association Vs. Ministry of Power and Ors. vide judgement dated 23.3.2015 in OP No. 3 of 2012 has held that the fuel prices may be fixed after carrying out state specific study. Further, this Tribunal in case of M/s Junagadh Power Projects Pvt. Ltd. Vs. Gujarat Urja Vikas Nigam Ltd. vide judgement dated 2.12.2013 in Appeal Nos. 132 and 133 of 2012 has held that the State Commission should re-examine and re-determine the biomass fuel

price with an aim to incentivise the generation of electricity from renewable sources of energy.

- h) The State Commission has also fixed specific fuel consumption of 1.21 kg/kWh by adopting Station Heat Rate (SHR) of 4000 kCal/kWh and Gross Calorific Value (GCV) of fuel as 3300 kCal/kg. This is only possible with high quality biomass of greater GCV. The State Commission has ignored the submissions of the industry participants, SHR norms of other State Regulatory Commissions and CERC which range from 4200 to 4300 kCal/kWh. The State Commission also failed to adopt the values of GCV of fuel (3040 kcal/kg) and SHR (3740-4300 kCal/kWh) mentioned in the TERI report. This Tribunal in case of M P Biomass Developers Assn. Vs. Madhya Pradesh Electricity Regulatory Commission and Ors. vide judgement dated 29.5.2014 in Appeal No. 144 of 2013 and in Case of M P Biomass Developers Assn. and Ors. Vs. Madhya Pradesh Electricity Regulatory Commission and Ors. vide judgement dated 4.5.2016 in Appeal No. 211 of 2015 has fixed higher GCV and SHR after considering CERC regulations and various test reports of Nodal Agency in the State of Madhya Pradesh. The State Commission ought to have adopted SHR of 4300 kCal/kWh and GCV of 3000 kCal/kg.
- i) The State Commission also ignored the facts placed before it that the moisture content in biomass ranges from 30%-40% and their GCV is in the range of 2600 to 3000 kCal/kg. The specific fuel consumption of 1.45 kg/kWh should have been adopted by the State Commission.

j) The State Commission failed to provide sufficient reasoning while arriving at the values discussed above. Thus, it is not a reasoned order which cannot be sustained based on this Tribunal's judgement dated 18.2.2013 in Appeal No. 93 of 2012 in case of Harvest Energy Pvt. Ltd. Vs. Madhya Pradesh Electricity Regulatory Commission and Ors. and other judgements of Hon'ble Supreme Court in this regard. The tariff determined by the State Commission is not viable and also not in line with the provisions of the Electricity Act, 2003 which mandates promotion of electricity from renewable sources. Biomass power plants provide environmental and social advantages and therefore their promotion is more important.

k) In light of the above reasons, the Appellant has sought the following reliefs for Biomass Plants:

- i. Consider rate for IOL @ 13.5%.
- ii. Consider Rs. 6.5 Cr./MW as capital cost.
- iii. Consider Rs. 40 Lakh/MW as O&M expenses.
- iv. Consider fuel GCV as 3000 kCal/kg.
- v. Consider SHR as 4300 kCal/kWh.
- vi. Consider fuel price as Rs. 3000/MT.

13. The learned counsel for the Respondents has made following arguments / submissions on the issues raised in the present Appeal for our consideration:

a) The State Commission vide Impugned Order determined generic tariff applicable to the Biomass Plants commissioned during the control period 1.1.2015 to 31.3.2018 for which PPAs have not

been entered prior to the date of Impugned Order. The Appellant failed to participate in public hearings conducted by the State Commission on discussion paper for determination of the generic tariff of Biomass Plants vide notification no. S/01/2014 dated 31.10.2014. Accordingly, the question of entertaining this appeal does not arise.

- b) The Appellant has contested that the State Commission has not followed the regulations of CERC. The regulations of CERC are not binding on the State Commission which is required to determine tariff considering all facts and circumstances and relevant factors in the State. The regulations of CERC are only a guiding factor. The State Commission has duly considered the norms fixed by various other State Regulatory Commissions including CERC as required.
- c) Regarding rate for IOL, the State Commission has decided rate for IOL @12.5% based on its order dated 10.7.2014 applicable for air cooled biomass plants and solar plants. Interest rate depends on various factors including time when the interest rate is considered, credit rating of the generators etc. Even CERC in its order dated 15.5.2014 adopted rate for IOL @ 12.7%. In case of term loans the period is significantly long as compared to the loan for working capital. Hence interest rate for term loans is lower than that for working capital loans which are of short durations. Further, rate for IWC has been considered @ 13.25% by the State Commission vis-a-vis 13.20% by CERC.

- d) Capital Cost of Rs. 5.7 Cr./ MW has been arrived by the State Commission based on various considerations and is reasonable. The State Commission has analysed the regulations of various State Commissions (Rs. 4.0 - 5.26 Cr./MW), CERC (Rs. 5.69 Cr./MW; average of capital costs for projects using Rice Husk & Juliflora and other projects using other biomass), own order regarding air cooled biomass plants (Rs. 5.8 Cr//MW) and submissions made by various stake holders (Rs. 5.25 - 7.4 Cr./MW) during the hearings. As per CERC regulations the differential cost between air cooled and water cooled condensers is about 40 Lakh/MW. The State Commission has not factored in the subsidy / incentive available to the Biomass Plants in capital cost. However, CERC has factored in these promotional measures while arriving at the capital cost.
- e) O&M expenses of Rs. 30 Lakh/MW has been arrived by the State Commission based on the fact that the maintenance contracts are generally given in the range of Rs. 20 Lakh/MW. An agreement with maintenance cost of Rs. 22.6 Lakh/MW for first year was also produced before the State Commission. The Appellant has not produced any data to substantiate its claim. The State Commission has provided sufficient cushion while deciding on O&M cost of Rs. 30 Lakh/MW with annual escalation of 5.72%.
- f) The State Commission was not having reliable and actual data regarding the fuel cost. The biomass fuel supply is highly unorganised. The State Commission proceeded for determination

of fuel cost based on its order dated 10.7.2014 where biomass price of Rs. 2000/MT has been fixed for air cooled biomass plants.

The same was fixed on the basis of information available from the farmers, who claimed that they were paid between Rs. 1800-2000/MT. The same determination has been accepted by the stakeholders. The Appellant has failed to produce authenticated data for its claim. The reliance of the Appellant on this Tribunal's judgement dated 23.3.2015 in OP No. 3 of 2012 is misplaced as it was for directions under Section 121 of the Electricity Act, 2003 and not a judgement on facts of the case or the decision of the State Commission. The State Commission has rightly fixed the fuel price at Rs. 2100/MT after analysing and considering data available from various sources.

- g) The State Commission has determined SHR of 4000 kCal/kWh and GCV of fuel as 3300 kCal/kg based on the data made available by various stakeholders and other State Regulatory Commissions. The Appellant failed to establish any error apparent in arriving at the above decision by the State Commission. The specific fuel consumption is a consequential calculation to SHR and GCV as determined. The Appellant has relied on the judgement dated 18.2.2013 in Appeal No. 93 of 2012 in case of Harvest Energy which states that the decision of the State Commission should be reasoned. In the present case the State Commission has passed the reasoned order on each issue and hence reliance on said judgement by the Appellant has no relevance.

14. After having a careful examination of all the aspects brought before us on the issues raised in this Appeal and submissions made by the Appellant and the Respondents for our consideration, our observations are as follows: -

- a) The present case pertains to the determination of generic tariff of the Biomass Plants with water cooled condensers by the State Commission vide Impugned Order. The Appellant has raised questions on the manner how normative rate of IOL and IWC, Capital Cost, GCV, SHR and fuel prices were determined by the State Commission for arriving at the generic tariff of the Biomass Plants with water cooled condensers.
- b) The Appellant has raised the issue that the State Commission should have adopted the norms as specified in the CERC Regulations for the Biomass Plants. In this regard, let us first look at the relevant part of the KERC (Procurement of Energy from Renewable Sources) Regulations, 2011 dated 16.3.2011 which is reproduced below:

“9. Determination of Tariff for electricity from Renewable sources of energy.-

.....

.....

(3) The Commission shall be guided by the principles and methodologies, if any, specified by the CERC, National Electricity Policy, and Tariff Policy, while determining tariff for renewable sources of energy.

(4) While determining the tariff, the Commission may consider factors affecting the costs of generation including technology, fuel, market risk, environmental benefits and social contribution and other relevant factors relating to each type of renewable sources of energy.”

From the above Regulation of the State Commission it is clear that the State Commission shall be guided by the principles and methodologies specified by CERC and also to consider relevant factors while determining the tariff/ cost of generation. Thus, the State Commission’s view in the Impugned Order that it is guided but not bound to adopt the regulations of the CERC as it is and it has to consider the relevant factors as per its above regulations, is correct.

The Appellant on this issue also relied on this Tribunal’s judgement dated 1.3.2011 in case of Starwire (India) Ltd and Ors. Vs. Haryana Electricity Regulatory Commission and Ors. in Appeal No. 16 of 2010. In this judgement this Tribunal has emphasised that in absence of specific findings by the Haryana State Regulatory Commission it is to be guided by the CERC Regulations on renewable sources of energy. In the present case the State Commission has given its specific findings and reasons while determining the generic tariff for the Biomass Plants. Now we deal with the questions of law raised by the Appellant.

14.1 On question no. 9 (a) i.e. Whether the State Commission has erred in applying differential rates of interest on term loans

and on working capital, without there being any rational basis to justify such a distinction?, we decide as follows:

- a) As a matter of fact, industry practice as well as the practice recognised by the electricity regulatory commissions in the country, there are two types of loans generally being used by the generators in establishment and operation of power plants.

The first loan which is the term loan is taken by the generators for sourcing of equipment /erection of power plant and related expenses. This loan is generally for longer duration of time and hence is subjected to lower rate of interest by the banks/ financing institutions. The State Commission has also mentioned the term of this loan as 12 years.

The second loan is generally utilised by the generating companies to meet their working capital requirements like expenses on fuel purchases, salaries of the employees etc. during the operational phase of the plant. This loan is for shorter duration and attracts a higher rate of interest by the banks/ financial institutions. Therefore, the contention of the Appellant that the State Commission has erred in applying differential rates of interest on term loan and on working capital loan without there being any rational basis to justify such a distinction is misplaced.

- b) Hence this issue is decided against the Appellant.

14.2 On question no. 9 (b) i.e. Whether the State Commission has erred in fixing the rate of interest on term loans as 12.5% without taking into consideration the commercial realities of lending?, we decide as follows:

a) The State Commission in the Impugned Order has held as below:

“III. Interest on Term Loan:

a. Comments of stakeholders/Interested Persons:

BESCOM and CESC have suggested an interest rate of 12%, keeping in view 11.75% interest rate approved in the tariff order of 2009 and the present long term interest rate of 10.75%. Matrix Pvt. Ltd. has suggested 13.5% interest rate, stating that current term loan interest rate is 13.5% for biomass projects which are associated with greater risks. In its subsequent submissions it has stated that there is no difference between the interest rate charged by banks for term loan and working capital. KREDL has indicated interest on term loan varying from 12 to 15% for mini hydel. SISMA has requested to fix the same in line with CERC Regulation i.e. 300 basis point over the weighted average base rate of 9.7% prevailing during the first six months of FY14. KPTCL has suggested 11.75% stating that the economy and the GDP is improving and the interest rates are likely to come down in the coming years. PCKL has requested to consider the loan tenure as 12 years in line with PFC tenure to avoid front loading of costs.

b. Interest Rate adopted by CERC and other Commissions:
The interest rate adopted by CERC and a few other Commissions which was discussed in the consultation paper is reproduced below:

Regulatory Commission	Interest rate	Order dated
Andhra Pradesh	12.00%	02.09.2011 & ATE order dated 20.12.2012
Tamil Nadu	12.70%	Draft consultative paper issued in October 2014
Maharashtra	12.78%	Draft order dtd. 06.05.2014
Rajasthan	12.71%	23.07.2014
Gujarat	12.86%	08.08.2013
Madhya Pradesh	12.00%	02.03.2012
CERC	12.70%	15.05.2014

Commission's Views and Decision:

The Commission notes that the interest rate suggested by the Stake holders [excluding KREDL] is in the range of 11.75% to 13.50% and those adopted by various Commissions cited above are in the range of 12% to 12.86%. As pointed out by one of the stakeholders, the Interest rate charged by the banks depends upon the credit rating of the borrowers. Since the Commission is determining generic tariff, it would be difficult to assess the credit rating of individual generating companies and a normative interest rate needs to be adopted. The Commission, in its order dated 10.10.2013 for solar power plants has considered interest on term loan as 12.30% and in its order dated 10.07.2014, in respect of air cooled biomass power projects, has considered 12.5% [250 basis points above the then prevailing base rate]. Following the same approach, the Commission decides to allow 12.5% as the rate of interest on long-term loans i.e. 250 basis points above the SBI base rate. Further, keeping in view the tenure of loan adopted by CERC and some of the other Commissions, the Commission decides to adopt the tenure of loan as 12 years.

From the above it can be seen that the State Commission has fixed normative rate of IOL @ 12.5% for determining generic tariff of the Biomass Plants. The same has been fixed after following the same approach as it adopted in its order dated 10.7.2014

applicable for air cooled biomass plants. While doing so the State Commission has also considered various factors and regulations of various regulatory commissions as brought out above. Since the State Commission has adopted the value from its own order dated 10.7.2014 which has been accepted by the stakeholders and there being no material distinction in air cooled biomass plants and water cooled biomass plants so far as their financing is concerned, we are of the considered opinion that there is no infirmity in the order of the State Commission while fixing rate of IOL @12.5%.

b) In view of the above this issue is decided against the Appellant.

14.3 On question no. 9 (c) i.e. Whether the State Commission has seriously erred in fixing the capital cost, and has erred in taking into account the costs fixed by other Electricity Regulatory Commissions, without having regard to local costs and commercial circumstances?, we decide as follows:

a) The State Commission while deciding Capital Cost of the Biomass Plants has held as below:

“3. Rankine cycle based Biomass projects with water cooled condenser:

i. Capital cost:

a. Comments of Stakeholders/Interested Persons:

Against the Commission’s proposal of Rs.5.25 Crores per MW, Matrix Agro Pvt. Ltd has suggested Rs.7.40 Crores/MW as capital cost. KREDL has furnished data for one water cooled 5 MW plant indicating a cost of Rs.975 lakhs, the cost per MW working out to Rs.1.95 Crore per MW. PRESPL has

stated that the capital cost is much higher than the cost of Rs.5.44 Crores/MW approved by CERC order dated 15.5.2014 for FY15. During the hearing PRESPL has however informed that the difference in capital cost between air cooled and water cooled biomass plant is about Rs.40 lakhs/MW as per the latest CERC's order and suggested to maintain this difference in the Capital Cost. KPTCL, has worked out capital cost at Rs.5.92 Crores/MW. During the hearing, Sri Yugesh representing Bank of India, submitted the Commission that Bank of India along with Bank of Baroda has extended loan to an extent of Rs.38.50 Crores for the 10 MW Plant at Haveri and Dharwad. He submitted that the estimated cost of the Project was Rs.55 Crores for 10 MW Plant and the actual cost reported is about Rs.62 Crores.

b. Commission's Views and Decision:

The Commission had proposed a capital cost of Rs.5.25 Crores per MW in its consultation paper.

The Stakeholders have indicated capital cost varying from Rs.5.25 Crs/MW to Rs.7.40 Crs/MW. The capital cost adopted by some of the Commissions referred to in the Consultation Paper is in the range of Rs.4 to Rs.5.26 Crs/MW. As per CERC tariff order dated 15.5.2014, the capital cost is determined at Rs.5.44 Crores for projects using fuels other than rice husk and juliflora and Rs.5.95 Crores/MW for those using rice husk and juliflora (CERC average cost works out to Rs.5.69 Crs/MW). In the order dated 10.07.2014, this Commission had approved a capital

cost of Rs.5.80 Crs/MW for air cooled condenser based biomass projects and considering the cost differential between air-cooled and water-cooled biomass plants, the Capital cost may be fixed at about Rs.5.50 Crs/MW. Since the Commission proposes to fix a uniform capital cost norm without indexation for the control period, a higher amount needs to be approved as capital cost for biomass based projects.

In the light of the above, the Commission approves capital cost of Rs.5.70 Crs/MW for Biomass based power plants with water cooled condensers including the cost of evacuation.”

From the above it can be seen that the State Commission has adopted a fair approach while deciding the Capital Cost at Rs. 5.7 Cr./MW. The State Commission has considered submissions made by various stakeholders, prevailing regulations in other states, CERC regulations and its own order dated 10.7.2014. The State Commission has also taken cognisance of CERC order 15.5.2014 wherein differential of Rs. 40 Lakh/MW has been considered by CERC in capital cost of air cooled and water cooled biomass plants. The capital cost of air cooled condenser bio mass plants is higher. In the order dated 10.7.2014 the capital cost of Rs. 5.8 Cr/MW fixed by the State Commission for air cooled biomass plants has been accepted by the stakeholders. The State Commission has also considered the views of the developers and fixed the capital cost at Rs. 5.7 Cr./MW. Further, the State Commission also clarified in its submissions before this Tribunal

that the incentives/ subsidies allowed to the biomass plants have not been factored into the capital cost as done by CERC.

The Appellant has submitted that its initial capital cost of Rs. 53 Cr. is likely to reach in the range of Rs. 58-60 Cr. due to increased cost of material and civil cost. Actual expenses quoted by the Appellant till filing of this appeal is about Rs. 48 Cr. No break up of cost is provided by the Appellant. These are the figures quoted by the Appellant which are not gone through any prudence check and hence can't be depended upon with surety.

In view of the above, we are of the considered opinion that the State Commission has not erred in fixing the Capital Cost at Rs. 5.7 Cr./MW.

b) Accordingly this issue is decided against the Appellant.

14.4 On question no. 9 (d) i.e. Whether the State Commission has seriously erred in fixing the O&M expenses and the escalation thereon, in violation of the norms required to be applied in this regard?, we decide as follows:

a) The State Commission while deciding O&M expenses of the Biomass Plants has held as below:

“IV. O & M expenses:

a. Comments of Stakeholders/interested persons:

M/s. Konark Power has stated that the O & M expenses have gone up and has suggested Rs.45 lakhs /MW. PRESPL has stated that CERC in its order has fixed normative O & M

expenses of Rs.42.29 lakhs/MW as against Commission's proposal of Rs.23.20 lakhs/MW and that the growth of technical man power in such plants in Karnataka is hampered due to inadequate salary and persons are not available to operate such plants resulting in technical man power moving out of the State. Therefore, PRESPL has prayed for O & M expenses at Rs.42.29 lakhs/MW for FY15. Further during the hearing it has been submitted that O & M cost need to be determined independent of the capital cost instead of being considered as a percentage of the same. Dharwad Bio energy Pvt. Ltd. has suggested O & M expenses of Rs.44.2 lakhs /MW and has furnished break up of costs for 10 MW plant. M/s. Matrix Power Pvt. Ltd. has proposed Rs.37 lakhs/MW or 5% of the capex with 6% annual escalation. In subsequent submissions, has requested to consider O &M expenses at 5.25% to 5.50 % of Capital cost with 10% escalation per annum, stating that O& M contract does not include supply of spares, personnel for fuel & ash handling and raw water handling and admin staff including plant manager. GE Power & Water has suggested O & M expenses in the range of 50 paise to Rs.1 per unit depending on the technology. Sri Murali Subramanyam has stated that O & M expenses should be determined independent of capital cost. Storage and handling cost should also be factored in the tariff. Sri Vijaya Bhaskar, Operational Energy Group, has stated that Operational Energy Group is carrying out O&M for Dharwar Bio-Energy Project at a cost of Rs.18.5 lakhs per month. He has submitted that the O&M expenses includes the cost of labour

for fuel feeding, engineers and supervisors and does not include spares and consumables.

b. Commission's Views and Decision:

The Commission had proposed to continue 4.0% of the Capital cost as the allowable O & M expenses in the base year with 5% annual escalation for the biomass plants.

The Commission notes that M/s Matrix Agro and Konark Power have not justified their suggested norm with working details. PRESPL has relied on CERC's order which is only a guiding factor for the Commission and not binding. M/s Dharwad Bio Energy has furnished a copy of O & M agreement with Thermax, which indicates the first year cost as Rs.226.80 lakhs [which works out to Rs.22.68 lakhs/MW for 10 MW plant of the firm] with 10% annual escalation. The Commission notes that CERC has approved O & M expenses at Rs.42.29 lakhs per MW based on the report of a Committee constituted by them which had recommended Rs.40 lakhs per MW. This Committee's recommendation was itself based on figures given by the Biomass Association which projected O&M expenses between Rs.35 lakhs per MW and Rs.72.44 lakh per MW. The Committee has clearly indicated that it was not very comfortable to rely upon the figures given by the Biomass Association.

We have taken into account the fact that the maintenance contract for biomass plants of about 10 MW capacity are given in the range of Rs.20 lakhs per MW per year. Allowing another Rs.10 lakhs per MW for spares and consumables, the Commission decides to allow O&M expenses of Rs.30 lakhs per MW with escalation of 5.72% per annum."

The Appellant has raised question regarding violation of norms by the State Commission while fixing the O&M expenses and escalation thereof. Here it is to mention that there are no previous norms fixed by the State Commission in this regard and the State Commission through its Impugned Order has fixed generic tariff for the Biomass Plants in the State of Karnataka. While fixing O&M expenses norm the State Commission has considered the submissions made by the stakeholders, orders of other State Regulatory Commissions, CERC and its own order dated 10.7.2014. While doing so the State Commission has fixed O&M expenses based on maintenance contract awarded at about Rs. 20 Lakh/MW with a margin of Rs. 10 Lakh/ MW for spares and consumables with escalation of 5.72% per annum.

Here it is pertinent to mention that the State Commission vide its order dated 10.7.2014 has allowed O&M expenses of Rs. 23.20 lakh/MW with escalation of 5% per annum. The applicant in the petition against which order dated 10.7.2014 was issued by the State Commission for Biomass plant with air-cooled condenser claimed O&M expenses of Rs. 25 Lakh/MW. This order has been accepted by the stakeholders. Further, from perusal of the TERI report submitted by the Appellant, it is observed that actual O&M expenses are more than Rs. 30 lakh/MW for biomass plant of size 6 MW. The Appellant, except quoting CERC Regulations has also failed to produce any data in favour of its claim of O&M expenses of Rs. 40 Lakh/MW. We are also not sure whether the Biomass Project of the Appellant has achieved commercial operation or not

and even if it is in operation, it has yet to attain sufficient O&M experience.

The Appellant has also not mentioned clearly which norms were violated by the State Commission. If the Appellant is referring to the norms of CERC, the same has been dealt by the State Commission in the Impugned Order as brought out above.

In view of the above, we are of the opinion that the State Commission based on the records placed before it and facts and circumstances prevailing in the State of Karnataka and after applying its prudence check has rightly fixed O&M expenses of Rs. 30 Lakh/MW with escalation of 5.72%.

b) In view of the above, this issue is decided against the Appellant.

14.5 On question no. 9 (e) i.e. Whether the State Commission has seriously erred in fixing the fuel costs and the escalation thereon, completely ignoring the material placed on record in this regard?, we decide as follows:

a) The State Commission while deciding fuel cost for the Biomass Plants has held as below:

“V Fuel Cost

Commission’s Views and Decision:

The suggestions of MNRE, Konark Power and PRESPL to adopt CERC norms for bio-mass plants are noted. It is seen that the Committee appointed by CERC was unable to come to any conclusion on the price of biomass in the absence of

reliable data. They had therefore recommended that the fuel pricing mechanism for the biomass power plants should be based on an independent survey to be conducted by the concerned state nodal agencies at the beginning of every year. Further, the Commission appreciates the position that the cost of biomass varies from state to state and within each state from district to district. The CERC norms, therefore, can only be a guiding factor in matters like biomass prices.

Regarding the suggestion of linking the price of biomass to the e-auction price of coal, the Commission is of the view that at the present juncture this is not a feasible suggestion in view of the major changes contemplated in the coal sector which would have a bearing on the availability and price of coal for the power sector. Alternatively, the suggestion for linking the cost of biomass to the prices of agricultural produce needs detailed analysis to establish the correlation between the price of biomass and the price of different kinds of agricultural produce. It also requires assigning weights to various agro products, as biomass plants use fuels of various types, which is a complex exercise and cannot be taken up immediately.

In the light of the above, the Commission has to arrive at a normative price of the fuel with the available information. The Commission notes that representatives of farmers who had participated in the earlier public hearing held on 15.5.2014, had stated that they were being paid Rs.1800/- to Rs.2000/- per ton for the fuel delivered at the site of the RE projects. The farmers who participated in the present proceedings

from the same project areas have claimed that they are being paid Rs.2500/- per MT for the delivered fuel and requested the Commission to increase the same to Rs.3500/- to Rs.5000/- per MT. There were other statements made by them which revealed their desire to have higher prices determined for biomass rather than the actual price being paid to them. The farmers also could not produce any vouchers or receipts in proof of their having received the amounts paid to them. In the above circumstances, the Commission is of the view that there is no substantial change in the business environment in the past 5 months, after the issue of the Order dated 10.7.2014, which calls for any major revision of the fuel price fixed by the Commission at Rs.2000/- per MT. However, the Commission decides to adopt the fuel price of Rs.2000/- per MT fixed in its order dated 10.07.2014 with an increase of Rs.100/- for the base year FY-15. Further, the Commission, keeping in view the requests made by the Stakeholders proposes to provide an escalation of 5.72% per annum for the fuel cost.”

From the above it can be seen that the State Commission based on its decision in order dated 10.7.2014 with an increase of Rs. 100/MT for FY-15 as base year decided the fuel price for Biomass Plants. While doing so it has gone into the details of submissions made by the stake holders and also farmers’ representatives. Form the report of TERI submitted by the Appellant it is observed that the prices of the fuel considered in the report are based on the details submitted by the millers, agents and the biomass power plant generators. The Appellant has also not placed on record the

type of biomass it is going to use for its Biomass Project and its price and it has simply contested based on the CERC regulations/Order.

The State Commission has also discussed the relevant CERC regulations in this regard and reasons for not adopting the same. We are in agreement with the views expressed by the State Commission regarding the same.

The Appellant has also relied on the judgement of this Tribunal in case of M/s Junagadh Power Projects Pvt. Ltd. Vs. Gujarat Urja Vikas Nigam Ltd. vide judgement dated 2.12.2013 in Appeal Nos. 132 and 133 of 2012. After perusal of the said judgement it can be seen that this judgement is differentiated with the present case as this judgement was in light of fixation of fuel cost by the Gujarat State Commission for a period of 20 years with 5% annual escalation and there was abnormal increase in fuel price after a specific time period. This Tribunal without going into the details what should be price of the fuel, remanded the matter back to the Gujarat State Commission to review/re-determine the prices of the fuel. In the present case the matter is different, the price of fuel has been fixed by the State Commission for the control period from 1.1.2015 till 31.3.2018 with escalation factor of 5.72% and the Appellant is seeking the re-determination of price at the initial level itself citing the same as inadequate and without any sufficient operational back up data/experience. Thus, the said judgement is not applicable in the present case.

In view of our discussions as above, we are of the considered opinion that the fuel cost adopted by the State Commission is in order.

b) In view of the above, this issue is decided against the Appellant.

14.6 On question no. 9(f) i.e. Whether the State Commission has seriously erred in fixing the specific fuel consumption at 1.21 Kg/unit, without having regard to the fuel analysis certificates and other material placed on record which indicated a higher figure in this regard?, we observe as follows:

a) The State Commission while deciding the specific fuel consumption for the Biomass Plants has held as below:

“ii. Commission’s Views and Decision

The Commission, in the consultation paper had proposed specific fuel consumption of 1.18 kg/kWh considering SHR of 3900 kcal/kWh and GCV of 3300 kcal/kg.

Konark Power and PRESPL have not furnished any documentary evidence to substantiate its claim except for relying on CERC’s order. CERC norms are guiding and not binding on SERCs. Regarding the fuel analysis certificates furnished by Dharwad Bio energy Pvt. Ltd, it is noted that the test report furnished by AGNI clearly specifies that the analysis is for a single sample and is in no way representative of fuel as a whole. Thus relying on a single sample to decide about GCV would not be appropriate.

Though the firm was requested during the public hearing to furnish the log book extract to support their contention, the same has not been furnished. Matrix Agro Pvt. Ltd. has not justified its stand with documentary evidence.

In the light of the above, the Commission has to rely on the available material on hand. In this context the Commission notes that various SERC's and CERC have adopted the following norms:

Regulatory Commission	SHR kcal/kWh	GCV kcal/kg	Specific fuel consumption kg/kWh	Order
Andhra Pradesh	4200	3100	1.35	Dated 16.05.2014
Tamil Nadu	3840	3200	1.20	Draft consultative paper issued in october2014
Maharashtra	3800	3611	1.05	Draft order dated 06.05.2014
Gujarat	3950	3400	1.18	Dated 08.08.2013
Madhya Pradesh	3800	3600	1.05	Dated 03.05.2013
Rajasthan	4300 during stabilisation and 4200 thereafter	3400	1.27 during stabilisation and 1.24 thereafter	Dated 23.07.2014
CERC	4200 for travelling grate boiler 4125 for AFBC boiler	3100	1.35 for travelling grate boiler 1.33 for AFBC boiler	Dated 15.05.2014

The Commission notes that the SHR varies from 3800 kcal/kWh to 4300 kcal/kWh with an average of 3996 kcal/kWh. The GCV varies from 3100 kcal/kg to 3611 kcal/kg with an average of 3314 kcal/kg. The norms adopted by CERC are 4200 kcal/kWh for travelling grate boiler and 4125 kcal/kWh for AFDC boilers. In respect of GCV, CERC have adopted a norm of 3100 kcal/kg. According to the Indian

Institute of Science, Bangalore as cited in the Report of the Committee constituted by CERC, the weighted average GCV of biomass in Karnataka is 3576 kcal/kg. The Commission in its recent order dated 10.7.2014 has approved SHR of 3900 kcal/kWh and GCV of 3300 kcal/kg for air cooled condenser based biomass projects. Further, the TERI Study commissioned by this Commission in 2012-13 had indicated a GCV of 3040 kcal/kg and SHR of 3740 kcal/kWh to 4300 kcal/kWh in respect of fuel used by two plants in Karnataka. Thus, the Commission is of the view that the SHR mainly depends upon the turbine and boiler efficiencies, which in turn vary with the capacity of the plant with higher capacity plants having better efficiencies. However, while determining generic tariff the Commission has to follow a normative SHR and based on the data available, the Commission is of the view that SHR of 4000 kcal/kWh is reasonable. Hence, the Commission approves a SHR of 4000 kcal/kWh

Regarding the GCV, the Commission notes that the average of GCV considered by SERCs is 3314 kcal/kg. The Commission, therefore considers GCV of 3,300 kcal/kg as reasonable and approves the same.

Thus, considering SHR of 4000 kcal/kWh and GCV of 3300kcal/kg the Commission approves SFC at 1.21 kg/unit.”

From the above it can be seen that the State Commission after considering various aspects on SHR and GCV has arrived at the values of SHR at 4000 kCal/kWh and GCV at 3300 kCal/kg and

consequentially the value of specific fuel consumption of 1.21 kg/kWh. In our view the State Commission while doing so has acted in a fair manner.

The Appellant in this regard has relied on this Tribunal's judgements in case of M P Biomass Developers Assn. Vs. Madhya Pradesh Electricity Regulatory Commission and Ors. vide judgement dated 29.5.2014 in Appeal No. 144 of 2013 and in case of M P Biomass Developers Assn. and Ors. Vs. Madhya Pradesh Electricity Regulatory Commission and Ors. vide judgement dated 4.5.2016 in Appeal No. 211 of 2015 wherein it has fixed higher GCV and SHR after considering CERC regulations and various test reports of Nodal Agency in the State of Madhya Pradesh. The cases quoted by the Appellant are different in respect of present case. The judgements in the quoted appeals were based on the fact that the reports of the Nodal Agency in the State of Madhya Pradesh regarding SHR and GCV of fuel was available with the State Commission and the State Commission has not taken cognisance of that report and has also not reasoned out for adopting the values of SHR and GCV.

However, the State Commission while deciding the above issue has taken cognisance of TERI report available with it and also discussed the orders/ regulations of other State Regulatory Commissions, CERC and its own order dated 10.7.2014. The State Commission in its order dated 10.7.2014 has approved SHR of 3900 kcal/kWh and GCV of 3300 kcal/kg for air cooled condenser based biomass projects. The same has been accepted

by the stakeholders. While keeping GCV at the same level the State Commission has relaxed SHR norm by 100 kCal/kWh.

In view of our discussions as above, we are of the considered opinion that there is no error committed by the State Commission in fixing the SHR and GCV values and consequential specific fuel consumption at 1.21 kg/kWh.

- 15.** In view of our discussions at S. No. 14.1 to 14.6 above the reliefs sought by the Appellant have no merit.

- 16.** The Appellant has also raised the issue that the Impugned Order of the State Commission is not a reasoned order and has to be set aside. It also placed some judgements of this Tribunal and Hon'ble Supreme Court for supporting its contention in this regard. We have gone through the Impugned Order of the State Commission its analysis and discussions on the issues raised by the Appellant. In view of our discussions and observations at paras from 14.1 to 14.6 above, we are of the opinion that the State Commission has adopted/derived most of the values from its order dated 10.7.2014 which has been accepted by the stakeholders and also given reasons for adopting the same and deciding some other value in view of related facts and circumstances while deciding the generic tariff for Biomass Plants. Accordingly, this does not call for our discussion on the quoted judgements of this Tribunal and Hon'ble Supreme Court.

- 17.** Having decided as above we have observed the comments of the State Commission that the supply of biomass fuel to biomass

plants is unorganised. There is a need for fixing the fuel price in a more practical and authenticated manner. It is the responsibility of the State Commission that the renewable energy generation is incentivised and no biomass generator is closed on commercial viability issue due to non service of its variable cost. On the other hand the State Commission has also to protect the interest of consumers. In view of the same arriving at correct/just price of biomass fuel is important. This Tribunal in other judgements had earlier directed for re-determination of biomass fuel prices. To avoid such situations a sound practice/mechanism for determination of biomass fuel prices on a continuous basis is required. The State Commission is hereby advised to evolve a mechanism in consultation with the concerned State Agencies so as to evolve process by which the biomass power plant developers purchase the fuel in a transparent manner and it has also to ensure that the price of the biomass fuel is available in the public domain.

- 18.** Further, there is also need to arrive at the normative SHR on scientific basis based on technology used and the design parameters with some margins as is being done for the coal based projects. The GCV of fuel also needs to be fixed based on the independent test results of the represented samples carried out by the nodal agencies in the state. It is the duty of the State Commission to initiate such studies on GCV and gather data on design parameters in advance so that these parameters can be finalised objectively.

ORDER

We are of the considered opinion that the issues raised in the present Appeal are liable to be dismissed as devoid of merit.

Accordingly, the Appeal is hereby dismissed. The Impugned Order dated 01.01.2015 passed by the State Commission is hereby upheld.

In view of above, I.A. Nos. 140 of 2015 and 560 of 2016 do not survive and are disposed of as such.

However, the State Commission is hereby advised to take note of our observations at S. No. 17 & 18 as above and initiate appropriate actions in this regard with an aim to facilitate promotion of renewable projects in the State of Karnataka.

No order as to costs.

Pronounced in the Open Court on this **3rd day of July, 2017.**

(I.J. Kapoor)
Technical Member

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REPORTABLE/NON-REPORTABLE

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(Mrs. Justice Ranjana P. Desai)
Chairperson