



*Biomass fixed cost
11 to 20 ym*

*B
GSD/TE
8/2/2020*

ANDHRA PRADESH ELECTRICITY REGULATORY COMMISSION
(Regulatory Commission for the States of Andhra Pradesh and Telangana)
4th & 5th Floors, Singareni Bhavan, Red Hills, Hyderabad 500 004

Dated: 19.07.2014

Present

Dr.V.Bhaskar, Chairman
Sri R.Ashoka Chari, Member
Sri P.Rajagopal Reddy, Member

**O.P Nos. 11 of 2010; 18 of 2013; 19 of 2013; 48 of 2013; 49 of 2013;
57 of 2013; 23 & 30 of 2014; 24 of 2014 and 26 of 2014;**

Between:

O.P No.11 of 2010

Eastern Power Distribution Company of Andhra Pradesh Ltd. Petitioner

AND

M/s. Gowthami Solvent Oils (Pvt.) Ltd. Respondent

Petition filed u/s 62 & 86 (1) (b) of the Act 2003 for determination of tariff to take effect on completion of 10 years from date of commissioning of the project of the respondent.

Counsel for the petitioner: Sri. P. Shiva Rao, Advocate
Counsel for the respondent/s: Sri. Challa Gunaranjan, Advocate

O.P No.18 of 2013

M/s. Matrix Power Pvt. Ltd. Petitioner

AND

Southern Power Distribution Company Andhra Pradesh Ltd. Respondent

Petitioner filed u/s 64(1) read with Sections 62 (1) (a), 61 and 86 of the Act 2003 to determine tariff for the electricity generated by the petitioner and supplied to the respondent for the 11th year of operation onwards

Counsel for the petitioner: Sri K.Gopal Choudary, Advocate
Counsel for the respondent/s: Sri P. Shiva Rao, Advocate

O.P No.19 of 2013

Eastern Power Distribution Company of Andhra Pradesh Ltd. Petitioner

AND

M/s. Varam Power Projects Pvt. Ltd. Respondent

Petition filed u/s 62 and 86 (1) (b) of the Act 2003 for determination of fixed cost payable to the biomass based power project of the respondent on completion of 10 years from the date of its commercial operation.

Counsel for the petitioner: Sri. P. Shiva Rao, Advocate
Counsel for the respondent/s: Sri K.Gopal Choudary, Advocate

O.P.No.48 of 2013

M/s. Greenko Energies Private Ltd. Petitioner

AND

Southern Power Distribution Company Andhra Pradesh Ltd. Respondent

Petition filed u/s 62 and 86 (1) (a) & (b) for determination of fixed cost tariff.

Counsel for the petitioner: Sri. Challa Gunaranjan, Advocate

Counsel for the respondent/s: Sri. P. Shiva Rao, Advocate

O.P.No.49 of 2013

M/s. Shalivahana Green Energy Ltd. Petitioner

AND

Northern Power Distribution Company of Telangana Ltd.
(formerly Northern Power Distribution Company A.P. Ltd.) Respondent

Petition filed under Section 64 (1) r/w Sections 61, 62 (1) (a) and 86 of the Act 2003 to determine the tariff for the electricity generated by the petitioner and supplied to the respondent from 11th year of operation in terms of the parameters submitted therein.

Counsel for the petitioner: Sri. Challa Gunaranjan, Advocate

Counsel for the respondent/s: Sri. P. Shiva Rao, Advocate

O.P No.57 of 2013

M/s .Rithwik Power Projects Limited Petitioner

AND

Northern Power Distribution Company of Telangana Ltd
(formerly Northern Power Distribution Company A.P. Ltd.) Respondent

Petition filed under Section 64 (1) r/w Sections 61, 62 (1) (a) and 86 of the Act 2003 to determine the tariff for the electricity generated by the petitioner and supplied to the respondent from 11th year of operation in terms of the parameters submitted therein.

Counsel for the petitioner: Sri. Challa Gunaranjan, Advocate

Counsel for the respondent/s: Sri. P. Shiva Rao, Advocate

O.P.No.23 & 30 of 2014

Eastern Power Distribution Company of A.P. Ltd. Petitioner in O.P. 23 of 2014/
Respondent in O.P.No.30 of 2014

AND

Shree Papers Limited Respondent in O.P. 23 of 2014 /
Petitioner in O.P.No.30 of 2014

Two separate and individual petitions, both filed under Sec 62 and 86 (1) (b) of the Electricity Act, 2003 (for short, the Act, 2003) for determination of tariff (fixed cost) for energy purchases from the power project of Sri Shree Papers Ltd for the period from 10.03.2013 to 09.03.2023.

Counsel for the petitioner/respondent: Sri P.Shiva Rao, Advocate

Counsel for the respondent/petitioner: Sri Challa Gunaranjan, Advocate

O.P No.24 of 2014

Eastern Power Distribution Company of Andhra Pradesh Ltd. Petitioner

AND

Perpetual Energy Systems Ltd.Respondent

Petition filed u/s 62 and 86 (1) (b) of the Act 2003 for determination of generation tariff (fixed charges) payable for the energy purchases from the respondent's power project for the period from 23.03.2013 to 22.03.2023.

Counsel for the petitioner: Sri. P. Shiva Rao, Advocate

Counsel for the respondent/s: Sri. J.V.S.N.Murthy DGM (P&A)

O.P No.26 of 2014

Eastern Power Distribution Company of Andhra Pradesh Ltd. Petitioner

AND

Sri Kalyani Agro Products & Industries Ltd.Respondent

Petition filed u/s 62 and 86 (1) (b) of the Act 2003 for determination of generation tariff (fixed charges) payable for the energy purchases from the respondent's power project for the period from 19.12.2013 to 18.12.2023.

Counsel for the petitioner: Sri. P. Shiva Rao, Advocate

No representation on behalf of the respondent

(for easy reference, hereinafter Generating Companies are referred as Project Developers and Distribution Licensees as DISCOMs)

These petitions have come up for hearing before the Commission on different dates in the presence of counsel for the parties concerned mentioned in the cause title. As all these petitions relate to determination of fixed cost component of tariff in respect of different biomass based power projects, which have completed 10 years of their operation from the date of commencement of their respective projects. Since not only the essential elements of the tariff frame work, but also the determination of tariff will be similar in all these cases, the Commission has determined to dispose of all these petitions together by a single order. In pursuance therefore, the Commission having considered the averments mentioned in respect of each of the petitions; counter / reply filed by the other side in respect of such petitions; submissions of the parties concerned during the hearing before the Commission; Study Report of independent consultant; Field Visits of the Commission and all the other relevant material available on record, passed the following;

COMMON ORDER

Chapter – I: INTRODUCTION

For a fuller appreciation of the context of this order, it is necessary to study the historical policy environment for promotion of non conventional energy

generators. In the year 1993, Government of India (GoI) formulated a policy framework for promotion of generating capacity from non-conventional energy (NCE) sources with the objective of conserving fossil fuels and to reduce environmental pollution arising out of the emissions following the combustion of fossil fuels. The policy framework provided for certain incentives and facilities for promoting capacity addition through NCE sources including renewables. The incentives included subsidy (capital / interest) for setting up generating plants based on non-conventional (including renewable) sources. Among other parameters under the policy framework, the tariff payable for power from the NCE sources was predetermined in 1993-94 to take effect from 01-04-1994 with annual escalation. The Ministry of Non-conventional Energy Sources (MNES) and the Indian Renewable Energy Development Agency (IREDA) were requested to provide policy framework, concessions and financial assistance to the NCE projects.

2. Various State Governments were also requested to formulate their policy framework including the tariff payable for encouraging generation from NCE sources, keeping in view the tariff guidelines laid down by GoI. Keeping in view the guidelines of MNES, GoI, dated 13-09-1993, Government of Andhra Pradesh (GoAP) vide G.O.Ms.No.93 dated 18-11-1997 issued guidelines for promotion of NCE projects in Andhra Pradesh (as amended vide notification dated 12.12.1998), *inter alia*, specifying the power purchase price of Rs.2.25/kWh, to be escalated at 5%, with base year being 1997-98 and to be reviewed after 3 years. In pursuance of such guidelines, several biomass based power projects were set up at different places in the then State after obtaining necessary permissions from M/s. NEDCAP. The project developers have entered into Power Purchase Agreements (PPA) for sale of electricity generated by them to the then APTRANSCO / Distribution Licensees which are valid for twenty years from their respective dates of commercial date of operation.

3. Andhra Pradesh Electricity Reform Act, 1998 came into force on 01-02-1999. Pursuant to the said Act, Andhra Pradesh Electricity Regulatory Commission (APEREC) was constituted on 03-04-1999. The uniform incentives extended to all projects based on non-conventional / renewable sources of energy were required to be reviewed after a period of 3 years from the date of issue of G.O.Ms.No.93 which was 18-11-1997. The continuance of the incentives in the manner prescribed in the said order or in a suitably modified form to achieve the objectives of promotion of

power generation through non-conventional sources was to be examined. Accordingly, as per the provisions of the Reform Act, this task was undertaken by the Commission. The Commission issued notices to all the stake holders including developers / Associations, NEDCAP, IREDA and the then APTRANSCO, and heard their views. Subsequently, it issued orders on 20-06-2001 in O.P.No.1075/2000, stating *inter alia*:

- (a). the power generated by non-conventional energy developers is not permitted for sale to third parties.
- (b). developers of non-conventional energy shall supply power generated to APTRANSCO / DISCOMs of A.P. only.
- (c). price applicable for the purchase by the supply licensee should be Rs.2.25 per unit with 5% escalation per annum with 1994-95 as the base year.
- (d). a *suo-motu* review of the incentives to take effect from 01.04.2004 will be undertaken by the Commission after discussion with all the concerned parties.
- (e). there will also be a review of the purchase price with specific reference to each developer on completion of 10 years from the date of commissioning of the project (by which time the loans from financial institutions would have been repaid) when the purchase price will be re-worked on the basis of return on equity, O&M expenses and the variable cost.

4. Pursuant to the above mentioned order dated 20.06.2001 passed by the Commission in O.P. 1075 of 2000, several other NCE generators entered into PPAs on different dates with the then APTRANSCO / DISCOMs. In the year 2003 Commission initiated *suo-motu* proceedings in terms of the aforesaid order dated 20.06.2001 and on 20.03.2004 passed an order determining the tariff for electricity generated by non-conventional energy sources to be effective from 01.04.2004 in R.P. No 84 of 2003 in O.P. No.1075 of 2000. The said tariff comprised of fixed costs for the 1st to 10th year of operation and variable costs varying for each of the financial years 2004-05 to 2008-09.

5. Aggrieved by the said order dated 20.03.2004, some of the Associations as well as individual NCE developers filed writ petitions before the Hon'ble High Court of Andhra Pradesh. However, consequent to constitution of the Hon'ble Appellate Tribunal for Electricity (ATE), the Hon'ble High Court of A.P., disposed of the said writ petitions with a direction to approach the ATE. In its judgment dt.02.06.2006 in Appeal No.1 of 2005 & others, the ATE allowed the appeals with certain directions.

On further appeals by the then APTRANSCO and the Commission, the Hon'ble Supreme Court set aside the judgement dt.02.06.2006 of the Hon'ble ATE and remanded the matter back to the Commission for determination of the tariff afresh in the light of the observations made therein. In the meanwhile, GoAP notified the Third Transfer Scheme, where under the rights and obligations of the then APTRANSCO in respect of PPAs of different NCE project developers stood transferred and vested by operation of law in the DISCOMs concerned with effect from 09.05.2005 in whose area of operation that particular project is located. Accordingly, the PPAs entered into by different project developers with erstwhile APTRANSCO stood transferred and vested with the DISCOM concerned as shown in the cause title supra.

6. During the pendency of appeal before Hon'ble Supreme Court against the order dt.02.06.2006 in Appeal No.1 of 2005 & others passed by ATE as mentioned supra, the Commission initiated *suo-motu* proceedings in O.P.No.5 of 2009 in respect of control period 2009-10 to 2013-14 and passed order dated 31.03.2009 determining the variable cost for that period taking the operational parameters contained in its order dated 20.03.2004 supra into consideration. Review petitions were filed before the Commission against the said order dated 31.03.2009 and the same were disposed on different dates by the Commission in the months of July and August 2013.

7. However, in respect of appeals pending before it against orders in Appeal No.1 of 2005 & others passed by ATE, the Hon'ble Supreme Court passed final orders dt.08.07.2010 and remanded the matter to the Commission to determine afresh the charges payable to NCE projects. In the said order the Hon'ble Supreme Court observed that the Commission should endeavour to encourage the NCE projects and determine tariff for their survival. In pursuance thereof, the Commission passed orders dt.12.09.2011, wherein the then Chairman and f the other two then Members determined different charges payable to NCE developer. The said order of the Commission was again challenged in appeal before the ATE in Appeal No.150 of 2011 & batch. In its order dt.20.12.2012, the ATE while disposing the said batch of appeals formulated the parameters required to be adopted for determining the fixed and variable cost for the control period 2004-2009 and directed the Commission to finalise the tariff accordingly. Consequently, the Commission issued necessary orders

on 22.06.2013 determining the tariff comprising of fixed and variable cost for the control period 2004-2009. It also passed another order on 06.08.2013 adopting the same parameters in respect of tariff and revising the order dt.31.03.2009, determining variable cost tariff for the control period 2009-2014. Thereafter, the Commission in its order dt.16.05.2014, also determined variable cost for the control period 2014-19 in O.P.No.32 of 2014. As seen in Para 4 supra, it now remained for the Commission to determine the fixed costs for the 10th to 20th year of operation.

8. In the meanwhile, several NCE projects have completed 10 years of operation from their respective CODs. Therefore, the DISCOM concerned in respect of some NCE projects and NCE project developer concerned in some other cases, have filed petitions before the Commission for determination of tariff (fixed cost) from 11th year of operation of such projects. In one particular case, both the DISCOM concerned and the project developer, have filed two separate petitions, both for determination of tariff in respect of same biomass based NCE project.

9. As there was necessity that some fixed cost must necessarily be paid to different project developers while they were continuing to generate and supply electricity to the DISCOM concerned, pending final determination of tariff u/s 62 of the Act, the Commission issued interim orders on different dates. In exercise of powers vested in it u/s 94 (2) of the Act, fixed interim tariff (Fixed Cost) to different NCE developers at Rs.1.05 per unit for 11th year Commission further stated that the fixed costs for subsequent years can be arrived at by reducing the previous year figure by an amount 6 paise per unit. In view of such orders, the Commission further directed the DISCOM concerned to make payments in accordance with above fixation of fixed costs in the interim period.

10. The Commission also notes that APERC (Terms & conditions for determination of tariff for supply of electricity by a generating company to a distribution licensee and purchase of electricity by distribution licensees), Regulation No.1 of 2008, states that determination of tariff for supply of electricity to a distribution licensee for non-conventional sources of generation shall be in accordance with such terms and conditions as stipulated in relevant separate orders of the Commission. In the orders issued by the Commission for three different control periods as mentioned supra, the Commission has adopted common variables

with regard to determination of variable costs. Similarly, the Regulation No.1 of 2008 also refers to certain common variables for determination of tariff under the said Regulation.

11. In view of the above and for the reasons mentioned in Chapter-IV, Commission has decided to issue common order in respect of biomass based power projects who have completed 10 years of operation.

Chapter – II: SUBMISSIONS OF THE PETITIONERS

12. In all nine petitions have been filed, either by the DISCOM concerned or by the Project Developers, for determination of tariff of biomass based power projects for determination of tariff (fixed cost) from 11th year of operation onwards as shown in the cause title. Eastern Power Distribution Company Ltd (EPDCL) filed five petitions in respect of five projects located in its area of operation. In the petitions filed in O.P.Nos.11 of 2010; 19 of 2013; 23 of 2014; 24 of 2014 and 26 of 2014, EPDCL has mentioned the capacity, location, date of entering into power purchase agreement, etc., of different projects. Further, it is mentioned in the said petitions that all these projects have completed ten years of operation on different dates and from 11th year of operation fixed cost payable to the project developers therein has to be determined by the Commission. Further, EPDCL formulated broadly similar fixed cost proposals and submitted the same along with the petitions filed by it before the Commission in the above mentioned five cases. Based on the detailed calculations made, EPDCL proposed the fixed cost to be payable to the said five project developers and requested the Commission to approve said fixed charges to be payable for the energy purchases during the period from 11th-20th year of operation.

Though OP 27/2012 SLS Power Limited has not been formally heard, the pleadings made by the party are part of the Commissions record and for the sake of completeness are examined in this order. However, the Commission will separately pass orders in regard to SLS Power Limited after providing him a full hearing. In its petition, M/s. SLS Power Limited mentioned in detail, various events commencing from the order dt.20.06.2001 passed by the Commission in O.P.1075 of 2000, as mentioned in Chapter-I supra; underlined the urgency for determination of tariff; cited legal propositions relevant to determination of tariff and requested the Commission to determine the same based on the following parameters.

13. **Capital Cost/Return on Equity:** To arrive at the capital cost relevant for determination of tariff, the effect of the original capital cost along with all further additional capitalization incurred by the Petitioner over the last 10 years needs to be

gone into. The Company stated that it had to incur various expenses including the cost of replacement of the damaged Turbine etc. The total capital cost including all additional capitalisation works out to Rs.2705.94 Lakh.

14. **Return on equity:** A calculation of the return on equity on the above capital cost as per Regulation 16 has been carried out by the project developer and attached to the petition filed by it. As per this the pre tax return on equity from the 11th year onwards was 24%.

15. **Income Tax:** Income Tax as paid had to be borne additionally over and above the tariff and ought to be allowed as a pass through.

16. **Interest on loan:** On the normative debt of Rs.1894.95 Lakh, the project developer is praying for interest on loan as per Regulation 14 of the CERC Regulation, 2009. Calculation of the interest on loan on the above mentioned capital cost as per Regulation 14 has been carried out by the project developer and attached to the petition. It requested an interest of about 12% be considered.

17. **O&M Expenditure and O&M Escalation:** The petitioner noted that the plant was now more than 10 year old and naturally the maintenance cost is on the higher side. The project developer had been constrained to change the turbine atleast twice in the last four years because of various factors. Further there is constant problem with respect to the Boiler tubes which need to be repaired constantly apart from nozzles etc. These get damaged whenever the fuel is contaminated. The age factor also plays a major role. The project developer has to employ about 300 contract employees for fuel handling alone. Further, the cost of inflation and the overall increase in various prices have direct impact on the employees' salaries. Further the cost of each employee is added with the additional costs such as PF, ESI, Gratuity etc. Considering all of the above, the project developer prays for O&M expenses at 12% of the gross capital cost. Further, as per the present inflationary trend, the O&M escalation of at least 10% should be allowed.

18. **Interest on Working Capital:** According to the project developer interest on working capital has to be calculated as per Regulation 17 of the CERC Regulations, 2009. However, the generating units are not considered as Priority sector and the Interest rate applied is the highest. Further, the project developers is having its

working capital arrangements with Andhra Bank and the Charges by them is about 17% PA considering the Monthly rests and the other charges that are debited by them (Processing charges, Inspection Charges etc). The project developer requested interest be paid on actuals basis.

19. **Fuel Cost and Escalation:** The petitioner noted that there is consistent increase in price of biomass and despite the high prices, the availability of rice husk is limited. Agriculture waste contains high moisture content and generating units are not equipped with driers. Even if driers are installed at additional costs, it requires heat energy which is an additional cost. Considering the above, fuel cost of Rs.2600/ton needs to be allowed, with escalation of 10% on the fuel cost.

20. **Fuel consumption:** Specific fuel consumption of 1.64 kg/kWh may be considered.

21. **Auxiliary Consumption:** Average auxiliary consumption of the project developer works out to 13.41%. The following table shows the actual data -

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Capacity in MW	6	6	6	6	6	6	6	6	6	6
PLF	31%	75%	87%	75%	73%	72%	55%	80%	74%	72%
Gross Gen. in MU	15.93	38.99	45.05	39.11	38.04	37.52	28.48	41.62	38.11	37.52
Less Aux Consum.	2.57	5.13	6.11	5.2	4.63	4.49	3.55	5.22	5.04	5.03
Auxiliary %	16.13%	13.16%	13.56%	13.30%	12.16%	11.97%	12.45%	12.54%	13.21%	13.41%

22. **Depreciation:** The project developers requests that on the above capital cost determined / fixed, the actual depreciation needs to be allowed.

23. **Other Aspects:** The petitioner noted that the biomass unit is already reeling under pressure and considering the fact it is requested to allow the Electricity Duty of Rs. 0.06 as additional reimbursement over and above the tariff to be determined, along with Income Tax. The project directly employees about 70 People apart from contract labour running up to 300. Unless the project developer is provided with a reasonable pricing, it will be difficult to operate the plant and the continuous employment of the above said 370 people will also be in question. In the present crises of power shortage, closure of the factory may further effect adversely and will only worsen the present precarious power situation. The petitioner finally stated that he is unable to pay the creditors and dues payable to the Financial Institutions and

IREDA, are mounting and the project developer is continuously receiving Notices under Section 138.

In its petition filed in O.P.No.18 of 2013, M/s. Matrix Power Pvt. Ltd., mentioned in detail, various events commencing from the order dt.20.06.2001 passed by the Commission in O.P.1075 of 2000, as mentioned in Chapter-I supra. In the said petition, it requests the Commission to determine tariff for the supply of electricity generated by its power plant on the basis of following technical, operational and financial parameters:

24. **Capital Cost:** The Capital cost of the 4.5 MW power project be considered at Rs.4 Cr/MW.

25. **Plant Load Factor:** The Plant Load Factor of the project be considered at 75% on an annual basis for the determination of tariff. The average of the ten (10) years was about 76% because of poor quality of the biomass used as fuel and problems associated with storage of the fuel which reduced its heat content as also caused the boiler to malfunction resulting in lowered efficiency. PLF is required to be fixed in such a manner that a continuously working biomass power plant, under the usual operating conditions peculiar and characteristic of specifically such plants, would be in a position to definitely achieve the PLF and thereby recover the fixed cost. The PLF should never be fixed on idealistic conditions which are never achievable in reality because that would result in a deficit in the PLF and under-recovery of fixed costs which would lead the power plant to a financial and operational demise. In order to ensure that there is no under recovery of fixed cost at any time and throughout the working life of the project, the deficit PLF of any year should be allowed to be carried forward to be adjusted against any excess PLF in any subsequent year, such deficit PLF adjusted in any subsequent year being eligible to the fixed cost tariff of the year in which the deficit arose.

26. **Auxiliary consumption:** The auxiliary consumption is required to be allowed at 12% at rated capacity. The actual auxiliary consumption of the power plant at the average over the 10 years was about 12.33%. Auxiliary consumption is deleteriously impacted due to tripping in the grid, use of shredders and chippers for prior preparation of fuel and frequent boiler breakdowns due to usage of agricultural residue, which demands fresh start up and therefore more auxiliary consumption.

27. **Operation & Maintenance (O&M) Expenses:** O&M expenses be allowed at 50 Lakh/MW which is equivalent to 12.5% of the capital cost of Rs.4 Cr/MW for

the 11th year of operation. For subsequent years, the O&M be escalated at the weighted average inflation rate considering WPI:CPI :: 80:20. Costs of spares and maintenance be related to the current costs of new plants and not on the historical cost. It is pointed out that the frequency and the need for maintenance also increase as the plant ages. Moreover, substantial replacements and renovations would be necessary and these do not occur every year evenly. Costs of Consumables have significantly increased. It is also stated that salaries and operating expenses had increased. It is further stated that regulatory and legal costs have increased sharply over the years and requested for this increase to be factored into the cost structure.

28. **Depreciation:** The project developer states 70% of the capital cost of the project be allowed as depreciation during the 1st to 10th year of operation. Out of the balance 30%, 10% may be considered as the residual value realisable at the end of the useful life of the plant, and 20% is to be allowed over the period of the 11th to 20th year of operation. Thus, it is claimed that depreciation be allowed from the 11th year at Rs.8 Lakh/MW per year.

29. **Interest:** It is stated that the project has no term loans outstanding and therefore the question of term loans does not arise in its case.

30. Interest on working capital be allowed from the 11th year onwards at the rate equal to the SBI short-term prime lending rate plus 3% as at the beginning of the year, or on such other equivalent reference rate for short-term working capital loans of the SBI, duly applied with monthly or other rests as per the terms applicable to short-term loans from the SBI.

31. For the purposes of determining the fixed cost, the project developer states that the part of the working capital for O&M expenses and towards maintenance of essential spares be considered. Further, it is stated that the rest of the working capital (one month's fuel and two month's receivables) be considered as part of the variable cost, because the quantum of working capital would depend upon the fuel cost relevant for the particular year. Hence, for the determination of the fixed and variable costs, the interest on working capital may be allowed at the rate as submitted supra on the 75% bank finance component of the working capital required for 1 month's O&M expenses and 1% of capital cost of project towards maintenance

of essential spares in respect of fixed cost and 1 month's fuel cost and two month's receivables in respect of variable costs.

32. **Return on Equity:** RoE to be fixed at 20% on 30% of the capital cost of the project of Rs.4 Cr/MW and 25% equity component of the working capital as part of the variable cost.

33. **Deemed Generation:** The project developers states that it evacuates the power generated and supplied to the DISCOM through the 33 kV line, which is under the control and maintenance of the DISCOM. When there are evacuation failures due to interruptions in the evacuation lines or when the grid operating conditions are such as to result in the tripping of the power plant, the project developer has to keep the plant running till the evacuation is restored. Even if the plant is shut down due to such evacuation failures and / or grid operating conditions, there is substantial loss of heat and / or wastage of fuel burnt. Therefore, it is claimed that such generation loss be compensated by allowing deemed generation and allowing the recovery of fixed and variable cost in respect of such deemed generation.

34. **Income Tax:** According to the project developer income tax is to be allowed as a pass through in its entirety at actuals by way of reimbursement of the advance tax actually paid and the self-assessment or assessed tax paid from time to time which may be claimed as part of any one or more subsequent monthly bills along with proof of payment of tax.

35. **Incentives/Price for supply over Threshold PLF:** It is stated that the threshold PLF ought to be considered only for the purposes of determining tariff. In the approach of the CERC, there is no difference between the price below or above the threshold PLF. The risks of uncertainties and consequent under-generation below the threshold PLF as well as the rewards for generation above the threshold PLF are thereby both left to the account of the developer. This is a commendable approach and requires to be considered and allowed.

36. **Control Period:** In view of the historical rise in interest, inflation rate, costs and expenditure which are dependent upon the macro economic situation beyond the control of the project developer and upon the regulatory policy of the Governments and / or other statutory regulators, the tariffs and the tariff structure

be reviewed and adjusted every three years. Therefore, it is suggested that the control period for the tariff be fixed at three years and reviewed thereafter for a like subsequent control period.

The averments mentioned by Greenko Energies (P) Ltd in O.P.No.48 of 2013, in brief, are as follows:

37. Because of non-determination of such tariff for long, the financial viability of the project has been very badly affected. The same is evident from the audited financial statements of the latest three FY 2008-09 to FY 2010-11. Because the very survival of the project is at stake, it is paramount that while fixing tariff, due weightage be given to actual historical performance of the project, as against relying purely on norms.

38. The project developer formulated the fixed cost rate proposals, based on actual performance of its project. The parameters proposed for calculating the fixed charges are, (i) Plant Load Factor (PLF); (ii) Auxiliary Consumption + Transmission Losses; (iii) Project Cost; (iv) Debt Equity Ratio; (v) Return on Equity; (vi) Interest Rate on Term Loan; (vii) Depreciation; (viii) O&M Cost and Annual Escalation; (ix) Working Capital; (x) Working Capital Margin and Interest on Working Capital and (xi) Income Tax.

39. **PLF:** The actual average PLF achieved by the project developer for the latest three financial years is 63% and the normative as per 2012 CERC RE Tariff Regulations & Order is 80%.

40. **Auxiliary consumption + Transmission Losses:** Separate numbers for Auxiliary consumption and actual transmission losses experienced by the project developer are not available and therefore the project developer submits total auxiliary consumption and transmission loss as 12.9%.

41. **Project Cost:** According to the project developer, the actual project cost is Rs.42.262 Mn / MW.

42. **Debt Equity Ratio:** The actual equity of the project developer is Rs.75.72 Mn.

43. **RoE:** Normative as per 2012 CERC RE Tariff Regulation and Order is 24% Pre-tax (from 11th year) and therefore, it is requested that the Commission may consider pre-tax RoE of 24% from 11th year of operation.

44. **Interest rate on Term Loan:** The actual loan terms of the project is compared against 2012 CERC RE Tariff Regulation & Order and it is requested that 10.50% may be considered as actual interest rate.

45. **O & M Cost and Annual Escalation:** It is requested that Commission may allow actual O & M Cost of Rs.4.3 Mn/MW (for the 10th year of operations) and Annual Escalation of 5%.

46. According to the project developer, based on the assumptions mentioned in detail in the petition filed by it, the fixed cost payable from 11th year of operation works out to as follows:

Operation Year	From	To	Fixed Cost Tariff (Rs/kWh)
Op.Year 11	21-Jul-12	20-Jul-13	2.10
Op.Year 12	21-Jul-13	20-Jul-14	2.24
Op.Year 13	21-Jul-14	20-Jul-15	2.38
Op.Year 14	21-Jul-15	20-Jul-16	2.53
Op.Year 15	21-Jul-16	20-Jul-17	2.70
Op.Year 16	21-Jul-17	20-Jul-18	2.88
Op.Year 17	21-Jul-18	20-Jul-19	3.07
Op.Year 18	21-Jul-19	20-Jul-20	3.27
Op.Year 19	21-Jul-20	20-Jul-21	3.50
Op.Year 20	21-Jul-21	20-Jul-22	3.74

47. Keeping in view of the facts, circumstances and the losses incurred by the project over the first 10 years of the project life and in order to ensure the very survival of the industry going forward, the project developer states that the above mentioned fixed cost tariff proposed by it are justified.

The averments mentioned by the project developers in O.P.Nos.49 of 2013 (Shalivahana Green Energy Ltd) and O.P.No.57 of 2013 Rithwik Power Projects Ltd., are similar and the same, in brief, are as follows:

48. These project developers stated that they being power plants generating electricity from renewable source of energy, request for preferential and promotional tariff in the light of the legislative policy, the National Electricity Policy and the Tariff Policy notified by the Central Government, which are required to be taken into

consideration. Therefore, they requested that the tariff for the supply of electricity generated by it be determined on the basis of the following technical, operation and financial parameters.

FIXED COSTS

49. **Capital Cost:** The capital cost of the 7.5 MW power projects of these two generators be considered at Rs.4 Cr/MW.

50. **Auxiliary Consumption:** In the case of OP 49 / 2013 and OP 57/2013 it is requested that auxiliary consumption may be allowed at 12% & 14% at rated capacities respectively, for the reasons mentioned therein in the said two petitions.

51. **Operation & Maintenance (O&M) Expenses:** O&M expenses needs to be allowed at Rs.50 Lakh/MW (which is equivalent to 12.5% of the capital cost of Rs.4 Cr/MW) for the 11th year of operation. For subsequent years, the O&M be escalated at the weighted average inflation rate considering WPI:CPI :: 80:20. The costs of spares and maintenance is related to the current costs of new plants and not on the historical cost, and this necessarily has to be factored into the considerations. The frequency and the need for maintenance also increase as the plant ages. Moreover, substantial replacements and renovations would be necessary and these do not occur every year evenly. The O&M expenses that has allowed must take these factors also into consideration. The costs of consumables are also related to current costs and is significantly on the increase. Salaries and operating expenses (including regulatory and legal costs) have increased sharply over the years.

52. **Depreciation:** 70% of the capital cost of the project was allowed as depreciation during the 1st to 10th year of operation. Out of the balance 30%, 10% may be considered as the residual value realizable at the end of the useful life of the plant, and 20% is to be allowed over the period of the 11th to 20th year of operation. Thus, the depreciation is to be allowed from the 11th year at Rs.8 Lakh/MW per year.

53. **Interest:** The project developer in OP 49/2013 obtained loan of Rs.7,54,38,042/- from M/s Indian Renewable Energy Development Agency Limited and is paying interest @ 10.5% p.a. It so far has not cleared the outstanding current due of Rs.2,84,86,311/- with interest. Therefore project developer has to still pay Rs.2,84,86,311/- along with interest. Similarly, the project developer in OP 57/2013

obtained loan of Rs.10.50 crore from M/s Indian Overseas Bank and is paying interest @ 14.5% p.a. It so far has not cleared the outstanding current due of Rs.6,22,27,332/- with interest.

54. The petitioners requested that interest on working capital be allowed from the 11th year onwards at the rate equal to the SBI short-term prime lending rate plus 3% as at the beginning of the year, or on such other equivalent reference rate for short-term working capital loans of the SBI, duly applied with monthly or other rests as per the terms applicable to short-term loans from the SBI.

55. For determining the fixed cost, the petitioners requested that part of the working capital for O&M expenses and towards maintenance of essential spares be considered. The rest of the working capital may be considered as part of variable cost. Hence, it was requested that the Commission may take into consideration the outstanding loan and the interest on working capital may be allowed at the rate mentioned supra. This rate was to be applied to 70% (in O.P. 49 of 2013) / 75% (in O.P. 57 of 2013), of bank finance component of the working capital required for 1 month's O&M expenses and 1% of capital cost of the project towards maintenance of essential spares.

56. **Return of Equity:** Having regard to the legislative policy and mandate to promote generation from renewable sources of energy, and to provide preferential tariffs for such generation, and also considering the uncertainties peculiar to biomass-based power plants. The petitioner requested that the return on equity be considered at 20% on 30% of the capital cost of the project of Rs.4 Cr/MW and 25% equity component of the working capital as part of the variable cost. The project developer also understands in similar circumstances the APTEL has allowed 20% of return on equity on project cost.

VARIABLE COST

57. The petitioners have raised a number of issues regarding the computation of variable cost. These relate to the determination of specific fuel consumption, gross calorific value, cost of raw material and escalation provisions. All these issues have been examined in detail by the Commission in its variable cost order of the 16th May, 2014 and do not bear repetition here. Accordingly the petitioners claims regarding the components of variable cost are not considered in this order of the Commission.

58. **Interest on working capital:** The interest on the working capital for fuel and receivables should be part of the variable cost because the quantum of working capital would depend upon the fuel cost relevant for the particular year. Accordingly, the interest on the 70% in O.P. 49 of 2013 / 75% in O.P. 57 of 2013, of the bank finance component of the working capital comprising one month's fuel and two month's receivables be allowed at the interest rate requested.

59. **Electricity Duty:** Electricity duty as applicable at actual may be allowed as a pass through by addition to the variable cost.

OTHER CHARGES / PASS – THROUGH ITEMS

60. **Deemed Generation:** The project developers stated that they evacuate the power generated and supplies it to the DISCOM through the 33 kV line which is under the control and maintenance of the DISCOM. When there are evacuation failures due to interruptions in the evacuation lines or when the grid operating conditions are such as to result in the tripping of the power plant, the project developer stated that it has to up keep the plant running till the evacuation is restored. Even if the plant is shut down due to such evacuation failures and / or grid operating conditions, there is substantial loss of heat and / or wastage of fuel burnt. According to the petitioner, this requires to be compensated by allowing deemed generation and allowing the recovery of fixed and variable cost in respect of such deemed generation. Deemed generation and recovery of costs therefore may accordingly be allowed on the basis of the generation lost considering the average output of the power plant during the one hour period prior to the interruption.

61. **Income Tax:** Income tax is to be allowed as a pass through in its entirety at actuals by way of reimbursement of the advance tax actually paid and the self-assessment or assessed tax paid from time to time which may be claimed as part of any one or more subsequent monthly bills along with proof of payment of tax.

INCENTIVES / PRICE FOR SUPPLY OVER THRESHOLD PLF

62. The petitioners claimed that the threshold PLF ought to be considered only for the purposes of determining tariff. According to them, in the approach of the CERC, there is no difference between the price below or above the threshold PLF. The risks of uncertainties and consequent under-generation below the threshold PLF as well as the rewards for generation above the threshold PLF are thereby both left to the

account of the developer. This is a commendable approach and required to be considered and allowed. In any case, if the above approach is not followed, in order that incentives for generation above the threshold are meaningful and adequately compensate for the additional effort and financial implications, it is stated that the Commission may consider payment of incentives in addition to the variable cost payable at Rs.1/- per unit for the energy delivered in excess of 75% threshold PLF. This is to be applicable only to the excess after allowing carry forward and set off of deficit PLF of earlier years.

CONTROL PERIOD

63. Having regard to the nature of various parameters such as interest, inflation rate, costs and expenditure which are dependent upon the macro economic situation beyond the control of the petitioner and upon the regulatory policy of the governments and / or other statutory regulators, it is necessary that the tariffs and the tariff structure be reviewed and adjusted every year. It is therefore requested that the control period for the tariff be fixed at one year.

Chapter – III: SUBMISSIONS OF RESPONDENTS

Under this Chapter, counter / reply filed by the other side in respect of the above ten petitions, are mentioned. Here again, in this Chapter, all submissions made with reference to variable costs have not been considered as the Commission has already considered them and issued a detailed order on the determination of variable costs on 16th May 2014.

On 21.02.2014, counter was filed on behalf of project developer M/s.Gowthami Solvent Oils (P) Ltd stating that:

64. The petitioner claimed that the calculations made by the DISCOM in its tariff proposals, submitted along with the main petition, are not correct. The capacity of the plant of the project developer is 2.75 MW. DISCOM suggested auxiliary consumption as 9.00%. However, the average auxiliary consumption of the project developer is 20%. A statement stated to contain several performance details for the period 2006 to 2013, including the auxiliary consumption, was filed along with the counter. The project developer requested the Commission that the details furnished therein may be taken into consideration.

65. **ROE:** According to the petitioner, the return on Equity should be taken as 16.00%, but not 14.00%. The present interest rate on working capital prescribed by

this Commission vide its order dt. 15.11.2012 passed in O.P.No.13 of 2012 is 12.8%, and the same is acceptable.

On 20.11.2013, individual counters are filed in O.P.Nos.49 & 57 of 2013 (in respect of M/s. Shalivahana Green Energy Ltd. & M/s. Rithwik Power Projects Ltd. respectively) by the then APNPDCL. The averments mentioned in the said counters are similar, and the same are mentioned below:

66. The determination of tariff payable should be done as in terms of the Article 2.2 of the PPA and order dt.20.03.2004 of the Commission. Further the fixed cost payable from 11th year of operation arrived by the project developer is on very high side. Variable cost payable was already fixed by Commission for FY 2009-14 for the NCE projects.

67. The Commission its orders dated 20.03.2004 & 12.09.2011, fixed benchmark capital cost for Biomass Power Project at Rs 4 Cr/MW, which was not disputed by the developers before any forum. As such, the developers capital cost cannot revisit at this juncture for tariff fixation after completion of 10 years of operation. Further the developer's replacement of the damaged turbine etc cannot be clubbed with the capital cost as the capital cost means only the amount required to establish and Commission, the power project but not to add the O&M expenses during the operation of the power project.

68. The CERC/APERC fixed benchmark parameters of debt equity ratio along with capital cost. As mentioned above, the additional cost met by the developer cannot be considered as capital cost of the project and the same cannot be used for arriving the debt equity ratio. The then APNPDCL requested to consider 16% Return on equity including MAT for arriving fixed cost.

69. The project developer proposed a loan repayment for another 10 years in the proposal, which cannot be acceptable by the then APNPDCL. The Commission while fixing the tariff from 01.04.2004 vide its order dated. 20.03.2004 it has been clearly mentioned that by completion of 10 years of operation of project, there will not be any debt obligations to the developer as the tariff is being worked out to repay the loans by 10 years of the project. Hence the then APNPDCL states that the project developer's proposal for interest on loan cannot be accepted.

70. The project developer's request for 12.5% O&M cost of the gross capital cost with 10% escalation is on high side. The contention that contract employees for fuel handling, problem with respect to the boiler tubes, etc., are not reflective of ground realities. The CEA Report 2005, staff report of APERC 2004 pointed out that the Biomass developers are not maintaining boilers and handling the biomass fuel to the satisfactory level and there is lot of scope for improvement. As such Biomass projects inefficiency cannot be transferred to general public who have to bear the high tariffs. Further the APERC vide its order dated 20.03.2004 fixed O&M cost at 4% of capital cost with 4% escalation (inflation trend prevailing) and also duly verifying the records of the biomass projects which reflected the market prices. As such the then APNPDCL requested that the same can be retained for arriving fixed cost for this project also.

71. According to the then APNPDCL, the project developer's proposal along with interest on working capital for arriving working capital requirement was on very high side and was not acceptable to it. APERC while arriving Working capital in 20.03.2004 has considered the following:

Fuel Cost for 1 Month.

- a) O&M expenses for 1 Month
- b) Receivables equivalent to 2 (Two) months.
- c) Spares for 1 month @ of project cost.
- d) 12% interest rate.

Further, the same was accepted by the APDISCOMs and Biomass developers during 2010 proceedings wherein APERC fixed tariff payable to NCE developers from 01.04.2004. As such the same may be considered for arriving fixed cost also.

72. The developer is trying to club the book value depreciation and the accelerated depreciation allowed by APERC in 2004 for arriving the tariff, which is not correct and acceptable. Hence, it is requested to consider remaining 20% of the project cost which will be allowed every year equally for the balance period of the PPA as mentioned in the order dated 20.03.2004.

73. The project developer's request of limiting the control period for three years is not justifiable as this fixed cost tariff is applicable from 11th year of operation to 20th year of operation. As such fixation of control period will not arise.

74. The then APNPDCL stated that the project developers are trying to sway the Commission with irrelevant information, which cannot be taken on record by APERC for fixation of tariff.

75. The then APNPDCL, therefore, prays that the Commission may approve fixed charges payable as per its proposal for the energy purchases from the project developer's Biomass based power project during the period from 07.12.2012 to 06.12.2022 (in O.P.No.49 of 2013 / 21.11.2012 to 20.11.2022 (in O.P.No.57 of 2013) from 11th year of operation of project to 20th year of operation of project.

On 13.12.2013, 'reply' is filed on behalf of the then APSPDCL in O.P.No.18 of 2013, wherein it was stated that:

76. Pending finalisation of determination of tariff by the Commission, DISCOM decided to pay 90% of 10th year operation Fixed Cost for smooth running of the project.

77. In the Commission's order in O.P.No.1075 of 2000 dt.20.03.2004, a finding is recorded that biomass projects can achieve PLF of 80%. During the hearing therein, the developers also confirmed that PLF of over 80% is achievable. The raw material prices may vary from year to year. If the provision as requested by the project developer is allowed, then there is a possibility of developers tending to generate more power when prices of raw material is cheaper and vice versa. This will defeat the spirit of NCE generation. As there is no penalty for under generation, it is proposed to keep PLF at 80% for each and every year.

78. The DISCOM opposes the project developer's request for higher auxiliary consumption. APERC while fixing tariff in its order dt.20.03.2004, had gone through the records of biomass developers and fixed auxiliary consumption at 9%. Therefore, it is requested that the auxiliary consumption be maintained as 9% for arriving at the Fixed Cost.

79. The DISCOM opposes the request for O&M expenses of 50 Lakh/MW (equivalent to 12.5% of capital cost) on the ground that it is too high. The then APSPDCL reiterated that the inefficiency of biomass projects inefficiency cannot be transferred to general public who have to bear the high tariff. The then APSPDCL further stated that the gross Capital Cost proposed by the project developer cannot

be accepted for the purpose of arriving tariff. APERC in its order dt.20.03.2004, fixed O&M cost at 4% of capital cost, with 4% escalation after duly verifying the records of biomass projects, which reflects market prices. As such, the DISCOM requests that the same may be retained for arriving fixed cost for this project also.

80. With regard to depreciation, the DISCOM agreed that the existing framework i.e., 70% over the first nine years; 20% for the balance life of the project and 10% residual value, be continued as was prescribed in the Commission's order dt.20.03.2004.

81. With regard to interest, the DISCOM opposed the proposal for interest on working capital on the ground that it was very high and unacceptable. In its order dt.20.03.2004, the Commission while arriving at working capital has considered fuel cost and O&M expenses for one month; receivables equivalent to two months; spares for one month @ 1% of project cost and 12% interest rate. It is stated that this was accepted by the all the stakeholders including the DISCOM herein, other DISCOMs and Biomass developers during 2010 proceedings before the Commission. Therefore, it requested that the said framework may be continued.

82. With regard to RoE, it is stated that in its order dt.20.03.2004, the Commission had adopted 16% and the same may be continued as any thing in excess will burden the consumers.

83. As per Article 2.3 of the PPA, tariff is inclusive of all taxes, duties and levies and hence it is urged that the request of the project developer may be rejected.

84. The DISCOM finally stated that as admitted by the project developer, the subject matter is pending disposal before the Hon'ble ATE in Appeal No.210/2013 and in view of the same, the petition is not maintainable for price variation as desired by the project developer. The price variation will be considered on par with other developers without any discrimination, as done by other Distribution Companies and as fixed by the Commission. Accordingly, the then APSPDCL requested the Commission to determine tariff taking into consideration the interest of all stakeholders, including the consumers.

On 17.02.2014 and 17.04.2014, individual counters are filed on behalf of Varam Power Projects Pvt. Ltd., in O.P.No.19 of 2013 and M/s.Perpetual

Energy Systems Ltd in O.P.No.24 of 2014, respectively. The counter averments in these petitions are similar. To avoid repetition, counter averments stated in O.P.No.19 of 2013 are mentioned below, pointing out changes wherever necessary relating to those in respect of O.P.No.24 of 2014

85. The DISCOM formulated the fixed cost on the basis of order dt. 20.03.2004. As the said order has been set aside and rendered ineffective by the judgment of the Hon'ble Supreme Court, the said proposals of the DISCOM with regard to fixed cost deserves to be rejected. According to project developer, it is entitled to preferential & promotional tariff and the same has to be determined on the basis of the following technical, operational and financial parameters.

FIXED COSTS

86. **Capital Cost:** The Capital cost of the 6.00 MW power project be considered at Rs.4 Cr/MW.

87. **Plant Load Factor:** PLF of the project be considered at 75% on an annual basis for the determination of tariff. PLF of 80% is not sustainable over the period from the 11th year to 20th year of operation due to factors of aging of the plant and growing uncertainties in the nature and quality of available biomass fuels. According to the project developer, for the following reasons PLF in excess of 75% is not achievable on continuous and sustained basis.

- (a) When agricultural residue is used in the boilers, the phenomenon of super heater corrosion sets in. This leads to monthly stoppage of the power plant due to choking of super heater coils. It further reduces PLF.
- (b) Due to the seasonal nature of the biomass fuel and its low bulk density, most of the biomass is stored in the open area. This leads to increase in moisture to an extent of 35% in the biomass fuels during the rainy season. Under such a scenario, the boiler cannot achieve its full load which will further reduce the turbine load.
- (c) The calorific value of the fuels used change continuously rendering combustion controllers ineffective.
- (d) The presence of certain sodium salts in the fuels used, which have low melting point causes deposition of ash to take place in the super heater area leading to erosion, corrosion, heat transfer and combustion problems.
- (e) Because the plant is run on mixed fuels (with continuously varying calorific value and proportions) maintaining ideal air fuel ratio at all times is impossible.

- (f) The fibrous nature of some of the biomass fuels (woody biomass and all farm residues) and because of low bulk density, they are not free flowing and tend to jam when stored in a bunker. Therefore, controlled feeding of these fuels to the furnace is not possible.
- (g) The above problems lead to constant fluctuations in temperature and pressure of flue gas across the boiler, which ultimately leads to inefficiency and failures.
- (h) Evacuation issues beyond the plant's control and related to the condition / operation of the grid by the licensee.

88. The developer stated that the PLF is required to be fixed in such a manner that a continuously working biomass power plant, under the usual operating conditions peculiar and characteristic of specifically such plants, would be in a position to definitely achieve the PLF and thereby recover the fixed cost.

In order to ensure that there is no under recovery of fixed cost at any time and throughout the working life of the project, the deficit PLF of any year shall be allowed to be carried forward to be adjusted against any excess PLF in any subsequent year, such deficit PLF adjusted in any subsequent year being eligible to the fixed cost tariff of the year in which the deficit arose. This is necessary because otherwise the unrecovered fixed cost would become permanently stranded and irrecoverable.

89. **Operation & Maintenance (O&M) Expenses:** O&M expenses needs to be allowed at not less than 50 Lakh/MW (which is equivalent to 12.5% of the capital cost of Rs.4 Cr/MW) for the 11th year of operation. For subsequent years, the O&M be escalated at the weighted average inflation rate considering WPI:CPI :: 60:40. The average actual O&M expenses of the power plant for the 1st to 10th year of operation (01.04.2002 to 31.03.2011) was Rs.2.59 Cr per annum which is Rs.47.33 Lakh/MW and 11.83% of the capital cost of Rs.4 Cr/MW (The corresponding average actual O&M expenses in respect of project developer in O.P.No.24 of 2014 from 01.04.2003 to 31.03.2013 was Rs.2.50 Cr/p.a. which is Rs.41.61 Lakh/MW and 10.40% of the capital cost of Rs.4 Cr/MW). Costs of spares and maintenance is related to the current costs of new plants and not on the historical cost, and this necessarily has to be factored into the considerations. The frequency and the need for maintenance also increase as the plant ages. Moreover, substantial replacements and renovations would be necessary and these do not occur every year evenly. The O&M expenses that has allowed must take these factors also into consideration. The costs of Consumables are also related to current costs and in significantly on the increase. Salaries and operating expenses (including regulatory and legal costs) have increased sharply over the years.

90. **Depreciation:** 70% of the capital cost of the project was allowed as depreciation during the 1st to 10th year of operation. Out of the balance 30%, 10% may be considered as the residual value realisable at the end of the useful life of the plant, and 20% is to be allowed over the period of the 11th to 20th year of operation. Thus, the depreciation is to be allowed from the 11th year at Rs.8 Lakh/MW per year.

91. **Interest:** The project developer has no term loans outstanding and therefore, the question of term loans does not arise in its case. However, project developer has availed term loans for R&M and the interest cost has to be considered to be allowed as a pass through.

92. **Interest on working capital** is to be allowed from the 11th year onwards at the rate equal to the Andhra Bank base rate plus 4% (SBI base rate plus 6.75% In O.P.No.24 of 2014) as at the beginning of the year, or on such other equivalent reference rate for short-term working capital loans of Andhra Bank (SBI), duly applied with monthly or other rests as per the terms applicable to short-term loans from Andhra Bank (SBI). For the purposes of determining the fixed cost, the part of the working capital for O&M expenses and towards maintenance of essential spares be considered. The rest of the working capital is considered as part of variable cost for the reasons hereinafter explained. Hence, for the determination of the fixed costs the interest on working capital may be allowed at the rate mentioned earlier on 75% of the bank finance component of the working capital required for 1 month's O&M expenses and 1% of capital cost of project towards maintenance of essential spares.

93. **Return on Equity:** Having regard to the legislative policy and mandate to promote generation from renewable sources of energy, and to provide preferential tariffs for such generation, and also considering the uncertainties peculiar to biomass-based power plants, ROE may be considered at 20% on 30% of the capital cost of the project of Rs.4 Cr/MW and 25% equity component of the working capital as part of the variable cost.

94. **Interest on Working Capital:** The interest on the working capital for fuel and receivables should be part of the variable cost because the quantum of working capital would depend upon the fuel cost relevant for the particular year. Accordingly, the interest on the 75% bank finance component of the working capital comprising

one month's fuel and two month's receivables be allowed at the interest rate as submitted hereinabove.

95. **Return on Equity:** Return on Equity is consequently to be allowed on the 25% equity component of the working capital in the determination of the variable cost. Such Return on Equity may be allowed at the rate of 20% as already submitted supra.

96. **Electricity Duty:** Electricity Duty as applicable at actuals may be allowed as a pass through by addition to the variable cost.

OTHER CHARGES / PASS-THROUGH ITEMS

97. **Deemed Generation:** The power generated from the project is supplied to the DISCOM through the 33 kV line which is under the control and maintenance of the DISCOM. When there are evacuation failures due to interruptions in the evacuation lines or when the grid operating conditions are such as to result in the tripping of the power plant, the project developer has to keep the plant running till the evacuation is restored. Even if the plant is shut down due to such evacuation failures and / or grid operating conditions, there is substantial loss of heat and / or wastage of fuel burnt. This requires to be compensated by allowing deemed generation and allowing the recovery of fixed and variable cost in respect of such deemed generation. Deemed generation and recovery of costs therefore may accordingly be allowed on the basis of the generation lost considering the average output of the power plant during the one hour period prior to the interruption.

98. **Income Tax:** Income tax is to be allowed as a pass through in its entirety at actuals by way of reimbursement of the advance tax actually paid and the self-assessment or assessed tax paid from time to time which may be claimed as part of any one or more subsequent monthly bills along with proof of payment of tax.

99. **INCENTIVES/PRICE FOR SUPPLY OVER THRESHOLD PLF:** The threshold PLF ought to be considered only for the purposes of determining tariff. In the approach of the CERC, there is no difference between the price below or above the threshold PLF. The risks of uncertainties and consequent under-generation below the threshold PLF as well as the rewards for generation above the threshold

PLF are thereby both left to the account of the developer. This is a commendable approach and requires to be considered and allowed.

100. If the above approach is not followed, Commission may consider payment of incentives (in addition to the variable cost payable) at Rs.1/- per unit for the energy delivered in excess of 75% threshold PLF. This is to be applicable only to the excess after allowing carry forward and set off of deficit PLF of earlier years.

101. **CONTROL PERIOD:** Having regard to the nature of various parameters such as interest, inflation rate, costs and expenditure which are dependent upon the macro economic situation beyond the control of the project developer and upon the regulatory policy of the Governments and / or other statutory regulators, it is necessary that the tariffs and the tariff structure be reviewed and adjusted periodically.

On 22.02.2014, 'reply' is filed on behalf of the then APSPDCL in O.P.No.48 of 2013 (M/s. Greenko Energies Private Ltd., stating that:

102. **PLF:** In its order dt.20.03.2004 passed in O.P.No.1075 of 2000, Commission specifically stated that the Biomass projects can achieve PLF of 80% and in fact during hearing developers also admitted that PLF of over 80% is achievable. The raw materials prices may vary from year to year. If the contention of the project developer with regard to PLF is allowed, then there is a possibility that the project developer as well as other developers tend to generate more power when the prices of raw materials are cheaper and vice versa. The then APSPDCL stated that this will defeat the spirit of NCE generation. Further, because there is no penalty for under generation, the then APSPDCL proposed that the PLF at 80% for each and every year be continued.

103. **O&M Cost:** The request for 50 Lakh per MW which is equivalent to 12.5% of the capital cost is high. The project developer submission relating to cost of spares, maintenance, problem with respect to the boiler tubes such as frequency of maintenance, replacements and renovations, salaries and operating expenses, etc., do not reflect ground realities. The CEA report 2005, this Commission's Staff report 2004 pointed out that the Biomass developers are not maintaining boilers and handling the biomass fuel to the satisfactory level and there is lot of scope for improvement. As such Biomass projects inefficiency cannot be transferred to general

public who have to bear the high tariff. It is already submitted supra that the gross capital cost proposed by the project developer cannot be accepted for the purpose of arriving tariff. Further, the Commission in its order dt.20.03.2004 fixed O&M cost at 4% of capital cost with 4% escalation (inflation trend prevailing) after duly verifying the records of the biomass projects which reflected the market prices. As such the then APSPDCL proposed that the same can be retained for arriving fixed cost for this project also.

104. **Depreciation:** The Commission while approving uniform rate of depreciation both for existing as well as new projects, allowed depreciation at the rate of 7.84% per annum from the date of commissioning till the depreciation allowed accumulates to 70% of the project cost. The balance depreciation of 20% of the project cost will be allowed every year equally for the balance period of the PPA so that the total consumption allowed for the project does not exceed 90% of the project cost. Therefore, it is requested to consider remaining 20% of the project cost which will be allowed every year equally, for the balance period of the PPA, as mentioned in the order dt.20.03.2004 passed by the Commission.

105. **Interest on working capital:** The proposal with regard to interest on working capital for arriving working capital requirement was very high and the same is unjustified. The Commission while arriving Working Capital in its order dt.20.03.2004 has considered, (a) Fuel Cost for 1 month; (b) O&M expenses for 1 month; (c) Receivables equivalent to 2 months; (d) Spares for 1 month @ 1% of project cost, (e) 12% interest. The said norms were accepted by the DISCOM (as well as other 3 DISCOMs) and Biomass developers during proceedings conducted in the year 2010 wherein Commission fixed tariff payable to NCE developers from 01.04.2004. As such, the then APSPDCL requested that the same may be considered for arriving fixed cost also.

106. **ROE:** In its order dt.20.03.2004 passed in O.P.No.1075 of 2000, Commission considered 16% of Return on equity (ROE). Anything in excess of the above, will lead to unjustified burden on the consumers.

107. **Taxes:** As per Article 2.3 of PPA, the tariff is inclusive of all taxes and duties and levies.

108. **Control period:** Periodicity of the control period is dependent on the regulatory policy of State / Central commissions.

109. The project developer is claiming the benefit under CERC Regulations issued in the year 2012 pertaining to Renewable Energy sources. The said Regulations are of not any help the petitioner as admittedly this Commission in discharging its duties, passed necessary orders, in compliance of Electricity Act, 2003. Further, the project developer which entered into PPA shall be governed by the terms & conditions as stipulated therein only.

Counter filed in O.P.No.23 of 2014 by Shree Papers Ltd.

As mentioned in the cause title two separate and individual petitions, one by EPDCL and other by Shree Papers Ltd., both for determination of tariff upon completion of ten years of operation of said project of Shree Papers Ltd were files. On 24.03.2014, when these two petitions viz., O.P.Nos.23 of 2014 & 30 of 2014 came up for hearing before the Commission, the counsel for the project developer stated that its petition in O.P.No.30 of 2014 may be taken up for hearing along with that of the DISCOM filed in O.P.No.23 of 2014. It was further requested that the averments mentioned in O.P.No.30 of 2014 may be considered as the response / reply of the project developer in O.P.No.23 of 2014. Therefore, the said averments taken as counter filed by the project developer, are as follows:

110. According to the counsel for the project developer, tariff needs to be determined afresh as per the terms of the PPA and for determining such tariff, the actual cost details need to be considered, along with various input costs, auxiliary consumption, actual fuel consumption, etc., as mentioned below;

FIXED COSTS

111. **Capital Cost:** The capital cost of the 4 MW power project be considered at Rs.4 Cr/MW. The total capital cost, including all additional capitalization, works out to Rs.1600 Lakh. As per the CERC Regulations, 2009 (Regulation 13), the normative debt equity ratio of 70:30 has been provided for. Applying the same, the equity component works out to Rs.480 Lakh (30% of Rs.1600 Lakh) and the debt component works out to Rs.1120 Lakh (70% of Rs.1600 Lakh).

112. **Return on Equity:** ROE may be considered at 20% on 30% of the capital cost of the project of Rs.4 Cr/MW and 25% equity component of the working capital as part of the variable cost. Income tax as paid had to be borne additionally over and above the tariff and ought to be allowed as a pass through.

113. **Interest on loan and working capital:** On the normative debt of Rs.1120 Lakh, the respondent is praying for interest on loan to be calculated as per Regulation 14 of the CERC Regulations, 2009.

114. **O&M Expenditure and O&M Escalation:** The respondent prays that the average O&M expenses needs to be allowed at Rs.50 Lakh/MW for the 11th year of operation. For subsequent years, the O&M be escalated at the weighted average inflation rate considering WPI:CPI :: 80:20. The costs of spares and maintenance is related to the current costs of new plants and not on the historical cost and this necessarily has to be factored into the considerations. The frequency and the need for maintenance also increases as the plant ages. Moreover, substantial replacements and renovations would be necessary and these do not occur every year evenly. The O&M expenses that have allowed must take these factors also into consideration. The costs of consumables are also related to current costs and they are significantly on the increase. Salaries and operating expenses (including regulatory and legal costs) have increased sharply over the years.

115. **Interest on Working Capital:** Regulation 17 of the CERC Regulations, 2009 provides for calculation of interest on working capital. However, the respondent submitted that generating units are not considered as priority sector and the interest rate applied to them is the highest. The respondent I stated that it was having its working capital arrangements with State Bank of India and the charges by it is about 16% PA considering the monthly rests and the other charges that are debited by the Bank, including processing charges, Inspection charges, etc. Respondent requested for fixation of interest on working capital on actual basis of 16% P.A. on the working capital loan.

116. **Depreciation:** The respondent stated that on the above capital cost as determined / fixed; the actual depreciation needs to be allowed.

117. **Return on Equity:** ROE is consequently to be allowed on 25% equity component of the working capital in determination of variable cost. Such ROE may be allowed at the rate of 20% PA from 11th year onwards, as already submitted supra.

118. **Electricity Duty:** As applicable may be allowed as a pass through by addition to the variable cost.

OTHER CHARGES / PASS – THROUGH ITEMS

119. **Deemed Generation:** The respondent evacuates the power generated and supplied to the petitioner through the 33 kV line which is under the control and maintenance of the petitioner. When there are evacuation failures due to interruptions in the evacuation lines or when the grid operating conditions are such as to result in the tripping of the power plant, the respondent has to keep the plant running till the evacuation is restored. Even if the plant is shut down due to such evacuation failures and / or grid operating conditions, there is substantial loss of heat and / or wastage of fuel burnt. This requires to be compensated by allowing deemed generation and allowing the recovery of fixed and variable cost in respect of such deemed generation. Deemed generation and recovery of costs therefore may accordingly be allowed on the basis of the generation lost considering the average output of the power plant during the one hour period prior to the interruption.

120. **Income Tax:** Income tax is to be allowed as a pass through in its entirety at actual by way of reimbursement of the advance tax actually paid and the self-assessment or assessed tax paid from time to time which may be claimed as part of any one or more subsequent monthly bills along with proof of payment of tax.

INCENTIVES / PRICE FOR SUPPLY OVER THRESHOLD PLF

121. The threshold PLF ought to be considered only for the purposes of determining tariff. In the approach of the CERC, there is no difference between the price below or above the threshold PLF. The risks of uncertainties and consequent under-generation below the threshold PLF as well as the rewards for generation above the threshold PLF are thereby both left to the account of the developer. This is a commendable approach and required to be considered and allowed.

122. In any case, if the above approach is not followed, , it was requested that the Commission may consider payment of incentives in addition to the variable cost payable at Rs.1/- per unit for the energy delivered in excess of 75% threshold PLF. This is to be applicable only to the excess after allowing carry forward and set off of deficit PLF of earlier years.

123. **CONTROL PERIOD:** As the plant had completed 10 years, the respondent stated that the control period of 3 years is reasonable and ought to be fixed.

124. **Electricity Duty:** The respondent requested the Commission to allow the Electricity duty of Rs.0.06 as pass through over and above the tariff to be determined, along with Income tax.

Chapter – IV: COMMISSION ANALYSIS

125. In addition to the material placed before it during the pleadings made by both the sides, the Commission, had sought and obtained details of the functioning of the Biomass generating unit operated by the petitioners. These included operational Financial, Commercial and Generation details, supported by the relevant Balance Sheets & Profit and Loss Accounts from CoD till 31-03-2013 as well as projections into the future.

126. As noted by the Commission in its order on Variable Costs for Non-conventional energy generators issued on 16th May 2014, following Hon'ble APTEL directions, the Commission adopted a holistic approach for the determination of both Variable and Fixed Costs norms for NCE sources. This approach incorporated the eight elements which are listed below.

- A. The Commission floated a consultation paper on the norms for variable cost determination for Biomass, Bagasse, Industrial waste and single part tariff for Municipal waste projects.
- B. The Commission conducted a public hearing on the issues identified in the consultation paper and noted the comments, objections, suggestions of various stakeholders.
- C. The Commission scrutinised the CEA report on "Operating norms for Biomass based power plants" published in September, 2005 with reference to its applicability to the then Andhra Pradesh.
- D. The Commission scrutinised the CERC Committee report on the "Performance/Viability of Biomass based plants operating in the Country including the prevailing biomass prices" published in July, 2013 with reference to its applicability to the then Andhra Pradesh.
- E. The Commission engaged M/s. KPMG as an independent consultant with a mandate to analyse the operating parameters/norms and economics of NCE projects in general with special reference to their working in erstwhile undivided Andhra Pradesh to prepare a study report (hereinafter study

report) on the determination of cost and performance norms for NCE sources.

- F. The Commission undertook field visits to three (3) Biomass power plants located in erstwhile undivided Andhra Pradesh viz., (i). M/s.JOCIL Ltd., (ii). M/s.Matrix Power Pvt. Ltd. and (iii). M/s.Ind-Barath Energies Ltd.
- G. The Commission analysed relevant CERC and State Electricity Regulatory Commission's (SERC) orders with reference to determination of variable cost norms for NCE sources.
- H. The Commission considered the Central Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2012 and its subsequent amendments.

127. The information and analysis generated in the above approach extended to the determination of both variable and fixed costs. In addition to the above eight elements, the Commission has also had the benefit of the following additional information for determination of the fixed cost norms relating to Biomass projects.

- I. The written and oral submissions made by both the parties in their petitions and the documents submitted by them in support of their respective contentions.
- J. The operational Financial, Commercial and Generation details, supported by the relevant Balance Sheets & Profit and Loss Accounts (from CoD till 31-03-2013) as well as projections into the future submitted by the respondent.

128. The Commission, distilled the findings of the above ten elements described above and determined the fixed cost for the petitioners from the 11th year of operation onwards through the process described below.

129. Prior to this exercise, it is appropriate to review the norms adopted by the Commission in its 2004 and the norms adopted by the Commission in its 2013 orders which were based on the Hon'ble ATE 2012 order. The parameters relevant to the determination of fixed costs are placed in Table 1 below:

TABLE 1

Biomass Power Project Norms

	Units	Commission 2004 Order	Commission 2013 Order (Based on ATE norms)
Applicability (Fixed Cost)	Period	1-10 th year of Operation	1-10 th year of Operation
Capital Cost	Rs. Cr/MW	4	4
Threshold PLF	%	80%	80%
O&M expenses (1 st year of operation)	% of Capital Cost	4%	5.50%
O&M Annual escalation	%	4%	6.69%
Debt : Equity Ratio	Ratio	70:30	70:30
Depreciation	%	7.84% (First 8 years) 7.28% (9th year) Balance 20% spread evenly over 11 years	7.84% (First 8 years) 7.28% (9th year) Balance 20% spread evenly over 11 years
Interest on Debt	%	12%	12%
Return on Equity (ROE)	%	16%	16% (MAT/Income Tax pass through)
Interest on Working Capital	%	12%	12%

130. After detailed analysis of the financial and operational parameters relevant to the performance of Biomass players over the last ten years, including aspects like loan repayment, actual generation as compared to the normative Plant Load Factor (PLF) and the overall financial health of the project developers, the Commission came to the conclusion that the performance of all the project developers is broadly consistent with the existing norms.

131. **Capital Cost:** On this issue of Capital Cost, DISCOMs have suggested Rs.4 Cr/MW. Most of the project developers have suggested Rs.4 Cr/MW.

132. The Commission has observed that the capital cost incurred by Biomass players is around Rs. 4 Cr/MW. Hon'ble ATE has also recommended Rs.4 Cr/MW as the capital cost for Biomass Power Projects. The Commission notes that with due regard to the material available on record and notes that except for M/s.Greenko Energies Pvt. Ltd, which has indicated Rs. 4.262 Cr/MW as Capital Cost, there is broad agreement between all parties on this matter. This order deals only with existing Biomass power projects, which are functioning and in respect of which capital costs have already been incurred. Hence, the Commission has continued the existing historical normative cost of Rs.4 Cr/MW for Biomass power projects for the computation of fixed cost for 11th-20th year of operation.

133. **Plant Load Factor:** On this issue, DISCOMs have suggested a threshold PLF of 80% for Fixed Cost recovery. Several NCE project developers have brought to the notice of the Commission that poor quality of biomass fuel and problems associated with storage of such fuel, reduces its heat content as well as causes the boiler to malfunction, resulting in lower efficiency and therefore urged the Commission to adopt a PLF of 75%. M/s.Greenko Energies Pvt. Ltd., has requested for a graded threshold PLF from 61.4% to 45.5% from 11th to 20th year in view of the general degradation of the power plant owing to ageing as seen in the yester years of plant operation.

134. Based upon its analysis, the Commission has found that in a majority of the cases, low PLF is due to poor fuel purchase practices adopted by project developers, which resulted in excessive procurement and storage costs and boiler damage. In other cases, such low PLF was the result of inefficient operations by the project developers. The normative threshold PLF for Biomass power projects in erstwhile undivided Andhra Pradesh as fixed by Hon'ble ATE and subsequently adopted by this Commission in its order dated 22-06-2013 is 80%. While Commission, cannot and should not compensate for the inefficiencies in the operation of the generators, the issue of availability of good quality fuel has already been addressed by the Commission in its order on Variable Cost dated 16-05-2014. The Commission is of the opinion that, this accommodation will enable project developers to effectively address the issues relating to availability of good quality fuel and thus catalyse the PLFs. Further, the Commission has observed that some of the Biomass project developers have achieved high PLFs. M/s.Gowthami Solvents Oils (P) Ltd., explicitly

supports this position. In the light of the above, the Commission determines that the already existing normative PLF of 80% for Biomass based power projects shall be continued for the computation of Fixed Cost for 11th-20th year of their operation.

135. To further promote and encourage Biomass project developers, the Commission feels that an incentive of Rs 0.50 per unit for all generation above 80% PLF should be paid by the DISCOM concerned.

136. **Auxiliary Consumption:** DISCOMs have suggested an Auxiliary Consumption of 9%, whereas, the request of the project developers varied from 12% to 20%. The Commission has already elaborately examined the issue and has adopted the Auxiliary Consumption at 10% in its order dt.16.05.2014, which is also inline with Hon'ble ATE determination in its order dt.20.12.2012. In view of the above, the Commission sees no justification in further increasing the Auxiliary Consumption from 10% to the levels requested by the projects developers. Accordingly, the Commission hereby determines the Auxiliary Consumption as 10%.

137. **O&M Expenditure and Escalation:** DISCOMs have suggested O&M as 4% of the Capital Cost. Most of the project developers have requested for O&M expenditure of Rs 50 Lakh per MW (which amounts to 12.5% of Capital Cost). M/s.Greenko Energies Pvt. Ltd., which has sought for an O&M of Rs.43 Lakh per MW stating that this was their average O&M expenditure for the years 2009 to 2011. M/s.Gowthami Solvents Oils (P) Ltd., had tacitly agreed with the suggestion of DISCOMs. Another generator has stated that their plant is now more than 10 years old and naturally requires higher maintenance cost. It was further stated that they were constrained to change the turbine twice in last four years because of various factors and there is constant problem with respect to boiler tubes which needs to be repaired constantly apart from nozzles. Citing the above and certain other factors, the project developer wanted the O&M expenses at 12% of the Gross capital cost. They also requested that as per the present inflationary trend, the O&M Escalation of at least 10% needs to be allowed.

138. The Commission has examined the matter in detail and notices that, the request of the project developers for an annual O&M cost of 12.5%, is on higher side. As per the existing norms based on Hon'ble ATE order dated 20.12.2012 and consequent APERC order dated 22.06.2013, passed by the Commission, it would be

appropriate that the Commission allows O&M expenditure of 5.5% of the capital cost for the first year which is escalated by 6.69% every year. Accordingly, the expenditure that could be allowed for the 11th year of operation comes to Rs 42 Lakh per MW. The same works out to 10.5% of the original capital cost of Rs 4 Crore per MW and 37% of the depreciated capital cost of Rs 1.13 Crores per MW at the beginning of the 11th year. Further, it must be pointed out that CERC has set O&M expenses at Rs 42.28 Lakh per MW for Biomass power projects for FY 2014-15.

139. The Commission also notes that one of the grounds on which one of the project developers have sought for higher O&M costs is on account of "*increased regulatory and legal costs*". In this context, this is to state that APERC (Fees) Regulation 1 of 2005 was notified in the Gazette of A.P. on 27.05.2005 wherein a fee was specified in respect of an application for determination of tariff. The first amendment to the said Regulation was notified in the Gazette of A.P. on 21.08.2013, wherein fee for such an application was enhanced marginally. The majority of the petitions were filed prior to coming into force of the said first Amendment. Hence the Commission is unable to accept the contention that regulatory costs have increased. As regards legal cost, the incurring legal costs by the project developers is consequence of their individual choices and the consumer cannot be burdened with the consequence of such choices beyond a certain minimum requirement. Accordingly, the contention that higher O&M costs may be allowed on the ground of increased legal costs also does not merit any consideration.

140. For the above reasons, the Commission determines to continue the existing O&M norm of 5.5% of Capital Cost for the base year with an annual escalation of 6.69% for Biomass Power Projects for the computation of fixed cost for 11th-20th year of operation, This effectively works out to 10.5% of the original capital cost of Rs.4 Crore per MW. This also works out to 37% of the depreciated capital cost of Rs 1.13 Crore per MW at the beginning of the 11th year, which is adequate in the Commission's view.

141. **Debt Equity Ratio:** DISCOMs suggested that the existing Debt: Equity ratio of 70:30 be maintained. Most of the project developers have adopted a similar stance. M/s. Matrix Power Pvt. Ltd., M/s.Rithwik Power Projects Ltd., and

M/s.Varam Power Projects (P) Ltd., sought a change in the Debt:Equity ratio to 75:25.

142. The Commission has carefully considered the position. The existing Debt:Equity ratio of 70:30 is an accepted norm across the country with other SERCs and the CERC adopting the same norm, for the project developers in these petitions as their plants are more than ten years old at this time and this parameter relates to the equity contributed in the past which was indubitably 30%. The past cannot be changed by changing this ratio now. Accordingly, the Commission is of view that the existing normative Debt:Equity ratio of 70:30 for Biomass Power Projects applied for the first ten years be continued for the computation of Fixed Cost for next ten year period also.

143. **Depreciation:** DISCOMs have suggested for 20% of project cost to be spread over the next 11 years of operation. The project developers have also broadly agreed with this position.

144. The Commission has considered the matter. It is noticed that most of the Biomass project developers have re-paid their debt in first 10 years of operation of their projects. However, some other project developers have taken incremental debt and consequently they have been unable to fully amortise their debt. The Commission is of the opinion that benefit in the form of additional depreciation should not be given to such project developers who have taken incremental debts for reasons which have not been adequately justified by them in their pleadings. It is possible that this additional debt could be attributable to inefficient management/operation of the power plant. If so this should not be allowed to be aggregated to the costs. Further the depreciation regime in this case where the 10-20 year fixed cost is being established must be a continuation of the earlier regime established during the first ten years of the plant since the developers have already adopted this regime during the first ten years. It is not desirable now to change the depreciation regime. For the above reasons, Commission is of the opinion that the existing normative depreciation rates i.e., 7.84% for the first 8 years; 7.28% for the 9th year and the balance 20% of the project cost spread evenly over remaining 11 years of Biomass Power Projects for the purpose of computation of fixed cost for 11th to 20th year of their operation, be continued. By this regime, 70% of the value is

depreciated in the first nine years and 20% during the succeeding 11 years leaving a residual value of 10% at the end of the 20th year.

145. **Interest on Debt:** DISCOMs have not suggested any interest rate on the ground that the project developer should have repaid all the debts as per the APERC tariff order. M/s.Shalivahana Green Energy Ltd., stated that they have Rs 2.85 Cr Term Loan outstanding with interest @10.5%. M/s.Rithwik Power Projects Ltd., stated that they have Rs 6.22 Cr Term Loan outstanding with interest @ 14.5%. M/s.Varam Power Projects (P) Ltd., stated that they have availed a Term Loan for R&M on which interest has to be allowed. Another developer wanted interest on the further additional capitalisation of the expenditure (over and above the original capital cost) incurred by the petitioner over the last ten years. In contrast, other project developers including M/s. Matrix Power Pvt. Ltd., M/s.Greenko Energies Pvt. Ltd., M/s.Gowthami Solvent Oils (P) Ltd., M/s. Shree Papers Ltd., M/s.Perpetual Energy Systems Ltd., have either generally stated that they have no Term Loans outstanding and therefore the question of term loans does not arise or ignored this question in their pleadings prompting such an assumption to be made by the Commission.

146. Based on a verification of the balance sheets and profit and loss accounts of the developers, it is seen that a number of project developers have cleared their Term Loans within the first ten years period of operation. . However, some other project developers have taken incremental loans over and above their initial borrowing and consequently they have been unable to fully amortise their debt. Such project developers who have taken incremental debts have not provided reasons for this additionality nor have they adequately justified them in their pleadings. It is possible that this additional debt could be attributable to inefficient management/operation of the power plant. If so this should not be allowed to be aggregated to the costs. The costs of their inefficiencies cannot be passed on to the consumers. As such the Commission is not inclined to recognise any outstanding Term Loans beyond ten years of operation. Consequently, the Commission will not allow any interest on outstanding long term debt beyond the 10th year.

147. **Return on Equity:** DISCOMs have suggested maintaining an RoE of 16% including MAT in most petitions. However, in respect of M/s.Gowthami Solvents

Oils (P) Ltd., they (APEPDCL) suggested adoption of an RoE of 14%. Number of project developers have suggested that the Commission adopt 20% return on 30% of the capital cost and 20% on 25% equity component of the Working Capital as part of the Variable Cost. M/s.Greenko Energies Pvt. Ltd., have requested for a return of 24% pre-tax for 11th-20th year as per CERC Tariff Regulation 2012.

148. The matter has been carefully examined by the Commission. The Commission has allowed a post-tax Return on Equity of 16% for Biomass project developers and allowed a pass through of Income Tax/Minimum Alternate Tax (MAT). Biomass project developers have also realised additional Certified Emission Reduction (CER) revenues. Thus, the pre-Tax return effectively works out to more than 23% (based on a notional tax rate of 30%) which is more than adequate return. Further, adequate annual escalation has been provided to these project developers. Further, the Commission is not inclined to accept the contention of some of the project developers that 25% of their Working Capital is equity and that the same has to be treated separately and in addition to RoE being allowed. The project developer's equity is the source of partial or complete funding of all the assets including the Working Capital margin. If it is the developers case that they have invested additional equity beyond the originally stipulated 30% of the capital cost for originally funding the project, then this must be seen in the balance sheet as additional equity. The Commission will only allow for return on equity seen in the liabilities side of the balance sheet. It cannot take into account the uses for the equity in the assets side of the balance sheet as desired by some of the petitioners, whether it be for working capital margin or otherwise. For the above reasons, the Commission determines that the existing normative Return on Equity of 16% for Biomass Power Projects for the computation of the Fixed Cost be continued for 11th to 20th year of their operation while allowing for a pass through of Income Tax and MAT is adequate incentive for the promoters.

149. **Interest on Working Capital:** DISCOMs have suggested that the interest on Working Capital be considered as 12%. On the other hand, the project developers have suggested different rates ranging from 12% to 16.85%. They have also stated that it should be computed at the beginning of the year by adding a designated spread on the SBI Short Term Prime Lending Rate.

150. The Commission has carefully considered the matter. The Working Capital comprises of the following components:

- i) Fuel cost for one month computed at threshold PLF
- ii) O&M Expenses for one month
- iii) Receivables for two months at threshold PLF
- iv) Maintenance spares at 1% of the project cost

151. Some project developers have urged that interest on Working Capital be separated into Fixed Cost component and Variable Cost component on the ground that part of the Working Capital would be variable. In this regard, it must be noted that the Commission has not issued any Regulation with regard to determination of tariff in respect of NCE project developers. However, the Commission notes that APERC (Terms & conditions for determination of tariff for supply of electricity by a generating company to a distribution licensee and purchase of electricity by distribution licensees), Regulation No.1 of 2008, which prescribes modalities for determination of tariff for supply by a generating company to a distribution Licensee, includes all costs relating to Working Capital as fixed costs. The Commission in the interests of consistency would like to continue a similar stance in this case also. The Commission therefore rejects the contention of the project developers that interest on Working Capital be separated into Fixed Cost and Variable Cost components. Further, keeping in mind that the historical interest rates have been around 12% and also the existing bank Rates of leading nationalised banks, the Commission decides to continue the existing norm of 12% for Working Capital interest for Biomass Power Projects for the computation of fixed cost for 11th-20th year of their operation.

152. **Incentive:** DISCOMs have not made any proposal in this regard. On the other hand, the project developers have requested for payment of incentive by paying the same rate as being paid upto the threshold PLF in line with the approach of CERC or in the alternative pay Re.1/- per unit for the energy delivered in excess of 75% threshold PLF.

153. The Commission has examined the matter. The Electricity Act, 2003 mandates the Commission to promote generation of electricity from Non-Conventional Energy sources. Therefore, the Commission is of the opinion that an incentive of Rs 0.50 per Unit for each unit beyond the threshold PLF of 80% would

encourage such project developers. The same is in line with the CERC Tariff Regulations for Thermal Plants 2014, which offer the similar incentive to thermal plants for generation over the threshold PLF. As all the fixed costs would have been recovered at PLF of 80%, the Commission is of the opinion that such incentive will encourage Biomass project developers to enhance their generation. The Commission is confident that all Biomass developers will abjure the use of fossil fuel in their power generation activities.

154. **Miscellaneous:** Certain other issues like change in Control Period and allowing for Deemed Generation have been raised by some of the project developers. The Commission feels that changing the boundary conditions set up for project promoters after ten years of their operation is neither desirable nor feasible. The Commission has undertaken this exercise to determine fixed costs for years 11-20 for Biomass plants. It had in its order of 16th May 2014 determined the variable costs for these plants. At this stage, the Commission is not inclined to deviate from the established framework and examine new issues like change of control period and provide for deemed generation in the tariff framework midstream in the life of the plant after ten years. Accordingly, the Commission does not accept these contentions.

Chapter – V: CONCLUSION

155. Based on the detailed discussion in respect of different parameters as mentioned in the previous Chapter, the Commission determines that the fixed cost payable for Biomass Power Projects will be as follows:

Fixed Cost for Biomass Power Projects for 11th-20th year of operation (Rs. /Unit)	
Year of Operation	Fixed Cost (Rs./Unit)
11	1.25
12	1.31
13	1.37
14	1.43
15	1.49
16	1.56
17	1.64
18	1.71
19	1.80
20	1.89

156. The above mentioned tariff (fixed cost) per unit is exclusive of Income Tax and Minimum Alternate Tax. Further, the above mentioned tariff is applicable only upto 80% PLF. As mentioned in the previous Chapter, Commission directs that the DISCOM concerned to pay an incentive of Rs 0.50 per unit generation of electricity above 80% PLF to all such Biomass project developers. The Commission also directs that Electricity Duty paid by the Biomass project developers during this period shall be reimbursed.

157. As will be seen, the Commission has determined a generic order for fixed cost for the 11-20 year period of their operation. The Commission therefore directs that the above fixed costs will be payable by the respective DISCOMS for all bio mass based NCE projects which complete ten years irrespective of whether they have approached the Commission or not for such determination.

158. This order disposes of all the above mentioned Original Petitions as well as Interim Applications filed thereunder.

This order is corrected and signed on this 19th day of July, 2014.

Sd/-
(P.RAJAGOPAL REDDY)
MEMBER

Sd/-
(R.ASHOKA CHARI)
MEMBER

Sd/-
(Dr.V.BHASKAR)
CHAIRMAN