



ANDHRA PRADESH ELECTRICITY REGULATORY COMMISSION

4th Floor, Singareni Bhavan, Red Hills, Hyderabad - 500 004

THURSDAY, THE FIFTEENTH DAY OF DECEMBER

TWO THOUSAND AND TWENTY TWO

(15.12.2022)

Present

Justice C. V. Nagarjuna Reddy, Chairman

P. Rajagopal Reddy, Member

T. Rama Singh, Member

OP No. 32 of 2014

Suo motu Petition in the matter of Determination of Variable Cost for the period from 01-4-2014 to 31-3-2019 in respect of the Existing plants based on Non-Conventional Energy (NCE) sources in the State of Andhra Pradesh on remand from Hon'ble APTEL by Common Judgement dated 08-03-2022 passed in Appeal Nos.284 of 2014, 297 of 2014, and Appeal 250 of 2014 and batch & Cross Appeal 42 of 2016

Introduction

1. The Commission passed the order dated 16.05.2014 in O.P. No 32 of 2014 inter alia determining the variable component of tariff for biomass and bagasse-based power plants for the period from 01.04.2014 to 31.03.2019. The Commission also passed a common

order dated 19.07.2014 in 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 and 26 of 2014 inter alia determining the fixed cost for all biomass-based power plants for the 11th to 20th year of operation in respect of the plants which have completed 10 years of operation.

2. The Biomass Energy Developers Association & Others filed Appeal No. 284 of 2014 and South Indian Sugar Mills Association & Others filed an Appeal No.297 of 2014 before the Hon'ble APTEL against the Common Order Dated 16.05.2014 passed by the Commission. The Biomass Developers Association & others also filed an Appeal No.250 of 2014 and APSPDCL & APEPDCL filed cross Appeal No 42 of 2016 against the common order dated 19.07.2014 of the Commission.
3. The Hon'ble APTEL disposed of the above appeals by a common judgment dated 08-03-2022. The summary of the findings in the said judgment is given hereunder:

a) Variable Cost Issues for Biomass based Plants (Appeal 284)

- | | | |
|-------------------------------------|---|--|
| i. Station Heat Rate. | - | 4500 kCal/kWh |
| ii. Auxiliary consumption. | - | 10 % |
| iii. Gross Calorific Value of Fuel. | - | 3300 kCal/kg |
| iv. Fuel Cost. | - | To issue revised fuel cost as per Directions. |
| v. Fuel Cost escalation. | - | To issue a revised escalation index as per directions. |

Hon'ble APTEL's directions:

Fuel Cost for Biomass based plants

"The Commission shall consider afresh the detailed submissions made by the Appellant which require reasonable consideration and issue revised fuel cost for Biomass-based plants on the basis of the actual market purchase price, the composition of fuel mix, and related parameters".

Fuel Cost escalation

"The State Commission shall relook at the fuel cost escalation for Biomass -based plants based on the contention of the appellant and formulate a revised escalation index".

b) Fuel Cost Issue for Bagasse based Plants (Appeal 297)

"The Commission shall review the bagasse fuel cost considering the submissions of the Appellants and the Respondents inter-alia the prevailing market price of the bagasse and the landed market cost of fuel, as available, for the coal-based generating stations".

c) Fixed Cost Issue as pleaded by the Appellant and the Respondents during the course of hearing (Appeal 250 & Appeal 42)

- | | | | |
|------|---|---|------|
| i) | Plant Load Factor. | - | 80 % |
| ii) | Auxiliary consumption. | - | 10 % |
| iii) | Operation & Maintenance Expenses and escalation | — | |
| | As decided in the impugned Order-2 | | |

4. Hon'ble APTEL also directed the State Commissions (APERC and TSERC) to initiate a study at the earliest for determining the normative parameters for Biomass and Bagasse-based Power Plants

under their jurisdiction and located in the State of Andhra Pradesh and Telangana and frame Tariff Regulation.

5. The appeals were accordingly allowed in part to the extent as indicated above. The Hon'ble APTEL directed the State Commission to pass consequential orders taking the above findings into account within 45 days of communication of the judgment. On the Commission's request, the said date was extended up to 30.11.2022 and it was further extended up to 31.12.2022 by the Hon'ble APTEL on the petition filed by APSPDCL.
6. In pursuance of the Hon'ble APTEL's Judgement dated 08.03.2022, in addition to serving individual notices to all the parties involved in the proceedings, Public Notice was also placed on the website of the Commission on 02.09.2022 inviting views / objections / suggestions from interested persons / stakeholders in respect of determining the variable component of tariff for biomass and bagasse-based power plants for the period from 01.04.2014 to 31.03.2019, and fixing public hearing on 13-09-2022.
7. During the public hearing on 13.09.2022, Sri K.Gopal Chowdary, learned counsel for the Biomass Developers and Sri P. Shiv Rao, learned standing counsel for the Power Utilities, were present at the hearing. Sri K.Gopal Chowdary, learned counsel for the Developers submitted that the issues of fixation of fuel price and escalation arise only in suo motu O.P.No.32 of 2014 and that the other O.Ps. need not be adjudicated. He has further submitted that the developers arrayed at Sl.Nos.2,10,12,14 and 16 (appellants in Appeal No.284 of 2014)

relating to Biomass and the Developers 7 and 9 (appellants in Appeal No.297 of 2014) relating to Bagasse are situated in Telangana State, which do not fall within the jurisdiction of this Commission. The cases were further adjourned to 14.10.2022.

8. After hearing the parties on 14.10.2022, for the purpose of determination of fuel cost of biomass, the Commission felt that personal inspection of at least one generating station is necessary, especially, for ascertaining the approximate moisture content, procurement price and other aspects relating to different biomass fuel mix used for generating power. As suggested by the learned counsel for the BEDA & Others, the Commission has decided to depute its two Members to inspect Jocil Limited situated at Dokiparru, Guntur district, on 22-10-2022 at 11 am in the presence of Sri K.Gopala Chowdary, learned counsel for the Biomass Developers, and Sri P.Shiva Rao, learned Standing Counsel for the Power Utilities. Sri K.Gopal Chowdary informed the Commission that it is desirable to take readings at least for 2 or 3 days for proper ascertainment of moisture content. Accordingly, the Commission deputed two of its officers to inspect the premises of M/s. Jocil Limited on 20-10-2022 and 21-10-2022, before the inspection of the Members of the Commission on 22-10-2022. Further hearing was adjourned to 27.10.2022.
9. During the hearing on 27.10.2022, Sri K.Gopal Chowdary, learned counsel for the Biomass Developers submitted that following the inspection of the Members and the officers of the Commission, M/s

JOCIL has been making efforts to submit details of the price at which the raw material was procured during the relevant period. He further submitted that they are trying to procure a Statutory Auditor's Report and that the Company will try its best to file the same within 2 weeks. He further submitted that in the event of any difficulty in filing such a certificate, the Company will at least file the internal auditor's report regarding the price at which the company has procured the raw material. He also requested to furnish a copy of the inspection report of the officers of the Commission for perusal and filing response, if any, to the said report. He also submitted that his clients will submit other material as required by the Commission in its letter dated 17-10-2022. In view of the above submissions of the learned counsel, the case was adjourned to 10-11-2022 and the Commission directed the office to furnish a copy of inspection report to the learned counsel for the petitioner and also learned standing counsel for the respondents immediately and the learned counsel were permitted to submit their comments, if any, to the inspection report.

10. The Commission held further hearing of O.P.No.32 of 2014 on 10.11.2022 in the presence of Sri K.Gopal Chowdary learned counsel for the Biomass developers & Others, and Sri P. Shiva Rao, learned Standing Counsel for the power utilities and reserved orders. After carefully considering the submissions of the respective counsel and the material available on record, the Commission passes the following:

ORDER

a) Variable Cost Issues for Biomass based Plants (Appeal 284)

11. The brief submissions of the Biomass Energy Developers Association (in short '**BEDA**') during the year 2014 while hearing OP No.32 of 2014 were that the average cost of rice husk is Rs.3360 per ton, Juliflora is Rs.4444 per ton with handling charges of Rs.300 per ton, Agri residue is Rs.1943 per ton with handling charges Rs.235 per ton, and same need to be considered for determining the biomass fuel cost. That Juliflora with Moisture Content as received basis at 40 % and inherent moisture content at 20% in as fired condition and Agri Residue with moisture content as received basis at 40%, inherent moisture content at 15% in as fired condition & 20 percent foliage (cotton leaves wastage) need to be considered to arrive at the as purchased quantity of biomass. That one kg of biomass in as fired condition requires 1.372 kg in as purchased condition with the fuel mix with Rice Husk at 36.8%, Juliflora at 57.2%, and Agri Residue at 43.2% corresponding to specific fuel consumption of 1.36 Kg/Kwh as indicated in the table below:

Component fuel in mix	Qty in "as fired condition" (MT)	Qty to be purchased in "as purchased condition" (MT)	Fuel cost Rs/MT	Fuel cost of fuel in mix (Rs)
Rice Husk	0.368	0.368	3360	1236
Juliflora	0.429	0.572	4444	2542
Agri Residues	0.203	0.432	1943	839
Total	1	1.372		4617

Accordingly, the BEDA has claimed the cost of biomass fuel per ton as Rs.3365 (Rs.4617/1.372) in their submissions. Apart From the above, BEDA requested the Commission to consider an average transport charge of Rs.600/- per ton on the purchase price of Juliflora and Agri residue in their latest submissions.

12. In this fresh submissions made after remand Jocil Ltd, one of the appellants in the appeals submitted the details of average moisture content in the Biomass fuels in as received condition for the period from 2014-15 to 2018-2019 as indicated in the table below:

Year	The Moisture content at the time of receipt %	
	Agri Residues (Cotton stalk etc)	Woody Biomass (Juliflora etc)
2014-15	51.8	36.5
2015-16	52.7	35.8
2016-17	53.0	37.6
2017-18	53.3	35.8
2018-19	52.5	34.5
Average	52.7	36.0

Based on the above data, JOCIL requested the Commission to consider the moisture content as 55% for agricultural residues (cotton stalks etc) and 40% for woody biomass (Juliflora/Subabul) in as received condition.

13. BEDA made revised submissions on 07.11.2022 and requested the Commission to consider Juliflora with moisture content in as received

basis at 40% and inherent moisture content at 20% in as fired condition and Agri Residue with moisture content in as received basis at 55 %, inherent moisture content at 15% for as fired condition & 25% Leaves in the as-received condition based on the observations and test results at the time of inspection and visit of the Members and Officers of the Commission between 20.10.2022 and 22.10.2022 to Jocil Ltd and also considering the information and observations over several years. As per the moisture content stated above and the fuel mix considered in CEA report, BEDA estimated the quantity of biomass fuel requirement in as purchased condition at 1.9738 kg for the specific fuel consumption of 1.36 kg/kWh.

14. BEDA and others have requested the Commission to consider normative fuel price escalation of 5% over the base price at FY 2014-15 for subsequent years in place of the price indexation mechanism that was approved by the Commission in the orders dated 16.05.2014.
15. The DISCOMS requested the Commission to determine the tariff based on the actual cost of fuel, fuel mixes, and costs incurred for those purchases as per Audited Accounts of each biomass plant as the tariff determination is for the anterior period. Further, the DISCOMS submitted that the usage of fuel mixes sought by BEDA as per CEA report 2005, over the years lost its relevance due to change of climatic conditions, change of methods in harvesting of different fuels and availability of fuel. That it was observed during the inspection of Jocil's plant, the consumption of rice husk is more

compared to other fuels ie., Juliflora and Agri residue. Therefore, the DISCOMS requested the Commission to adopt the fuel mix as considered in APERC order dated 16.05.2014, and the price of fuels as per the audited data furnished by the JOCIL for FY 2014-15 in as purchased condition. That the Commission approved the fuel price of Biomass power plants as Rs.3167.72/MT for FY 2019-20 with 5% annual escalation in its orders dated 10.02.2020 in O.P.No.75 of 2019 based on the CERC's tariff order for the FY 2019-20. The said order remained unchallenged and that the same needs be taken into account while approving the fuel cost for FY 2014-15. That the farmers have been delivering the fuel at their own cost to the biomass plants and hence the request of BEDA and others to consider transport / freight charges may not be accepted and that the fuel price is inclusive of all charges, loading and unloading etc.

16. Hon'ble APTEL felt convinced with the submissions of the BEDA & others that the price of biomass fuel to be determined depends on the various factors such as biomass fuel mix, moisture content in them and the market price of various biomass fuels. Therefore, the Commission must examine each factor as detailed below:

Biomass fuel Mix:

17. The Commission carefully examined the submission of the BEDA & others and the DISCOMS as stated supra. The Commission felt that audited data of at least one generating station is necessary, especially, for ascertaining the approximate moisture content, procurement price and other aspects relating to different varieties of biomass fuel used

for generating power as biomass fuel management is completely unorganised, as held by the CEA vide its report dated September 2005. Hence the Commission directed JOCIL which is one among the five plants in operation as of now to submit the audited data of biomass fuels for FY 2014-15. Accordingly, Jocil furnished the audited data. Based on the audited data so submitted, the Commission computed the mix percentages of various biomass fuels used by Jocil's Biomass power plant as given in the table below:

Type of fuel	Qty (ton)	Fuel Mix %
Rice Husk	24643.06	53.17
Juliflora	9392.605	20.27
Cotton Stalk	12310.685	26.56
Total	46346.35	100.00

The Commission compared the above fuel mix percentages with the fuel mix percentages specified in CEA report and this Commission's order dated 16.05.2014 as shown under:

Type of fuel	Fuel Mix % as per audit data of JOCIL	Fuel Mix % as per CEA report	Fuel Mix % considered in Commission's order dt 16.05.2014
Rice Husk	53.17	36.8	56
Juliflora	20.27	42.9	24
Cotton Stalk	26.56	20.3	20
Total	100.00	100	100

The Commission has arrived at the fuel mix in its order dated 16.05.2014 based on the CERC report 2013, whereas the Mix specified by the CEA is based on the data of different plants for FY

2003-04. But the fuel mix will vary from year to year and season to season. Therefore, the Commission is not inclined to accept the request of BEDA to consider the fuel mix as per CEA report. As seen from the table above, the fuel mix derived from the audited data of JOCIL and the fuel mix approved by the Commission in its orders dated 16.05.2014 are approximately the same. However, the Commission finds it appropriate to consider fuel mix percentages derived from the audited data of JOCIL.

Moisture content:

18. BEDA & others' submissions on the moisture content varied from time to time. In their latest submissions, they requested to consider the moisture content as 55% for agricultural residues (cotton stalks etc) with 25 percent foliage (cotton leaves wastage), and 40% moisture content for woody biomass (Juliflora / Subabul) in as received condition. During the inspection by the Commission's officers at Jocil's plant from 20.10.2022 to 22.10.2022, the company tested 13 Nos. each of Juliflora and Cotton Stalks samples and 8 Nos. of Subabul samples to measure the moisture content. As no Cotton Stalks were being received presently, the Cotton stalk samples tested were obtained from the freshly plucked cotton plants from the nearby standing crop arranged by the Company. The test results show that the average moisture content was 38.70% in woody Biomass (Juliflora & Subabul) and 66.45% in cotton stalk. The moisture content of Cotton Stalk samples is higher compared to that mentioned in the CEA Report, 2005 and the submissions of JOCIL. The reasons for the

higher moisture content in the tested samples could be attributed to the testing of the samples that were obtained from the freshly plucked cotton plants, which might have higher moisture content due to the heavy rains in the recent past and higher humidity in the atmosphere, but the Jocil Ltd did not agree with the above observation and stated that the high moisture content is not because of the recent rains, but it is the inherent nature of the cotton stalks that they have a high moisture content though it slightly varies from time to time depending on the time of their receipt. The Commission examined the matter carefully and compared the moisture content as shown in the table below:

	BEDA latest submissions		CEA report		The test results during the inspection		JOCIL's 5 years average data	
	Cotton Stalk	Juliflora	Cotton Stalk	Juliflora	Cotton Stalk	Juliflora		
Leaves in as-received condition (%)	25	-	-	-	-	-	-	-
Moisture in as-received condition (%)	55	40	40	40	66.45	38.70	52.70	36.0
Moisture in as-fired condition (%)	15	20	15	20%	-	-	-	-

As claimed by JOCIL Ltd, the moisture content in cotton stalk appears to vary at different parts of the year and recent rains also could be one of the contributing factors for the higher moisture content of 66.45% during test sampling. As regards Juliflora, the moisture content

claimed by BEDA and the test results of the samples shown in the above table nearly correlate with the claim of the BEDA with respect to Juliflora. Therefore, the Commission is inclined to consider the moisture content in as received basis for various biomass fuels as pleaded by BEDA. The loss of cotton leaves as claimed by BEDA also cannot be denied and hence their request in this regard is also accepted. The data for moisture content in as fired condition is not available anywhere and hence the Commission is inclined to accept the same as per CEA report.

Fuel prices

19. The Commission has carefully examined the submissions of the BEDA & Others and the DISCOMS on fuel prices. The BEDA & Others have been claiming handling charges and transportation cost for Juliflora and Agri residue and the same has been strongly opposed by the DISCOMS. It cannot be denied that there is a necessity to engage some labour for shredding, manual feeding of biomass and other works related to fuel handling in Biomass-based power plants. Hence the Commission is inclined to consider the claims for inclusion of handling charges. As regards the claim of transportation cost of Juliflora and Agri residue, it is explicitly stated in the CEA report that the biomass will be delivered by the farmers at the doorstep of the biomass plants in general. No evidence has been placed by the developers to substantiate their claim for allowing transportation charges. Hence the Commission decides not to accept this request.

20. As per the direction of the Commission, Jocil submitted the details of day wise purchases of Biomass fuels on 07.11.2022 for the year 2014-15 as certified by the auditor. The summary of the data is shown under:

Type of fuel	Quantity (MT)	Total Amount (Rs.)
Rice Husk	24643.06	61178984.60
Juliflora	9392.61	24777492.03
Cotton Stalk	12310.69	11472665.04
Total	46,346.35	9,74,29,141.67

Based on the above data, the weighted average price per ton computed by the Commission for each type of biomass fuel is given in the table below:

Type of fuel	Weighted Average price (Rs/MT)
Rice Husk	2482.61
Juliflora	2637.98
Cotton Stalk	931.93

The Commission has examined the various biomass fuel prices with handling charges as shown in the table below. The biomass fuel prices approved in the order dated 16.05.2014 are based on the market survey undertaken by the consultant in as fired condition with handling and transportation costs. Therefore, the same has been derived to as purchased status as per the factor (As purchased/as fired=1.372) claimed by BEDA & Others for comparison.

Fuel	BEDA claim during submissions in 2014 (Rs/MT)		Fuel price for FY 2014-15 as per APERC Orders dated 16.05.2014 (Rs/MT)		fuel prices as per the Jocil audit data dated 07.11.2022 (Rs/MT)	
	As purchased (without handling)	As purchased (with handling)	As fired (with handling)	As purchased (computed)	Without Handling charges	with Handling charges
1	2	3	4	5	6	7
Rice husk	3360	3,360	2800	2800.00	2482.61	2482.61
Juliflora	4144	4,444	3,000	2186.59	2637.98	2937.98
Agri Residue	1708	1,943	2,100	1530.61	931.93	1166.93

As can be seen from the above table, the claims of BEDA and JOCIL (actual audited data) are much higher than the prices approved by the Commission in its order dated 16.05.2014. However, the Commission is of the view that it is appropriate to consider the audited figures of JOCIL for FY 2014-15 given the nature of unorganised management of biomass fuels and relevant reliable information from any other source not being available.

21. Based on the conclusions of the Commission in paras 17, 18,19, and 20 the biomass fuel price per ton in as purchased condition for determination of variable cost per unit is computed as shown in the table below:

Sl.No	Fuel	Qty in fuel Mix (%)	Qty as fired (Kg)	conversion factor	Qty as purchased (Kg)	Fuel cost without handling (Rs/MT)	Fuel cost with handling Charges		
		A	B=1.36* x A	C	B/C		Fuel cost (Rs/MT)	Proportionate price	Fuel cost to be considered for tariff determination(Rs/MT)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(5x7)	(9)=(8/1.36)
1	Rice Husk	53.17	0.7231	1	0.7231	2482.61	2482.61	1795.20	2894.74
2	Juliflora	20.27	0.2757	0.75	0.3676	2637.98	2937.98	1079.89	
3	Agri Residues	26.56	0.3612	0.397	0.9099	931.93	1166.93	1061.75	
	Total(1+2+3)	100	1.3600		2.0005			3936.84	

Accordingly, the Commission determines biomass fuel price of Rs.2894.74 (**or say Rs.2895**) per ton as per the computations shown in the above table as base biomass fuel price for FY 2014-15 for computation of variable cost for the period FY 2014-15 to FY 2018-19.

Fuel cost Escalation

22. The Hon'ble APTEL while dealing with the contentions of the Appellants in APPEAL No. 284 observed as under:

“that the State Commission has adopted the CERC price escalation formula for fuel cost, however, it is submitted by the Appellant that it cannot be correct to apply for the biomass fuels and also rejected the submissions of the Appellant that the fuel cost escalation needs to be determined on the basis of parameters relevant to biomass fuels and the CERC formula is tainted by irrelevance. Further, added that the State Commission has not adverted at all to the issue that captive coal is irrelevant and it is also not market determined, if at all coal is to be considered, the Commission has not adverted to why it should be

captive coal and not coal in the open market as would be available to a buyer”.

accordingly, it directed this Commission to relook at the matter and formulate a revised escalation index.”

BEDA & Others requested to consider normative fuel price escalation of 5% for subsequent years over the base price in FY 2014-15.

Given the circumstances, the Commission decides to consider the following aspects for fixing the escalation percentage for subsequent years FY 2015-16 to FY 2018-19 :

- While there is no scientific basis for claiming 5% escalation, this claim is however supported by CERC's RE Regulations. In normal circumstances this Commission, as it has done in the pre remand order would have allowed this claim. But in the peculiar fact situation, it is unable to do so. It may be noted in this context that the Commission approved fuel price for biomass for FY 2019-20 @ Rs.3167.72 vide its order in O.P.No.75 of 2019 dated 10.02.2020. This order, having not been challenged, attained finality. Hence any escalation allowed on base price for 2014-15 shall not result in the fuel price exceeding the approved fuel price for FY 2019-20 for the past period. Hence to avoid any anomaly of fuel price for the past period exceeding that fixed for FY 2019-20, the Commission is left with no option other than limiting the escalation to such an extent as to keep the fuel prices below that fixed for FY 2019-20. Indeed the Hon'ble APTEL has upheld a similar

method viz, working the tariff backwards for FY 2004-05 based on the bagasse rate approved for FY 2009-10, vide APTEL's Judgement dated 20.12.2012 in Appeal Nos. 150, 166, 168, 172, 173 of 2011 and 9, 18,26, 29, and 38 of 2012.

- Further more, Jocil Ltd requested the AP DISCOMS vide letter dated 11.02.2021 for an extension of the power purchase agreement period which was completed on 25.03.2021 to supply power at prevailing pooled power purchase cost applicable to the state of Andhra Pradesh on the same terms and conditions as contained in the expired agreement. The pooled power purchase cost (Rs.4.02 per unit) is much less than the variable cost paid to Jocil during FY 2020-21 which is at Rs.5.01 per unit. This clearly shows that they were able to generate power at lower rates than those approved by this Commission.

Hence keeping the above aspects in view, the Commission decides to fix the escalation rate at 2% per annum.

Based on the escalation rate of 2 percent, the following fuel prices are approved.

Financial Year	Fuel prices (Rs/MT)
2014-15	2895.00
2015-16	2952.90
2016-17	3011.96
2017-18	3072.20
2018-19	3133.64

Variable cost per unit

23. The norms fixed by hon'ble APTEL in its Judgement dated 08.03.2022 vis a vis the norms approved by the Commission in its order dated 16.05.2014 and the fuel cost and escalation factor as determined in this order vis a vis previous order are given in the table below:

Sl.No	Parameter Description	As per the Present Order	As per the Commission's Order dated 16.05.2014
1	Station Heat Rate	*4500 KCal/Kwh	4200 KCal/Kwh
2	Auxiliary consumption	*10%	10%
3	Gross Calorific Value of fuel	*3300 Kcal/Kg	3100 Kcal/Kg
4	Fuel Price base year (FY 2014-15)	Rs. 2895 per tonne	Rs. 2843 per tonne
5	Fuel price escalation	2% Annual escalation	Fuel price indexation mechanism
6	Specific Fuel Consumption:	1.36 Kg/Kwh	1.35 Kg/Kwh

*As per Hon'ble APTEL's Judgement dated 08.03.22.

By considering the norms fixed by Hon'ble APTEL and fuel cost and escalation factors as determined in this order, the variable cost per unit is computed for Biomass power projects for the period from FY 2014-15 to FY 2018-19 and shown in the table below.

Financial Year	Variable Cost (Rs/Unit)
2014-15	4.39
2015-16	4.47
2016-17	4.56
2017-18	4.65
2018-19	4.75

Accordingly, the DISCOMS are directed to reconcile the bills of biomass power plants for FY 2014-15 to FY 2018-19 based on the above rates within three months from the date of this Order.

b) Fuel Cost Issue for Bagasse based Plants (Appeal 297)

24. In their earlier submissions, though the equivalent heat value basis bagasse price was arrived at Rs.1879 per ton, the bagasse developers claimed Rs.1950 per ton. In their latest submissions, they claimed the bagasse price of Rs.1950 per ton which was arrived at based on the equivalent heat value approach by considering the landed price of domestic coal (Singareni Collieries Company Ltd) Rs.3785 per tonne with GCV of 4371 Kcal/Kg for M/s.KCP Sugar and Industries Corporation Ltd. Vuyyuru, AP, which is a subsisting developer situated closest to the mines of SCCL. In response to the DISCOMS's query, SISMA submitted 2 Nos invoices of Nava Bharat Sugars and 4 Nos of KCP Sugars pertaining to FY 2014-15 regarding the sale of bagasse. In response to the information furnished by the DISCOMS on bagasse prices of different plants in the state of AP during FY 2014-15 to FY 2021-22 which was obtained from the Director of Sugar & Cane Commissioner, the SISMA filed an objection and stated that the Cane Commissioner had not sought any information from Nava Bharat Ventures Ltd, and it is not known how the prices in the letter given by the cane commissioner have been arrived at. SISMA also stated that the Cane Commissioner has no role, statutory or otherwise, in determining or ascertaining the prices of bagasse.

25. The DISCOMS have opposed the base coal price of Rs.2437 per ton put forth by the SISMA and instead, they indicated the same at Rs.1690 per ton based on the information stated to have been received from APGENCO to arrive at the bagasse price on equivalent heat value approach. The DISCOMS requested SISMA to submit the actual data like fuel cost, invoices and audited accounts rather than relying on impracticable examples since the determination of tariff is for the past period. In response to SISMA's submission of invoices of only two sugar mills, the DISCOMS stated that SISMA has furnished details of two plants Nava Bharat, and KCP sugars only, though the remaining sugar mills EID parry and SNJ Sugars were also running during that period. The DISCOMS also relied on the information they collected from the Director of Sugar & Cane Commissioner on bagasse prices of Chodavaram Cooperative sugars (Rs.1100/-per ton), EID-Parry (Rs.1522/- per ton), Nava Bharat (Rs.1600/- per ton). The DISCOMS also stated that Bagasse is a by-product, it could be available free of cost.
26. It is relevant to consider the observations of the Hon'ble APTEL in its judgement dated 08.03.2022 on Commission's pre remand order which are as under:

"The Commission in its order dated 16.05.2014 has determined Rs.1,551 per ton as the cost of Bagasse which is much higher than Rs.1,281 per ton as proposed in the consultation paper. The SISMA sought a price of at least Rs.1,950/tonne without substantiating the same with evidence in support of it which is 21 % higher than what was proposed by the Commission in the consultation paper. The broad

principles and approach adopted for determining variable tariff for particular control period must not be varied unless it is proved beyond doubt that the existing approach would be contrary to the principles laid down in the Electricity Act, 2003. The Commission has consistently been adopting the 'heat value approach' by linking Bagasse price to the price of landed cost of coal for thermal power plants also adopted by CERC. Also approach of linking Biomass price to arrive at the cost of Bagasse has been rejected by this Tribunal in its Judgement dated 20.12.2012 and approved the cost of fuel determined by the Commission for FY 2004-2009 based on heat value approach by linking bagasse price to the landed cost of domestic coal.”

The Hon'ble APTEL in its above noted judgment has directed this Commission to review the bagasse price based on the submission of the appellants & respondents with reference to the prevailing market price of the bagasse and the landed market cost of fuel, as available, for the coal based generating stations.

SISMA furnished the computations showing bagasse price at Rs.1950 per ton on the equivalent heat value approach by showing computations as stated supra.

27. The Commission carefully examined the submissions of the SISMA and the DISCOMS. As regards the information furnished by him, the Director of sugar and cane commissioner AP, informed the Commission that the Bagasse production and its domestic usage and sale will not come under the purview of AP Sugarcane (Regulation of supply and purchases) Act, 1961, and hence his information can not be relied on. The Commission in its earlier order has adopted the bagasse price of Rs.1551 per ton based on the draft orders of the

CERC applicable for AP which was subsequently revised to Rs.1553 per ton in final orders for FY 2014-15. The CERC finalised this price for FY 2014-15 by escalating with an indexation mechanism on the base value determined for FY 2012-13 which was based on a heat equivalent approach. APTEL directed to determine bagasse price on heat equivalent basis based on the landed market cost of fuel, as available, for the coal based generating stations. As noted earlier, SISMA submitted its claim of Rs 1950 per ton on a heat equivalent basis based on the coal received by KCP sugars from Singareni collieries. Hence, this is not meeting the criteria specified by Hon'ble APTEL and therefore it cannot be taken as a basis. The DISCOMS' submission in this regard is not supported by relevant documents and therefore the same also cannot be accepted. The Commission in the order dated 16.05.2014 fixed the bagasse price as per the CERC orders on the heat equivalent approach based on landed cost of coal for thermal Stations in AP. Therefore, the Commission decides to make a comparison of bagasse price arrived at on a heat equivalent basis by CERC with market prices of bagasse as per the order of Hon'ble APTEL in the matter of SISMA versus TNERC (Appeal No.199 of 2012) dated 4.9.2013. The relevant portion of the said order is extracted here under.

“It is important to notice that the Central Commission had specifically observed in the Statement of Reasons that the respective State

Commissions may consider the prevalent price of Bagasse if the same is higher than the price on equivalent heat value basis.”

The market prices of bagasse are not available directly as they are not regulated. Therefore, to ascertain the market price of bagasse, the Commission examined the invoices submitted by KCP sugars and Navabharath in respect of sales made by them to third parties in the market and these details are given hereunder.

Sugar Plant	Qty(MT)	Cost of Bagasse in (Rs./MT)	Total fuel cost(Rs)
K.C.P SUGAR	17.7	1825	32302.5
	18.41	1825	33598.25
	19.31	1825	35240.75
	19.05	1825	34766.25
Nava Bharat Ventures	1500	1650	2475000
	1500	1650	2475000
Total	3074.47		5085907.75
Weighted Average fuel cost (Rs/MT)			1654.24

As can be seen from the table above, the weighted average price is Rs.1654 per ton. This price directly cannot be allowed for calculating cost of generation of power for the following reasons:

- The invoice price represents the cost of various components such as package cost and storage cost over and above the net cost of bagasse. For using bagasse in generation, these costs need not be incurred.
- The sale price as furnished to the Commission will have a profit component which shall be deducted to arrive at the net value of bagasse used for power generation.

- The two mills have not furnished the invoices for the entire product sold by them in the whole year of FY 2014-15 and hence the prices so furnished are presumed to be selective.
- Despite the DISCOMS' request for full audited details of each sugar mill, only two mills have submitted a few invoices.

Therefore, to give due allowance for the above, the Commission decides to deduct 10 percent from the weighted average price of bagasse arrived at based on the invoices data furnished by the two mills as shown supra to arrive at the marker price of bagasse used in generation of power. Accordingly, the market price for bagasse is arrived at Rs.1489 per ton which is less than what the Commission has approved in its order dated 16.05.2014. Therefore, there is no need to revise the price of the bagasse already determined.

***c) Fixed Cost Issue as pleaded by the Appellant and the Respondents during the course of hearing
(Appeal 250 & Appeal 42)***

28. As regards the fixed cost issue of Biomass plants, the Hon'ble APTEL upheld the decisions of the Commission in its order dated 19.07.2014, and during the public hearing on 13.09.2022, Sri K.Gopal Chowdary, learned counsel for the Biomass Developers admitted that the issues of fixation of fuel price and escalation arise only in suo-motu O.P.No.32 of 2014 and that the other O.Ps. need not be adjudicated. Therefore, this issue does not require any interference by the Commission.

29. As regards the directions of Hon'ble APTEL to initiate a study for determining the normative parameters for Biomass and Bagasse based Power Plants and to frame Tariff Regulations, the Commission determined the tariff for the control period FY 2014-15 to FY 2018-19 and FY 2019-20 to 2024-25 for Biomass and Bagasse based Power Plants. The PPAs of most of these projects will expire during the control period FY 2019-20 to 2024-25. Even the projects having PPAs are also not operating. Hence the Commission would be able to know the actual situation like the running status of the projects and their remaining PPA period in the last year of the Control period only in FY 2023-24. Therefore, the Commission would initiate a study as per the directions of Hon'ble APTEL for determining the normative parameters for Biomass and Bagasse based Power Plants before the commencement of the next control period.
30. The OPs accordingly stand disposed of.

Sd/-
Thakur Rama Singh
Member

Sd/-
Justice C.V. Nagarjuna Reddy
Chairman

Sd/-
P. Rajagopal Reddy
Member