

**BEFORE THE GUJARAT ELECTRICITY REGULATORY COMMISSION
GANDHINAGAR**

Order No. 03 of 2022

Determination of Tariff for Procurement of Power by the Distribution Licensees and Others from Biomass based Power Projects and Bagasse based Co-generation Projects for Control Period from FY 2020-21 to FY 2022-23.

- Objector No. 1 : Gujarat Urja Vikas Nigam Limited
- Represented By : Mr. S.K. Nair and Mr. Hetal Patel
- Objector No. 2 : Gujarat Biomass Energy Developers Association
- Represented By : Nobody was present.
- Objector No. 3 : Shree Khedut Sahakari Khand Udyog Mandli Limited
- Represented By : Mr. C.B. Sonawan.
- Objector No. 4 : Shree Kedareshwar Khandsari Udyog
- Represented By : Mr. Ankur Kanala
- Objector No. 5 : Co-Generation Association of India
- Represented By : Nobody was present.
- Objector No. 6 : Amreli Power Projects Limited
- Represented By : Ld. Sr. Advocate Mr. Mihir Thakore and Advocates Mr. Saunak Rajguru, Mr. Tabish Samdani, Mr. Tarak Damani, Mr. Nanissha Narsinghani alongwith Mr. Ashish Mehta, Mr. Anup Pillai, and Mr. Krutarth Oza
- Objector No. 7 : Junagadh Power Projects Pvt. Limited
- Represented By : Ld. Sr. Advocate Mr. Mihir Thakore and Advocates Mr. Saunak Rajguru, Mr. Tabish Samdani, Mr. Tarak Damani, Mr. Nanissha Narsinghani alongwith Mr. Ashish Mehta, Mr. Anup Pillai, and Mr. Krutarth Oza
- Objector No. 8 : Bhavnagar Biomass Power Projects Pvt. Limited
- Represented By : Ld. Sr. Advocate Mr. Mihir Thakore and Advocates Mr.

Saunak Rajguru, Mr. Tabish Samdani, Mr. Tarak Damani, Mr. Nanissha Narsinghani alongwith Mr. Ashish Mehta, Mr. Anup Pillai, and Mr. Krutarth Oza

Objector No. 9 : State Load Despatch Centre - Gujarat
Represented By : Mr. Parag Parmar

CORAM:

Mehul M. Gandhi, Member
S. R. Pandey, Member

Date: 27/06/2022.

ORDER

1. Before we go to the facts of the matter i.e., the matter of Draft Order, 2020 for determination of Tariff for procurement of power by the Distribution Licensees and others from biomass-based power projects and bagasse-based cogeneration projects for the Control Period from FY 2020-21 to FY 2022-23, it is necessary to note here the background of the matter in brief.
2. The publication of and uploading of Draft Order 2020, dated 11.03.2020 in the Newspapers as well as on the website of the Commission for inviting comments/suggestions from the stakeholders/public were duly done.
3. In response to Public Notice, the Commission received objections and suggestions from some stakeholders.
4. The matter was heard on 13.07.2020 however, before a final order could be passed in the matter, the Coram was changed.
5. It is required to be noted that the Amreli Power Projects Limited, Bhavnagar Biomass Power Projects Pvt. Limited and Junagadh Power Projects Pvt. Limited had challenged the Tariff Order No. 01 of 2018 issued by the Commission by filing

Appeal No. 277 of 2021 and I.A. No. 1832 of 2020 before the Hon'ble APTEL. In the said Appeal, the Appellants had challenged the decision of the Commission with regard to GCV of Biomass fuel and related aspects already considered and decided by the Commission in its earlier Order. Further, the Hon'ble Tribunal decided and directed that the Commission to take a final decision after hearing all interested parties on all issues in accordance with law on the Draft Order published on 11.03.2020 expeditiously specifying clearly that the control period beginning 01.04.2020.

6. The Hon'ble Tribunal passed the Order dated 15.11.2021 in the aforesaid Appeal No. 277 of 2021 and I.A. No. 1832 of 2020 as under:

“

“8 In above view, with the consent of learned counsel on all sides, they having taken instructions, we dispose of this appeal by directing the State Commission to take a final decision, after hearing all interested parties on all issues in accordance with law on the draft order published on 11.03.2020 expeditiously, at an early date, preferably within two months of this judgment.

9. Needless to add the Commission will pass a clear express order for the control period beginning 01.04.2020. The parties will have the liberty to submit detailed written submissions before the Commission.

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7. Pursuant to directions of the Hon'ble APTEL, the Commission has issued Public Notice dated 25.11.2021 inviting the objections/suggestions for hearing on 07.12.2021. In response to the aforesaid notice, the Commission received objections and suggestions from the following stakeholders.

1. Gujarat Urja Vikas Nigam Limited
2. Gujarat Biomass Energy Developers Association
3. Shree Khedut Sahkari Khand Udyog Mandali Limited
4. Shree Kedareshwar Khandsari Udyog
5. Amreli Power Projects Limited
6. Junagadh Power Projects Pvt. Limited
7. Bhavnagar Biomass Power Projects Pvt. Limited

The Commission heard all stakeholders/parties who remained present during the hearing and considered the submissions on records.

8. The Commission issued Draft Order 2020 dated 11.03.2020 in which the Commission has proposed as under:

“In view of the above, the Commission proposes to determine the tariff for procurement of power by the Distribution Licensees and Others in Gujarat from biomass-based power projects and bagasse-based co-generation projects as under:

Parameters	Biomass based Power Projects with Water-Cooled Condensers	Biomass based Power Projects with Air-Cooled Condensers	Bagasse based Co-generation Projects
Tariff	Levelised Fixed Component of Tariff for 20 years for the projects commissioned during FY 2020-21 to FY 2022-23 (a) without AD benefit: Rs. 1.80/kWh (b) with AD benefit: Rs. 1.65/kWh	Levelised Fixed component of tariff for 20 years for the projects commissioned during FY 2020-21 to FY 2022-23 (a) without AD benefit: Rs. 1.91/kWh (b) with AD benefit: Rs. 1.75/kWh	Levelised Fixed component of tariff for 20 years for the projects commissioned during FY 2020-21 to FY 2022-23 (a) without AD benefit: Rs. 1.90/kWh (b) with AD benefit: Rs. 1.74/kWh
	Energy Charge/Variable cost FY 2020-21 – Rs. 4.13/kWh, FY 2021-22 – Rs. 4.25/kWh, FY 2022-23 – Rs. 4.38/kWh.	Energy Charge/Variable cost FY 2020-21 – Rs. 4.30/kWh, FY 2021-22 – Rs. 4.43/kWh, FY 2022-23 – Rs. 4.56/kWh.	Energy Charge/Variable cost FY 2020-21 – Rs. 4.12/kWh, FY 2021-22 – Rs. 4.24/kWh, FY 2022-23 – Rs. 4.37/kWh.

The Commission also proposes that other terms and conditions as decided by the Commission in Tariff Order dated 15.03.2018 continued for further control period up to 31.03.2023.”

9. The Commission had in the aforesaid Draft Order proposed to continue the levelised fixed charges components of tariff of biomass-based projects for 20 years as determined in the last tariff order dated 15.03.2018 for the projects commissioned during the next 3 years of the control period i.e., up to 31st March 2023. Thus, the Commission has proposed that the control period of the Biomass and Bagasse based projects commissioned during FY 2020-21 to FY 2022-23 are qualified for the tariff decided by the Commission in this Order.
10. The Commission has proposed that the levelised fixed tariff components of the Biomass and Bagasse based projects would be as per tariff determined by the

Commission vide Tariff Order No. 1 of 2018 dated 15.03.2018. So far as energy charge/variable charge for the projects commissioned during the period from FY 2020-21 to FY 2022-23 is concerned, the same shall be allowed with consideration of 3% escalation in the tariff of Biomass and Bagasse based power projects determined by the Commission in its Generic Tariff Order No. 01 of 2018 dated 15.03.2018. Accordingly, the energy charge/variable cost proposed for FY 2020-21 to FY 2022-23 are as stated in the table of the Draft Order, 2020.

11. Now we deal with various aspects which are necessary for determination of tariff for Biomass and Bagasse based Power Projects as under:

I. General Principles

(A) Control period

The Commission in its Draft Order, 2020 had proposed the control period of the Order from FY 2020-21 to FY 2022-23.

Suggestion of the Objectors:

No suggestions were received from the stakeholders on the control period.

Commission's Decision

In Order to give long-term regulatory certainty to the investors by keeping the control period link with/co-terminates with the financial years, the Commission has proposed the control period from FY 2020-21 to FY 2022-23. The Commission decides the control period for this Order is from 01st April, 2020 to 31st March 2023.

(B) Useful life of Plant

The Commission in its Draft Order 2020 had proposed useful life and tariff period equal to 20 years for the Biomass and Bagasse based co-generation Power Projects to be commissioned during FY 2020-21 to FY 2022-23.

Suggestion of the Objectors:

No suggestions were received from the stakeholders about the useful life of plants.

Commission's Decision

The Commission in its previous Tariff Orders dated 17.05.2010, 13.08.2013, and 15.03.2018 had considered 20 years as useful life as well as tariff period for biomass power projects and bagasse-based co-generation projects. Accordingly, the Commission decides to retain the useful life and tariff period as 20 years for biomass-based power projects and bagasse-based co-generation projects.

(C) The Commission in Draft Order 2020 dated 11.03.2020 proposed that the (i) levelized fixed component of tariff for 20 years for the project commissioned during FY 2020-21 to FY 2022-23 shall be same tariff as determined and decided vide Order dated 15.03.2018 for biomass-based power projects and bagasse-based co-generation projects. The same is stated below:

Parameters	Biomass based Power Projects with Water-Cooled Condensers	Biomass based Power Projects with Air-Cooled Condensers
Tariff	Levelised Fixed component of tariff for 20 years *(a). without AD benefit: Rs. 1.80 /kWh (b). with AD benefit: Rs. 1.65/kWh	Levelised Fixed component of tariff for 20 years *(a). without AD benefit: Rs. 1.91/kWh (b). with AD benefit: Rs. 1.75 /kWh

Parameters	Bagasse based Co-generation Projects
Tariff	Levelised fixed component of tariff for 20 years *(a). without AD benefit: Rs. 1.90 /kWh (b). with AD benefit: Rs. 1.74/kWh

Suggestion of the Objectors:

No suggestions have been received from the stakeholders about levelized fixed component of tariff for biomass-based projects. While for the Bagasse based co-

generation projects, some of the stakeholders have suggested to revisit the capital cost of the project.

Energy Charge

It is observed that the stakeholders have contended that 3% escalation considered by the Commission in the cost of biomass fuel is quite lower and without any supporting data/documents. Some of the objectors stated that the escalation in the biomass fuel be considered as 5.72% as considered by the Commission in earlier Order and accordingly, the fuel cost/energy charge for biomass projects for the control period starting from 01.04.2020 to be considered. On contrary, some of the stakeholders stated that the biomass price is reduced and escalation of 3% considered is higher.

Commission's Decision:

While deciding about the applicable escalation rate, the Commission has analyzed the historical as well as the current trends in various relevant items under the price indices, including the labour indices. It is observed from data for the most recent period that the escalation rate for such items in indices is in the range of 4% to 5%. Hence, Commission is of the considered view that the escalation rate of 5% shall be allowed on fuel price/energy charge of biomass and bagasse-based projects for the control period starting from 01.04.2020.

Parameters	Biomass Based Power Projects with Water-cooled Condensers	Biomass Based Power Projects with Air-cooled Condensers	Bagasse based Co-generation projects
Tariff	Energy Charge/Variable Cost	Energy Charge/Variable Cost	Energy Charge/Variable Cost
FY 2020-21	4.21	4.38	4.20
FY 2021-22	4.42	4.60	4.41
FY 2022-23	4.64	4.83	4.63

Capital Cost of the Projects

Some of the stakeholders submitted that the fixed charge considered by the Commission with consideration of costs of the projects of earlier year and parameters, there is substantial increase in the cost of the project after the Tariff

Order passed by the Commission due to increase in the costs of steel, cement, labour costs, civil work related costs etc. The same is not factored in the Tariff determination by the Commission and hence the Commission may revisit the same and decide about the fixed charge with consideration of incremental costs of the plant etc. associated as part of fixed charge.

Commission's Decision:

We have considered the submission made by the stakeholders. It is contended that there is an increase in costs of the project and also affecting the fixed charges receivable by the project developer. On verification of data pertaining to Price Indices (i.e., WPI and CPI), published by the Economic Advisor, Ministry of Industry, Govt. of India and Labour Bureau, Govt. of India respectively, it is observed that the variation in prices of steel, cement, labour related costs etc. had been nearer to 4% annually during FY 2017-18 to FY 2019-20. We, therefore, view that an escalation of 4% in fixed charges be allowed in the previous Generic Tariff Order dated 15.03.2018 for the control period of this Order. However, if any project developer desires to get the project specific tariff, it has liberty to approach the Commission for the determination of project specific tariff.

Parameters		Biomass Based Power Projects with Water-cooled Condensers	Biomass Based Power Projects with Air-cooled Condensers	Bagassee based Co-generation projects
		(Levelised Fixed Component of tariff)		
FY 2020-21 to FY 2022-23	Without AD Benefit	1.87	1.99	1.98
	With AD Benefit	1.72	1.82	1.81

(D) The Commission in its Draft Order 2020 dated 11.03.2020 proposed that variable cost/ energy charge for FY 2020-21 to FY 2022-23 of biomass-based power projects and bagasse-based co-generation projects with consideration of 3% escalation instead of 5% escalation allowed in the Tariff Order dated 15.03.2018 in respect of market conditions and in order to

protect the consumers interest for FY 2020-21 to FY 2022-23 as stated above.

Suggestion of the Objectors:

The Commission received objections on the energy charge/ variable charge proposed in the Draft Order from the following stakeholders:

- 1) Gujarat Biomass Association,
- 2) Abellon Energy Limited, Amreli Power Projects Pvt. Limited, Junagadh Power Projects Limited and Bhavnagar Biomass Power Projects Pvt. Limited
- 3) Gujarat Urja Vikas Nigam Limited.

12. The objections raised by Gujarat Biomass Association, Abellon Energy Limited, Junagadh Power Projects Pvt. Limited and Amreli Power Projects Limited and Bhavnagar Biomass Power Projects Pvt. Limited are stated as under:

- 12.1. The Biomass Association submitted that the Tariff Order No. 1 of 2018 consists of two-part tariff structure wherein it is specifically provided that the fixed cost for projects is different and variable cost i.e., energy charge, is different. The energy charge consists of provision that annual escalation of 5% be permitted to the existing biomass plant. Therefore, an escalation of 5% in variable cost after 31.3.2020 for the period till the fixation of variable cost for the subsequent Control Period determined by the Commission be continued. The Commission may declare that the plants which are in operation are eligible for variable/energy charge stated in Order No. 1 of 2018 with 5% escalation in variable cost after 31.03.2020 till the determination of new tariff by the Commission.
- 12.2. It is also stated that the Commission had not undergone extensive study for fixing various parameters for determination of tariff of biomass-based projects. No study of the current factors impacting biomass-based power project tariff done while proposing it in draft order for biomass-based project tariff.

- 12.3. The GCV of biomass considered as 4423 kCal per kg is quite higher than GCV of biomass procured by the power project developers which create significant difference and leading to under recovery in terms of fuel cost. Therefore, GCV considered and decided in Order No. 01 of 2018 should not be continued. Reliance on TERI Report for GCV is not correct. TERI Report consist of many errors on sampling, testing, moisture contents etc. Further, the GCV considered by the Commission is also not equal or par with the GCV determined by the Central Commission and other State Commissions. It is also necessary to consider the decision of Hon'ble APTEL in Appeal No. 170 of 2016 dated 18.2.2020 in this regard.
- 12.4. Based on above, the Association has submitted that GCV of biomass be considered as 3100 kCal per kg and SHR 4200 kCal per kg.
- 12.5. Amreli Power Projects Pvt. Ltd., Bhavnagar Biomass Power Projects Pvt Ltd. and Junagadh Power Projects Pvt Ltd. have also submitted that the Commission needs to consider the actual cost of supply of electricity as considered by various State Commissions with consideration of GCV of fuel, SHR of the plant, cost of biomass, provisions of National Electricity Policy (NEP), 2005 and also decision of Hon'ble APTEL in following cases:
- (i) Indian Biomass Power Association Vs. Ministry of Power, Government of India, (2015) SCC Online 165;
 - (ii) Raichur Bio Energies Pvt Ltd. Vs. KERC & Others, (2017) ELR (APTEL) 930;
 - (iii) 2013 CERC Report on Performance/Viability of biomass-based projects operating in country including the prevailing biomass price.
- 12.6. The objectors have suggested that the determination of GCV of fuel requires consideration of operational reality and peculiar characteristic of biomass fuel management system which requires to be considered as it is not possible to maintain uniform quality of GCV, storage and handling losses, presence of moisture, sand, and ash in fuel needs to be considered.

12.7. It is submitted that the SHR requires to be considered with variable and operational parameters of the plant. The SHR considered by the Commission based on Tariff Order, 2018 is incorrect and quite lower in comparison to SHR considered by other State Commissions, including Central Electricity Regulatory Commission. The objectors have relied upon the following decisions of Hon'ble APTEL:

- (1) Appeal No. 170/2016 in case of Biomass Power Producers Association Vs. TNERC;
- (2) Appeal No. 93 of 2012 in case of Harvest Energy Pvt Ltd. Vs. MPERC

12.8. Based on the aforesaid submissions, the Objectors have suggested that the Commission may redetermine the appropriate SHR, GCV of the biomass fuel and price of the biomass for the next Control Period.

12.9. It is also submitted to consider actual cost of supply of electricity for a realistic tariff determination under Sections 61 (d), 86 (1) (e) of the Act, Clause 6.4.1 of Tariff Policy, Clause 5.12.1 and 5.12.2 of National Electricity Policy, National Electricity Action Plan, NDC of Paris Agreement of 2015 and Gujarat Waste to Energy Policy 2016. In supports of the aforesaid submissions, the objectors have relied upon the decision of the Hon'ble APTEL in the case of Indian Biomass Power Association Vs. Ministry of Power, Govt. of India (2015) SCC Online APTEL 165 and made following submissions:

- Biomass fuel is voltaic in nature and its market in the country is unregulated.
- The price of fuel has increased substantially in the State beyond escalation indices.
- Variable charges for Biomass plant need to determine periodically.
- The price of biomass varies with demand of biomass fuel by power project and other industries vis-s-vis availability of biomass fuel.
- The fixation of price of biomass requires State wise Study to be conducted from time to time to determine the price realistically.

- Tariff Policy 2016 provides for determination of tariff with due consideration of practicable and reality of the concerned generating station.

12.10. It is submitted that the Biomass power projects are in nascent stage and needs to be promoted with consideration of larger public interest. The objector relied upon the decision of the Hon'ble APTEL in case of Raichur Bio-Energies Pvt. Limited Vs. KERC, (2017) ELR (APTEL) 903 and submitted that the biomass fuel Management is done through highly unorganized way and does not have any benchmark and intermediates like coal-based power plants. The GCV of fuel and adoption of the SHR value should be accurate, authentic, practical, realistic and representative manner. It is submitted that Biomass plants be exempted from the DSM norms as part of promotional measures.

12.11. It is submitted that CERC has constituted the committee who visited various Biomass power plants in the country and conducted the study on availability of various types of biomass, its GCV, SHR of plants, performance/viability of the biomass-based power projects operating in the Country and submitted its report in 2013 have made following recommendations:

- Not possible to maintain uniform quality of GCV with consideration of moistures and sand while collecting, adulteration during handing and sizing and processing before feeding in the boiler.
- Storage and handing losses in case of biomass fuel is about 7% to 10% for year.
- Presence of the moistures, sand and ash in the fuel must be considered.
- The net calorific value of biomass was varied between GCV of 3000 Kcal/kg to 4400 Kcal/Kg on air dried basis.
- The moistures variation affects performance of boiler and also viability of the plant.

12.12. The GCV adopted in Order No. 1 of 2018 was unrealistic and unreasonable and cannot be continued on the following grounds:

(1) The GCV of biomass fuel considered by the Commission in its Orders of 2010 and 2013 are quite lower than GCV of biomass considered in 2018 Order.

- There is no reasoning or explanation or justification or consideration of higher GCV of the biomass in 2018 Order.
- The Commission has not dealt with the issue with regard to increase in biomass GCV in 2018 Tariff Order.
- There has not been intervening factor which can reasonably be seen to increase GCV of biomass.

(2) Comparison of GCV of domestic coal with biomass GCV.

There is no reason GCV of biomass higher than domestic coal as coal is mined, crushed, washed and supply to the power plant through highly organized mechanism. Coal quality is predictable and classified as per well recognized indices and grades. While sources of biomass are residue of the agricultural waste and not subjected to any standardization with respect to quality of fuel. This impact on combustion characteristics in boiler, steam injected in turbine and ultimate in the power generation.

(3) The GCV adopted in Tariff Order No. 01 of 2018 cannot be continued as it is in contravention of law regarding GCV of biomass fuel decided by Hon'ble APTEL in its (i) Judgment dated 04.05.2016 in the case of MP Biomass Developers Association Vs. MPERC in Appeal No. 211 of 2015 and (ii) APTEL's judgment dated 18.02.2020 in the case of Biomass Power Producers Associations Vs. TNERC.

12.13. Tariff Order No. 01 of 2018 has adopted TERI Report which was prepared on unscientific methodology as stated under:

TERI has carried out study in six districts of Gujarat. The Commission has adopted mechanically the report of TERI and considered the GCV of biomass fuel as 4423 Kcal/kg.

(1) Sampling error

Considering the unscientific non-representation of biomass use as fuel by the biomass power producers. The following sampling errors consists in TERI reports:

- (a) Biomass sample collected at farm level which is not represent the biomass fuel fired in the boiler. There is significant loss in GCV of biomass fuel during storage handling and transportation phases. Losses due to natural decomposition and losses during the storage and handling were not considered. Sample collection error as it is unrepresented of biomass fuel used by biomass producers.
- (b) The sample size of biomass fuel is only 16 to 40 gram and kept in paper envelope and it was bound absorb the moistures from the samples. The samples need to be collected from various locations across the State to arrive reasonable GCV figures.
- (c) The sample needs to be maintained with its integrity and it must be tested soon after collection from the collection point. The moistures contain in cotton stalks is high about 30-40% when uprooted from field. Moistures of biomass fuel at farm level is not captured.
- (d) Sample collected over the course of short field visit and therefore fail to take into account seasonal variations in moistures biomass fuel. The sample was tested after some time lead to variance in moistures content of fuel used in the plant.
- (e) The degradation of biomass fuel under storage during non-seasonal and natural decomposition not considered.
- (f) TERI has approached only farmers and not biomass producers when deciding the GCV etc.
- (g) The distance of 25 KMs is considered is not correct. The biomass fuel may be transported as far as 50 KMs also.

- (h) TERI has considered the cost built up during single season and that too at time of survey not considered the availability of biomass during various seasons.
- (i) TERI has not made cross reference for validating GCV of biomass considered by the Commission in its earlier orders as well as CERC report.
- (j) There is sampling error with regard to sample collection analysis in case of Junagadh and Amreli and Bhavnagar as stated below:

Junagadh District:

Considered only 4 crops for its analysis i.e., ground nuts, cottons, wheat and Bajra and not considered crops such as Cummins, onion, isabgul castor etc.

Survey done in 2 out of 9 talukas

Only 3 bio-coal industries were visited and data collected though there are 20 bio coal industries.

Amreli District:

Out of 236434 farmers, only 13 farmers were surveyed belongs to 3 out of 11 talukas for sampling.

2 Oil mills visited out of 30 Oil Mills for sampling.

PGVCL executives and officers accompanying TERI team, therefore, research is questionable.

Bhavnagar District:

Out of 1887133 farmers only 11 were surveyed belongs to 4 out of 10 talukas for sampling.

Major crops are cotton groundnuts and Garlics but not considered Garlic.

There are three bio-coal industries and only two were visited by TERI team.

TERI Report is silent on the GCV of sugarcane bagasse and not undertaken sampling and testing sugarcane before recommending for any figures for GCV of sugarcane.

- (2) TERI Report did not accurately represent moistures content biomass figures Moistures.

The report is purportedly relied upon moistures loss values reported in literature in biomass stakeholders such as Pellete Manufactures in other States. The moistures contents in the biomass are not correctly considered in TERI report and it affect the GCV be considered at higher level. CERC has in its report observed that moistures content may be 50% high in biomass.

- (3) Not consulted biomass power producers, the primary stakeholders i.e., biomass producers and GEDA.
- (4) GCV of biomass fuel considered relying on TERI Report having various errors with regard to GCV and SHR.

12.14. It is submitted that SHR determination requires consideration of variable and operational parameters. SHR of plant is directly related with efficiency of the plant because as SHR increases, the efficiency of plant is reduced. Similarly decreasing SHR increase the efficiency of plant and resultantly fuel saving. The SHR of plant is dependent on number of operational and variable factors and cannot be determined based on design parameters of plant alone. The SHR considered in Tariff Order 2018 is unrealistic. Committee appointed by CERC has recommended in its 2013 Report that SHR of 4200 Kcal/kg with consideration of operating margin of 10-12 over design heat rate. The SHR figures adopted in Tariff Order No. 01 of 2018 are *ex-facia* unrealistic and unreasonable on following reasons:

- (a) The SHR of 3950 Kcal/kg adopted in Tariff Order No. 01 of 2018 is unachievable and lead to higher cost.
- (b) In aforesaid submissions, the Objectors relied upon the decision of Hon'ble APTEL in case of BPPA wherein Hon'ble APTEL has set-aside SHR of 3840 kCal/kWh adopted by TNERC and considered 4200 kCal/kWh. The Hon'ble Tribunal has recorded that SHR of the plant dependent on number of uncontrollable factors like sand, moisture, ashes content etc. and State Commission ought to have adopted at least the figure decided in its Judgement.

(c) The objectors have also relied upon the Judgement dated 18.02.2013 of the Hon'ble APTEL in Appeal No. 93 of 2012 in Case of Harvest Energy Pvt. Limited Vs. MPERC and submitted that the State Commission has determined SHR taking into consideration of CERC Tariff Regulations 2012 and any other material that the State Commission may consider and give a reasoned order without influenced by its findings in the impugned Order.

(d) The Commission had in its discussion paper dated 24.05.2016 had proposed to retain SHR at 3950 kCal/kWh for plants with Air cooled condenser. Against the same GEDA has proposed SHR to be 4126 kCal/kg in line with SHR in the State of Rajasthan. However, the Commission has considered SHR for Air Cooled Condenser based power plants at 3950 kCal/kg, which is not correct approach.

13. GUVNL has submitted that the scope of present proceedings pertains to principal applicable to tariff determination for biomass and bagasse-based power projects. The objectors have not challenged the Tariff Order dated 15.03.2018 of the Commission governing control period up to 31.03.2020 for biomass and bagasse based generating power projects. The Commission has proposed extension of tariff effective from 01.04.2020 as stated in Draft Order dated 11.03.2020. It has also raised the objections against the proposed energy charge/variable cost and submitted that the Objectors biomass power projects have raised preliminary issues on two elements of tariff, i.e., (i) Gross Calorific Value of Biomass and (ii) Station Heat Rate

13.1. It is submitted that the Objectors have challenged the said Order No. 1 of 2018 dated 15.03.2018 by filing the Appeal No. 277 of 2021 wherein the Hon'ble APTEL passed Order dated 15.11.2021. The present proceedings are for control period from 01.04.2020 and it is not in any manner remand proceedings to consider the validity of tariff determined in the Order dated 15.03.2018 passed by the Commission. The tariff determined under the Order dated 15.03.2018 has not challenged directly or indirectly in the present proceedings by the objectors. The objectors submitted briefly as under:

- The objections with respect to GCV and SHR are unsubstantiated as these issues have been settled in previous Orders of the Commission.
- There is no justification in change of norms of SHR and GCV.
- The GCV parameters have been conclusively decided by this Commission with consideration of reports submitted that TERI after taken into account the objections of all stakeholders.
- TERI report is based on detailed study on the matter concerning to biomass electric generating units in the State of Gujarat, availability of biomass its cost in six districts of the State of Gujarat including those of the objectors.
- Each of three objectors have acted on the basis of said determination and scheduled electricity effectively from 09.02.2018 without raising any further issues on GCV parameters determined by the Commission and there was no appeal against it. The tariff determined vide Order dated 15.03.2018 based on GCV parameters and SHR parameters was not challenged by the objectors at relevant time and they have entered into supplemental PPAs dated 06.07.2018 and 28.08.2018 based on the above determined and decided parameters without any reservation or condition.

13.2. It is submitted that the reliance on CERC Regulations and Other State Commissions' Orders regarding GCV parameter is misplaced. CERC has determined the parameters on PAN India basis. The cost and expenses claimed by the generators have to be subjected to prudence check and should be reasonably justified. The generation of biomass projects is predictable as the same has been conclusively held by the Commission in its previous generic Tariff Orders dated 17.05.2010, 08.08.2013, and 15.03.2018. SHR parameters relates to operation of the machines and therefore, it is the responsibility of the generators to install the machines and maintain SHR as per the specifications. Non-achievement of SHR due to its own inefficiency is not a reason to consider SHR as unrealistic and unreasonable.

13.3. It is submitted that the different tariff parameters considered by the Commission without considering the specific parameters of individual power projects. The cost cannot be based on any one generator parameters and is taken on the basis of

reasonable cost of the projects with consideration of safeguarding the consumers' interest. The tariff admissible to generator as a regulatory activity with consideration of admissible cost determined by the Commission with prudence check and with test of reasonableness which needs to be verified with prudence check by the Commission, while allowing tariff or cost of generation. In support of aforesaid submissions, reliance is placed upon the decision of the Hon'ble Supreme Court in the case of West Bengal Electricity Regulatory Commission V/s. CESC Limited (2002) (8) SCC 715.

- 13.4. It is submitted that the generators cannot be allowed to claim the actual cost incurred by them. The prudence checks on the different parameters like GCV of biomass, its cost, SHR is essential and need reasonableness. The promotion of renewable projects like biomass does not mean that the claim of the generators is accepted and they are allowed undue tariff at the cost of consumers.
- 13.5. It is submitted that the Commission in its earlier Order No. 5 of 2010 dated 17.05.2010, Order No. 4 of 2013 dated 08.08.2013 and Order No. 1 of 2018 dated 15.03.2018 has considered the objections/suggestions of the stakeholders and held that the generation of electricity based on biomass fuel is predictable and can be scheduled on day ahead basis. The said Orders were not challenged and hence, attained finality.
- 13.6. It is submitted that GCV of the biomass is a subject matter of specific study conducted by TERI and based on it submitted detailed reports to the Commission. On the said Report, the Commission has invited objections/suggestions from the stakeholders and after considering the objections/suggestions, the Commission has passed Order dated 09.02.2018 in the matter of "Study on Biomass availability and determination of Biomass Prices in six districts of Gujarat" carried out by TERI as independent consultants by the Commission. On TERI report, the objections /suggestions were made by Abellon Limited were considered by the Commission.
- 13.7. It is submitted that the expert body TERI was appointed by the Commission for undertaking the study in compliance to the decision of the Hon'ble APTEL dated 02.12.2013 passed in Appeals No. 132 of 2012 and 133 of 2012 was upheld by the

Hon'ble Supreme Court vide its Judgement/Order dated 05.07.2016 in Civil Appeal No. 1973-1974 of 2014. The GCV and price of biomass considered by the Commission is based on recommendation of TERI who has undertaken independent and scientific field study in the subject matter. The perusal of TERI report established the following aspects:

- (a) The study was to include structured database with respect to biomass availability in the State.
- (b) On-site visits, obtaining information from stakeholders on the gross availability of biomass, the type of agricultural residues, cropping pattern, seasonal variations, current utilization patterns, etc. in the districts of Amreli, Bhavnagar, Junagadh, Bharuch, Vadodara and Sabarkatha information relating to utilization of biomass for other purposes, cost of collection, processing, transportation, storage and loading cost per metric tonne of bio mass, seasonal availability and delivered cost of biomass etc.;
- (c) The methodology adopted by TERI for arriving at various conclusions has been set out with independent reference to all six districts; and Biomass energy potential, the climate, agricultural scenario, crop production scenario had been considered with reference to each of the six districts and biomass resource potential and biomass cost analysis had been undertaken, with independent reference to all six districts.
- (d) TERI has derived the price of various biomass available in the different districts of the State and also determined various parameters like its GCV, moisture content, dust/sand content etc. as a part of the aforesaid study and compiled it in their report.
- (e) In the report, TERI had recorded that biomass fuel like Cotton Stalk, Castor Stalk, Groundnut Shell, Pigeon Pea and Paddy Husk available in different districts of the State depending upon the cropping pattern of the particular district.

- (f) TERI had also recorded that different biomass available in different districts having different usages and availability of surplus biomass in such districts.
- (g) The GCV of the five major agricultural waste/fuel, stated in the report as under:

Sample Details	Gross Calorific Value (Cal/gm.)
Cotton stalk	4472
Groundnut Shell	4315
Pigeon pea stalk	4473
Castor stalk	3876
Paddy husk	3737
Weighted Average	4423

- (h) The GCV was considered by TERI by undertaking scientific study consists of (i) collection of samples of biomass from the field of farmers, (ii) Test the biomass in the NABL accredited laboratory and rely on Lab report stating the moisture content and GCV of the particular Biomass fuel and there cannot be any reason to doubt the veracity of such testing or the GCV reported in the Lab Report.
- (i) TERI report has duly taken into account various factors like moisture loss, handling loss, crop patterns, supply chain mechanism etc.
- (j) In TERI Report the issues of storage, handling loss, weight loss due to moisture and dust/sand particles in the biomass considered. The moisture content would also reduce with storage which is a normal exercise in the biomass fuel and for which purpose, storage costs and working capital inclusive of one month stock is also provided. The aforesaid aspects considered by the Commission in its Order.
- (k) Therefore, the contentions of the Objectors that TERI Report has not considered the relevant materials is not correct.

13.8. It is submitted that the Commission in its Order dated 15.03.2018 has considered SHR of 3800 kCal/kWh and 3950 kCal/kWh for Water-Cooled condenser and Air-

Cooled condenser respectively. The said Order was not challenged by any entity and attained finality. The Commission has in its Generic Tariff Order dated 17.05.2010 has considered the SHR as 3800 kCal/kWh at the time of execution of PPAs by GUVNL with the objectors Amreli, Junagadh and Bhavnagar Biomass Projects. The said Orders had not been challenged by the above generators and it attains its finality.

- 13.9. It is submitted that the Judgement dated 02.12.2013 in Appeals No. 132 and 133 of 2012 of the Hon'ble APTEL pertaining to biomass fuel cost was upheld by the Hon'ble Supreme Court wherein the issue of SHR was not under challenged and there was no decision by the Hon'ble APTEL on the issue of as earlier decision of the Commission. SHR is related to machine operation and it is not uncontrollable which is basic consideration in Order dated 02.12.2013 in Appeals No. 132 and 133 of 2012.
- 13.10. It is submitted that the remand matter from the Hon'ble Supreme Court to the Commission is not with respect to SHR but it is limited to redetermination of biomass fuel cost only. Therefore, the applicable SHR for the biomass projects shall be based on Order dated 17.05.2010. The objectors have accepted the Orders of the Commission and signed supplemental PPAs dated 22.05.2018 and 31.07.2018 by adopting the tariff determined by the Commission. Hence, the contention of the Objectors Biomass Power Projects is not valid.
- 13.11. It is submitted that the generic tariff with normative parameters such as GCV, fuel, SHR etc. have governing basis for tariff determination of regulated entities. The reliance placed by the objectors upon the Hon'ble APTEL's judgment in the case of Indian Biomass Power Association V/s. Ministry of Power, GoI, (2015) SCC Online APTEL 165 in O.P. No. 3 of 2012 is not applicable in this case as the said decision was in respect to determination of cost of biomass fuel prevalent in the State on periodic basis.
- 13.12. It is submitted that the issue raised in the present matter by the objectors on fuel cost does not support by the aforesaid decision as the said decision does not direct for the consideration of actual cost as claimed by the objectors but to consider

biomass price fixed in a realistic manner. The Hon'ble Tribunal had directed that State specific study to be conducted for determination of biomass availability and price which was already carried out by the Commission and finally decided vide its Order dated 09.02.2018.

- 13.13. It is submitted that reliance being placed upon the APTEL's Judgment dated 31.07.2017 in the Case of Raichur Bio Energies Pvt. Limited V/s. KERC and others, (2017) ELR APTEL 930 is not applicable in the present case as in the said Judgment the issue was pertaining to price of biomass fuel whereas the issue raised by the objectors in the present case is with regards to GCV and SHR of biomass considered by the Commission in its earlier Order dated 15.03.2018. In the said Judgement, the Hon'ble Tribunal has recommended to conduct the study based independent test result of represented samples in the State which has been adopted in the present case by the Commission. In the said Order, the reliance of SHR and GCV provided by State Nodal Agency was not considered by KERC and relied upon the decision of the Hon'ble Tribunal in Appeal No. 211 of 2015 pertaining to GCV of biomass considered by KERC.
- 13.14. It is submitted that the claim of the objector that SHR needs to be considered with consideration of operational realities. Objectors have not provided material in support of their claim in earlier tariff determination process. They had neither challenge the SHR decided by the Commission nor objected and executed the PPAs with GUVNL. SHR relates to physical capacity of the machine to convert the heat rate. There is neither subsequent event to justify the increase in SHR for the objectors nor such claim been raised.
- 13.15. It is submitted that the generators operating inefficiently are not incentivized by the norms being lowered to their actual inefficient level which is an intent of the objectors. The energy charge determined vide Order dated 15.03.2018 by the Commission with consideration of norms of SHR and GCV adopted by the objectors by signing of supplemental PPAs. The said Order was passed by the Commission in the remand proceedings pursuant to Order dated 05.07.2016 passed by the Hon'ble Supreme Court. Hence, the claim of the objectors that the norms are not

realistic or not commensurate with the promotion of renewable energy is not proper.

13.16. The objector Bhavnagar Power Projects Pvt. Limited during the hearing held on 05.06.2018 in Petition No. 1244 of 2012 sought adoption of order dated 22.05.2018 for Bhavnagar Power Projects as determined and decided in case of the Amreli Power Projects and Junagadh Power Projects and the same was allowed by the Commission vide its Order dated 31.07.2018. Thus, the Bhavnagar Biomass projects has also accepted the Order dated 31.07.2018 and executed the Supplemental PPAs with GUVNL. The fuel cost increase provided in the Order has not been objected by the Objectors.

13.17. It is submitted that the contention of the objectors that biomass fuel-based generation is uncontrollable and unpredictable is not correct. The Commission held that the generation from biomass projects is predictable, and the said order attained finality, wherein it was decided that ABT mechanism is applicable to such projects. It has applied since 2010 and the objectors have never raised any objections in this regard. The Commission in its earlier Generic Tariff Orders dated 17.05.2010, 08.08.2013 and 15.03.2018 decided that biomass generation is predictable and they shall be required to give schedule on day ahead basis.

13.18. It is submitted that the objectors have violated the scheme and objectives of the Electricity Act, 2003 and policy framed thereunder. The objectors have raised various issues on afterthought for an ulterior or extraneous purpose of mixing up deliberate act of giving, mis-declaration and making undue gain at the cost of GUVNL, distribution licensees and consumers of the State. The contention of the objectors that biomass power projects are at nascent stage is not correct as they had completed nearly 10 years. Moreover, Abellon had only made vague assertions without providing any substantiation for the GCV or price of biomass claimed in the present proceedings and objectors also failed to provide any supporting evidence/documents. The mere assertions of the generators may not be base for determination of tariff. CERC report/Regulations are on PAN India basis, generic in nature and indicative. It cannot be invoked as mandatory

application to be adopted by State Commissions when the State Commissions had undertaken the specific study to determine applicable parameters.

- 13.19. It is submitted that CERC report of 2013 is not applicable for the tariff determination in 2020 or 2021. The State specific study had been conducted by the Commission in 2017 and considered it in 2018. Hence, the contention of the objectors to adopt CERC report is not correct. If the contention of the objectors is to be accepted than there is no reason for determination of tariff for each States separately, in such case the same tariff can be applied in all States. The GCV of biomass depends on nature and type of crop and crop pattern which varies from State to State. Thus, reliance on CERC report is not correct and permissible. It is submitted that the State Commission are not bound by the Regulations or report of the Central Commission. The CERC report/determination of tariff is an indicating or ceiling tariff parameters and not binding tariff parameters. TERI report has dealt with various issues pertaining to the loss, moisture, varying crop patterns etc. which was adopted by the Commission. CERC report is not based on State specific data.
- 13.20. It is submitted that CERC has determined single GCV for determination of generic tariff and therefore, the claim that there is no uniform GCV does not change the facts that there can be only single GCV for determination of tariff is not correct with consideration of State issues. Hence, the contentions of the objectors are not valid and acceptable.
- 13.21. It is also submitted that the GCV data/basis considered in the Order dated 15.03.2018 was adopted from the Order dated 09.02.2018 and the same was not challenged by the objectors. Hence, the objectors cannot merely proceed on premises and conjectures and the determination of tariff cannot be based on mere assertion of the generators or developers. There is no supporting material as to why GCV determined earlier is wrong. The biomass power plant operators are required to arrange the biomass and scheduled energy in such a way that there is no variance in generation from the scheduled.

- 13.22. It is submitted that the biomass power plant developers are required to arrange the biomass fuel before the same being fed into the furnace/boiler and steam generated from it fed to turbine for generation of electricity. The biomass power producers ought to verify and know the GCV of biomass fuel in the storage area at the time when the quantum of generation is being scheduled for ensuing day and therefore the biomass power producers can know the quantum of generation to be scheduled based on available fuel and the GCV of the fuel.
- 13.23. It is submitted that the Commission has already held that biomass generation is predictable and accordingly, the biomass generators knew exactly the quantum of generation based on quality of fuel available with them, well before the day of generation and therefore can decide the quantum to be declared available or schedule of generation. The above issue raised by the objectors is an afterthought when the action is taken by GUVNL against the objectors for gamming, misdeclaration etc. The aforesaid contentions make it clear that the entire reason and purpose for such issues by the Objectors is only to avoid the consequences of actions taken by GUVNL against the Objectors for gamming, mis-declarations, etc. The Objectors had never challenged or raised such issues of alleged fuel management despite the consistent orders of the Commission that the biomass generation is predictable. The Objectors are raising such issues as a cover up to the gamming and unlawful gain indulged by the Objectors which is the subject matter of the Petition No. 1888 of 2020.
- 13.24. It is submitted that the purpose of re-determination of fuel cost periodically is recognized by the Hon'ble APTEL. The GCV was lower in the previous tariff orders is not a reason to claim as the same is required to be continued, when there is a detailed study report of an expert body on the basis of which GCV has been determined in the year 2018, cannot be ignored. When there is specific subject matter study carried out by TERI in pursuant to the Orders of the Hon'ble Tribunal and the Hon'ble Supreme Court and on the premise that fuel issues have been considered on a continuous basis and the same parameter cannot be continued for 25 years. If the contention of the Objectors is correct with regard to GCV of biomass etc. relying on earlier Order dated 17.05.2010 then there was no need for re-determination of tariff for the Objectors as it already been determined in Order

dated 17.05.2010. The stand of the Objectors is that consideration of fuel issues on a continuous basis can only be in favour of the generators and the revision of norms may result into reduction in tariff should not be considered and therefore in such cases, the old norms should be continued.

13.25. It is submitted that the objectors have raised the objections with regard to SHR which had been provided in Tariff Order 2010 and continued. In this regard, it is submitted that the objectors are seeking the GCV of the biomass of the aforesaid Order of 2010 and objected the State specific study report of biomass carried out by TERI as per the Orders of Hon'ble Tribunal and Hon'ble Supreme Court. On one hand, where the Station Heat Rate (which is a norm for the equipment and machinery and does not change with time particularly for the objectors who have already installed their power project), the Objectors have raised objections even though the same SHR which had been provided in 2010 was continued but on other hand, the Objectors are seeking to rely upon earlier biomass tariff orders for GCV despite the fact that the fuel issues are to be adjusted on a continuous basis and the present figures of GCV is based on a State specific study carried out by an expert body and considered by the Commission, which is as per the decision and direction of the Hon'ble Tribunal. In this premises there is no reason for any fresh determination of GCV figures when a detailed study was conducted in 2017 and considered in 2018.

13.26. It is denied by GUVNL that GCV of Biomass cannot be higher than coal. The GCV of biomass is based on the lab tests. The difference between coal and biomass GCV is not relevant for consideration. The alleged predictability, stability etc. of the coal does not mean that the GCV of Biomass has necessarily been lower than that of coal. The quantum of generation by use of biomass fuel cannot be predicted, as in the case of coal for a definitive scheduling. It is the generators' responsibility to source the fuel, ascertain the GCV of the fuel to be used in generation in the ensuing day, decide on the quantum to be generated and based thereon the quantum to be scheduled for the supply of electricity and in terms thereof to ensure generation and supply of electricity.

- 13.27. It is submitted that the comparison of GCV determined by the Central Commission or other State Commissions is not correct. The GCV varies from State to State and based on the factors within the State. When a detailed Study has been carried out by TERI, with specific conditions prevalent in the State of Gujarat and with reference to the fuel source available for the projects, the same cannot be ignored on basis that the Central Commission or other State Commissions have provided for different GCV. The objectors, biomass power producers have executed supplemental PPA based on Orders dated 22.05.2018 and 31.07.2018 passed by the Commission. Therefore, the objectors are not eligible to deviate from it.
- 13.28. It is submitted that the Objectors have not challenged the Tariff Order 2018 and therefore, it is not permissible to challenge the same in the present proceedings. The judgments of the Hon'ble Tribunal have not been interpreted correctly by the Objectors. There is no direction in the said judgments for all State Commissions to adopt the GCV of 3100 Kcal/Kg as sought to be claimed by the Objectors. It is submitted that the decision of the Hon'ble Tribunal in Appeal No. 211 of 2015 was related to State of Madhya Pradesh and not a direction to all other State Commissions to adopt the same parameters. The Hon'ble Tribunal had proceeded on the basis that the State Commission despite an earlier remand had not considered the test report of the Deputy Commissioner, NRED, Bhopal and had approved the GCV of 3100 kcal/kg. However, the same was related to the State of Madhya Pradesh and the GCV varies from State to State.
- 13.29. It is submitted that in the present case, there is a detailed study done by TERI and the State Commission has decided the GCV based on the said report which is specific to State of Gujarat. The Hon'ble Tribunal's decision and the reports therein are related to period prior in time and when there is current data available, the State Commission could not ignore the same. It is submitted that in Order dated 18.02.2020 in Appeal No. 170 of 2016 which relates to Tamil Nadu State, the Hon'ble Tribunal has only directed the Tamil Nadu Commission to look into the issue afresh. In regard to GCV, it was noted that Tamil Nadu Commission had adopted the data and figures as per previous order. Thus, unlike the said case wherein the GCV was adopted from earlier orders, in the present case, there is a State specific study conducted and samples tested in a NABL accredited lab which

also provided for the moisture levels and captures correct value of GCV corresponding to moisture contents also.

13.30. It is submitted that the decisions of the Hon'ble Tribunal relied upon by the Objectors adopting the GCV of 3100 kcal/kg based on Central Commission's Report is for the Tariff Orders related to 2012-14 and 2016 are different particularly when the entire basis of such decisions was that the State Commission had decided GCV without any study. It is denied that the Hon'ble Tribunal had settled the issue of GCV and there cannot be any variation to GCV of 3100 kcal/kg even if the State specific study provides for a different GCV. Such assertion of the Objectors is contrary to the various other decisions of the Hon'ble Tribunal. Even otherwise, the parameters for tariff determination particularly for fuel related issues are determined based on the prevailing circumstances which can be different for different States and for different times.

13.31. It is submitted that the Objectors are also raising fresh issues and aspects which were not raised in the submissions before the Commission during the proceedings of the Order dated 09.02.2018. The Commission had invited objections and comments on the Report and also conducted public hearing and thereafter the Order dated 09.02.2018 has been passed by the Commission.

13.32. It is submitted that the samples are unrepresentative of fuel used by biomass power producers is not correct. The study has to be an independent study based on biomass fuel available in the State and the same cannot be based on the biomass producers who would be incentivised to demonstrate lower GCV in order to claim higher tariff. The project developers need to ensure the availability of biomass for the project with proper planning. TERI had in fact consulted many entities as noted in Para 9.7.2 of Order dated 09.02.2018. TERI report has considered the storage and handling of biomass, loss in quantum and GCV has been considered after collection from fields, transportation to lab etc. It is submitted that on one hand, the Objectors have claim that TERI Report does not consider storage and handling of biomass impact on GCV. The Objectors also stated that TERI Report state that the biomass sample was tested after many days of collection from field affected GCV of biomass. The Commission at Para 9.7.2 of its Order dated

09.02.2018 has noted the process and has allowed the interest on working capital for one month stock and therefore the sample sent for testing is similar to the biomass used for generation. There are multiple samples collected which is clear from TERI Report, lab reports and the Order dated 09.02.2018 passed by the Commission.

13.33. It is also denied by GUVNL that the sample does not represent the special or temporal variations. The samples were taken of different crop and the varying crop patterns has been accounted for. It is submitted that the study was conducted in six districts including the districts where the Objectors' projects are located. There is no basis to claim that the size of sample or number of samples is unrepresentative. The contention of the biomass project developers that the samples must be tested immediately on collection is not correct. It is admitted that the biomass is collected and stored and it is not the case that the biomass is used directly for firing after collection. It is also submitted that improper handling would lead to higher GCV figure and also compromise the integrity and lower the GCV figure whereas proper handling would allow for higher GCV. It is submitted that the study was conducted in FY 2017-18 and the Report considered the issue of moisture and the storage. It is submitted that on one hand, the biomass project developers claim that the moisture considered in the samples is too low as the samples were tested too late and should have been tested immediately on collection and on other hand, they have claimed that the report fails to consider the degradation of biomass fuel during storage which makes clear that the said issues has been raised without any clear methodology of testing of samples. Any study and report has to be based on samples and certain conditions and which are to be considered as representative.

13.34. It is submitted that the generators are responsible for proper fuel management, handling and storage. The power producers cannot shrug off its own responsibilities in regard to biomass and ensuring proper handling to maintain GCV. The claim of GCV as fired without any responsibility for the loss of GCV due to the power producers improper handling is not valid. The GCV has to be considered on State specific study and the allegations against an Institute such as TERI are unwarranted and intended to hide their own inefficiencies and defaults.

The GCV cannot be based on the biomass power producers own data which might be based in favour of the generator. The reliance on Central Commission's Report of 2013 instead of Gujarat specific report of 2017 is misconceived.

- 13.35. It is submitted that the accusation made against TERI's independent research is not valid. It is submitted that the GCV cannot be determined on the basis of the generators claim when the Generators have every incentive to provide a lower GCV to avail higher tariff. Further the biomass GCV is dependent on the biomass availability in different part of the State of different types and not related to the power plant. The Central Commission's Report has not considered the actual availability of biomass in the State of Gujarat as CERC's Report was related to the entire country and had referred other parameters.
- 13.36. It is submitted that the Commission had issued Order dated 09.02.2018 with regard to biomass availability in the State and related aspects after issuance of TERI Report inviting the comments and suggestions thereon and after hearing the parties and considering objections and suggestions of the parties. Based on the tariff determined by the Commission adopting the GCV figures as stated in the TERI report, the biomass project developers has signed the Supplemental PPAs with GUVNL at the tariff decided by the Commission.
- 13.37. Further, it is submitted that there is no purpose of conducting multiple studies by multiple agencies to determine the State specific GCV. The Objectors are misinterpreting the judgement in Appeal No. 211 of 2015 as the Hon'ble Tribunal had not directed for consideration of studies by multiple agencies but had only referred to the same as being available. The judgment in the Appeal No. 211 of 2015 was based on the fact that despite the study, the Madhya Pradesh Commission did not adopt the parameters. The Hon'ble Tribunal has in its decision referred to by the biomass project developers, has noted that there should be a State specific study for biomass fuel and the same has been done in the present case. The study was based on samples collected from different parts of Gujarat.
- 13.38. It is submitted that the contention of the objectors that SHR is unrealistic or unreasonable or improbable is not correct as the non-achievement of SHR norms

by the biomass developers due to their inefficiency is not a reason for re-determination of SHR. It is submitted that SHR has been fixed from the year 2010/2011 and the Objectors had not only accepted the tariff based on such SHR in year 2010/2011, the objectors did not challenged SHR while seeking re-determination of tariff and also accepted the Tariff based on such SHR and executed Supplementary PPA in 2018. Therefore, the Objectors had no objections or issues with SHR and such issues are being raised as an afterthought.

13.39. In Order No. 04 of 2013 dated 08.08.2013, Abellon Pvt. Limited, at present controlling shareholder of Amreli, Junagadh and Bhavnagar biomass projects had stated that the Station Heat Rate of 3800 kCal/kWh can be achieved by 10 MW power plants. Now, the Objectors sought an increase in tariff who fails to maintain operational and financial parameters and operate the plants inefficiently. It is upon the generators to maintain and operate power plants in the most efficient and economical manner including ensuring that SHR is of the requisite value. The SHR is an aspect related to the performance of the machines in the power plant.

13.40. It is submitted that if the generators are able to operate the power plant efficiently and have better SHR value, the benefit of the same will be an efficiency gain to the Generators. In such a case, it is better conversion value of the heat from the fuel used. Similarly, if the generators having higher SHR, the loss of the same will be inefficiency loss to the Generators. The Hon'ble Tribunal had approved the consideration of 4000 kcal/kwh and rejected the claim of higher SHR based in the Central Commission. The consideration of 4000 kcal/kwh is similar to the SHR of 3950 kcal/kWh determined by this Commission. The CERC report is not reflective of the scenario in Gujarat which is clear from the fact that the Objectors had never challenged SHR while seeking re-determination of tariff.

13.41. It is submitted that it is the responsibility of the Generator to undertake prudent fuel management and it is denied that there can be any benefit given to the biomass project developers for its failure to fulfil its obligations. CERC's Report of 2013 is based on data whereas the scenario in the present case is not the same. Further, the said Report is based on the discussions with biomass power

producers cannot be accepted in the present case. The incentive for such biomass power producers is to exaggerate the SHR.

13.42. It is submitted that when SHR has been accepted and not challenged by the biomass producers, there cannot be any reason to vary the SHR. It is submitted that when the Commission has determined SHR which has been accepted by the generators and no challenge was made to the said SHR, the alleged issues of practical realities being raised without any supporting documentation and only on basis of CERC report cannot be accepted. If the parameters of CERC are to be adopted mechanically, there was no reason to provide a separate role for the State Commissions. While fixing normative SHR, it has to be kept in mind that the plant operates efficiently and at the same time, the consumers are not burdened with inefficient operation of plant.

13.43. It is further submitted that SHR is standard technical parameter relating to the performance of the plant. SHR is about the plant capability and there is no reason as to why the SHR needs to be modified as opposed to SHR determined on 07.02.2011 which had not been challenged even by project developers. In fact, it was admitted by Abellon by making the submissions during the Proceedings of Tariff Order dated 08.08.2013 that SHR of 3800 kcal/kwh was achievable by 10 MW power plants and the Objectors' power projects are 10 MW also. Therefore, the reliance placed upon other State Commissions is not appropriate when the power plant capacity being considered therein is not clear and on the other hand, the Objectors' own power plants are capable of achieving SHR 3800 kcal/kwh as per the submission of the Abellon itself. It is submitted that no reason has been provided by the Objectors for change in SHR. The comparison of SHR relying on CERC and other State Commissions is not correct. The same may be based on different size of power plants as contrary to the present case of Objectors who are operating 10 MW power plants. Similarly, the circumstances of the objectors are different than the case in Appeal No. 170 of 2016 as the said Appeal relates to period of 2016.

13.44. It is submitted that the Biomass projects of Objectors were commissioned on 01.03.2011, 31.03.2012 and 22.05.2011 respectively and the reference made to

the State Commissions and Central Commission etc. relate to the subsequent period. The Central Commission's Report 2013 is neither relevant to prior period nor to the present period. The determination of tariff cannot be considered based on the year 2013 or year 2016 when the power project was commissioned in the years 2010-2012 and period under consideration is 2021. It may be considered that SHR in the 2012 Regulations which was closer to the commissioning of the Objectors' power plants only provided SHR of 4000 kcal/kwh which is similar to 3950 kcal/kwh provided by the Commission. The alleged fuel issues in other States of the country considered for determining higher SHR cannot be the basis for Gujarat particularly when the biomass projects in the State had neither raised any issue on SHR in the past nor challenged the determination of SHR of 3950 kcal/kwh.

13.45. It is submitted that SHR mainly depends upon the turbine and boiler efficiencies, which in turn vary with the capacity of the plant with higher capacity plants having better efficiencies which was also noted by Karnataka Commission while determining the Station Heat Rate of 4000 kcal/kwh approved by the Hon'ble Tribunal in Appeal No. 91 of 2015 and also SHR of 3950 kcal/kWh determined by the Commission. In fact, the Karnataka Commission had approved SHR of 3900 kcal/kwh for air cooled condenser vide Order dated 11.07.2014. It is submitted that SHR determined by the other Commissions cannot be a reason for change in SHR for already commissioned projects. The Commission has considered SHR in its Tariff Orders dated 17.05.2010 and has been kept constant from the Order dated 07.02.2011 based on which the Objectors' Power Projects were commissioned and never challenged the principles of expectation, regulatory certainty, consistency and predictability requires that the same SHR be continued for the Objectors.

13.46. Based on the aforesaid submissions, GUVNL has contended that the relief sought with regards to GCV and SHR by the objectors is not admissible and acceptable.

Commission's Decision

14. Now we deal with the issues one by one. The contentions of some of the objectors that the biomass-based electricity generation is not predictable and schedulable on day ahead basis due to characteristic of biomass and its GCV are varying in nature. The contentions of GUVNL are contrary to it stating that the generation of biomass power projects set up earlier is provided that they are having must run status and generation of energy of such plant can be scheduled on day ahead basis. Moreover, existing plants are carrying out activities since FY 2011-12 onwards. The said issue raised as some of the plants doing gaming and enriching them against which GUVNL issued recovery of such amount. Hence, the said issue is an afterthought.

14.1. We note that the Commission has passed earlier Order No. 05 of 2010 dated 17.05.2010, Order No. 04 of 2013 dated 08.08.2013, Order No. 1 of 2018 dated 15.03.2018 which provides that the biomass and bagasse-based co-generation projects are having must run status. The energy from such generation can be predictable and required to carry out schedule on day ahead basis in accordance with the Intra-State ABT Orders of the Commission. The relevant portion of Order No. 5 of 2010 dated 17.05.2010 is reproduced below:

“6.8 Merit Order Dispatch/ Must Run Status

The Commission has considered that although biomass-based cogeneration projects will need to follow scheduling and dispatch schedules as per the Intra-State ABT order of the Commission, Merit Order Dispatch principles will not be applied to such projects on account of small size of plants and promotional aspect of renewable sources of energy.

Suggestion of the objectors

M/s. Abellon Clean Energy Limited suggested that biomass based project developers below 10 MW should be exempted from scheduling as per CERC guidelines. The GUVNL and SLDC have suggested that merit order principle should in accordance with scheduling and dispatch procedure and the same is to be followed through UI mechanism. The project should not be allowed Must Run Status, otherwise it will affect the energy accounting.

Commission's Decision

Power generation from biomass is firm in nature, as such the Commission has proposed that such plants are required to follow scheduling and dispatch procedures as per the Intra- State ABT Order. The Commission has also decided that the merit order dispatch principle will not apply to such plants as the size of plants is small and such renewable sources of energy need to be encouraged. In view of above, it is decided to retain the same clause as per discussion paper."

The relevant portion of Order No. 04 of 2013 dated 08.08.2013 are reproduced below:

"f. Applicability of merit order despatch principle

The Commission in its discussion paper has proposed that biomass-based power projects and bagasse based co-generation projects irrespective of the plant capacity shall be treated as 'MUST RUN' power plants and shall not be subjected to merit order despatch principle.

Suggestions of the Objectors

M/s. Gujarat Urja Vikas Nigam Ltd. (GUVNL) suggested that the biomass-based power projects and bagasse based co-generation projects should be subject to merit order despatch principle.

Commission's Decision

Considering the nature of power projects, their size and as a promotional measure the Commission decides to give "Must Run Status" to the biomass-based power projects and bagasse-based co-generation projects. Further, merit order dispatch principle shall not be made applicable to such projects.

The relevant portion of Order No. 1 of 2018 dated 15.03.2018 are reproduced below:

"f. Applicability of merit order despatch principle

The biomass power and bagasse-based co-generation projects irrespective of the plant capacity shall be treated as 'MUST RUN' power plants and shall not be subjected to merit order despatch principles.

Suggestions of the Objectors

M/s Gujarat Urja Vikas Nigam Ltd. (GUVNL) requested the Commission to clarify that the "MUST RUN" status for Biomass and Bagasse based co-generation projects shall be subject to grid availability and not applicable in the case of system constraints/congestion. M/s ACEL has supported the Commission's proposal to extend 'MUST RUN' status and exemption from the merit order despatch principle.

Commission's Decision

Like other RE technologies the Biomass based power projects and Bagasse based co-generation projects are provided with MUST RUN status and exempted from the principle of Merit Order Despatch. However, the project operator should follow the instructions of the grid operator in view of overall security of the grid."

- 14.2. The aforesaid decision of the Commission in respect of the above issues have not been challenged by any persons/project developers and the same have attained its finality. Therefore, the contention of the objectors against it is not permissible for the power projects which had been commissioned during the control period of the aforesaid orders and operating at present.
- 14.3. Some of the biomass project developers have challenged the Order dated 17.05.2010 before the Hon'ble APTEL and signed the PPAs with GUVNL and contended to revisit the tariff specifically energy charge decided in the Order and stated in PPAs for the energy generated and supplied from the biomass power projects to GUVNL. The Hon'ble Tribunal has decided the said matters and directed the Commission to re-determination of tariff specifically energy charge for biomass projects. The aforesaid Order of the Hon'ble Tribunal was also challenged before the Hon'ble Supreme Court by GUVNL wherein the Hon'ble Supreme Court has upheld the decision of Hon'ble APTEL and remanded matter

back to the Commission for deciding the tariff as per the directives/decision of the Hon'ble APTEL. In the aforesaid matters, there was no issue of the non-predictability of biomass-based generation from the biomass power plants. Hence, the contentions of the objectors that energy generation from biomass power projects is not predictable and they are exempted from day ahead scheduling is not accepted and hence, rejected.

14.4. M/s. Abellon Limited has filed Petition No. 1455 of 2014 before the Commission wherein it was prayed that biomass-based project developers be exempted from ABT mechanism. However, the said prayer of the M/s Abellon Limited was rejected by the Commission and directed that it is expected to follow prudent fuel management practice and schedule based on biomass availability generation. Further, it is also recognized that the power producers have an option to reschedule its generation if necessary. Thus, exemption from ABT mechanism is not granted by the Commission. Therefore, the contentions of the objectors that the generation from the biomass power projects are not predictable and scheduling and dispatch provisions is not applicable to existing plants who are having PPAs with the licensees, is not accepted and hence, rejected.

14.5. Now we deal with the issue raised by the biomass power producers in respect of the actual cost of supply needs to be considered for a realistic tariff determination by the Commission. It is submitted by the objectors that biomass fuel supply market is unorganized and does not have benchmarks for intermediators like coal supply. Sourcing of biomass is link with the farming / agricultural activity. Moreover, the GCV and cost of biomass also varying and in such case the biomass power plant experience difficulties in sustaining their operation at normative plant operation. Further, the fixation of biomass price would require State wise study conducted from time to time to determine the price realistically. In support of the aforesaid submissions, reliance being placed upon the following decision of the Hon'ble APTEL's judgments:

- (i) Indian Biomass Association Vs. Ministry of Power, GoI, (2015) SCC online APTEL 165;

- (ii) Raichur Bio Energies Pvt. Limited Vs. KERC and others (2017) ELR (APTEL) 930.

The Objectors have also relied upon the provisions 61(d), 62, 64, 86 (1) (e) of the Electricity Act, 2003, National Electricity Policy, Tariff Policy, National Action Plan on Climate Change, Paris Agreement 2015.

- 14.6. Per contra GUVNL has contended that the actual cost of supply of electricity need to be considered for realistic tariff determination is not correct. The decision of the Hon'ble Tribunal also not in favor of the objectors. The Commission has passed Orders from time to time and determined and decided the tariff of biomass-based projects which were accepted by the biomass project developers and signed the PPAs with GUVNL. After execution of PPAs, it is not permissible for the biomass power producers to demand actual cost of supply to be considered for tariff determination.
- 14.7. We note that the some of the Objectors have relied upon the decision of the Hon'ble Tribunal in the case Indian Biomass Association Vs. Ministry of Power, GoI (2015) SCC online APTEL 165. It is necessary to refer the relevant portion of the aforesaid Order which is reproduced as under:

"8. We find that the biomass fuel market in the country is an unregulated market. The price of biomass fuel varies with the demand and supply position. Besides power generation, biomass fuel is also used in various industrial applications as a substitute of fossil fuel. Industry uses biomass fuel as a substitute for the fossil fuels. The price of biomass varies with demand of biomass fuel by power projects and other industries vis-à-vis the availability of biomass fuel.....

.....

10. We find that in case of conventional thermal power projects the actual fuel cost is a pass through in tariff determined under Section 62 of the Electricity Act, 2003. However, cost of fossil fuel is notified by the supply companies which are mostly Public Sector Undertakings or by the Government of India. For imported fuel also international indices/benchmarks are available. However, the biomass fuel market is unregulated and the fixation of price of biomass would require statewise study to be conducted from time to time to determine the price realistically.

17. Accordingly, this Tribunal deems it appropriate to give following directions to the State Commission for future for determination of tariff for biomass based power projects :-

i) The State Commission shall determine two part tariff i.e. fixed and variable charges in respect of biomass based power projects instead of a single flat energy tariff. The fixed charges may be determined for the life cycle of biomass power projects. However the variable charges may be determined periodically on the basis of prevailing biomass fuel price which may be fixed after carrying out a State specific study. The fuel price may be determined annually through an independent study. Attentively fuel price may be determined for the first year of the Control Period of say 2 to 3 years with percentage annual escalation linked to appropriate indices for the subsequent years of the Control Period. At the end of the Control Period, the fuel price may be re-determined for the first year of the next Control Period.

ii) Under the Electricity Act, 2003, the generating companies have freedom to supply electricity to the customers of their own choice. The State Commissions have to provide non-discriminatory open access on payment of the requisite charges. Therefore, the biomass based generators who have not entered into a Power Purchase Agreement with the distribution licensees of the host State should be given non-discriminatory open access for the transmission & distribution system to enable supply of power to third parties within or outside the State subject to the provision of the Act and the Regulations. It has been pointed out by the Learned Counsel for MP State Commission that the State Government had given some incentives under the State Govt. Policy to renewable energy generators provided such generators supply energy within the State. Therefore, such biomass projects who are claiming the incentive under the State Govt. policy could not claim inter-State open access."

14.8. In the aforesaid decision, it was decided and directed by the Hon'ble Tribunal that the State Commission has determined two-part tariff i.e., the fixed charge for the life cycle of the biomass projects and variable charge may be determined periodically on the basis of prevailing biomass fuel price with State specific study. Thus, in the said Order it was decided and directed by the Hon'ble Tribunal that the energy charge of the biomass projects be based on the biomass price decided with State specific study.

14.9. The Commission has appointed TERI as per the decision and direction of the Hon'ble APTEL and the Hon'ble Supreme Court to carryout study and submit report with regard to availability of biomass in the State, its GCV and price and other related parameters etc. The Commission has published the report of TERI,

invited comments and suggestions thereon and thereafter, heard the stakeholders and decided the parameters for biomass vide its Order dated 09.02.2018. The said Order has not been challenged by any parties. Hence, the same attained finality. Therefore, the objections of the biomass power producers in this regard are not acceptable and rejected because the energy charge decided by the Commission is based on the TERI report wherein the biomass availability, GCV of biomass and its cost were considered by the Commission.

14.10. The objectors have also relied upon the judgement dated 03.07.2017 of Hon'ble Tribunal in Appeal No. 91 of 2015 with IA Nos. 140/2015 and 560/2016 in the case of Raichur Bio Energies Pvt. Limited Vs. KERC (2017) ELR APTEL 930 dated 31.07.2017. The relevant portion of the said Order is reproduced below:

“.....

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

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

“V Fuel Cost

Commission's Views and Decision:

The suggestions of MNRE, Konark Power and PRESPL to adopt CERC norms for bio-mass plants are noted. It is seen that the Committee appointed by CERC was unable to come to any conclusion on the price of biomass in the absence of reliable data. They had therefore recommended that the fuel pricing mechanism for the biomass power plants should be based on an independent survey to be conducted by the concerned state nodal agencies at the beginning of every year. Further, the Commission appreciates the position that the cost of biomass varies from state to state and within each state from district to district. The CERC norms, therefore, can only be a guiding factor in matters like biomass prices.

Regarding the suggestion of linking the price of biomass to the e-auction price of coal, the Commission is of the view that at the present juncture this is not a feasible suggestion in view of the major changes contemplated in the coal sector which would have a bearing on the availability and price of coal for the power sector. Alternatively, the suggestion for linking the cost of biomass to the prices of agricultural produce needs detailed analysis to establish the correlation between the price of biomass and the price of different kinds of agricultural produce. It also requires assigning weights to

various agro products, as biomass plants use fuels of various types, which is a complex exercise and cannot be taken up immediately.

In the light of the above, the Commission has to arrive at a normative price of the fuel with the available information. The Commission notes that representatives of farmers who had participated in the earlier public hearing held on 15.5.2014, had stated that they were being paid Rs.1800/- to Rs.2000/- per ton for the fuel delivered at the site of the RE projects. The farmers who participated in the present proceedings from the same project areas have claimed that they are being paid Rs.2500/- per MT for the delivered fuel and requested the Commission to increase the same to Rs.3500/- to Rs.5000/- per MT. There were other statements made by them which revealed their desire to have higher prices determined for biomass rather than the actual price being paid to them. The farmers also could not produce any vouchers or receipts in proof of their having received the amounts paid to them. In the above circumstances, the Commission is of the view that there is no substantial change in the business environment in the past 5 months, after the issue of the Order dated 10.7.2014, which calls for any major revision of the fuel price fixed by the Commission at Rs.2000/- per MT. However, the Commission decides to adopt the fuel price of Rs.2000/- per MT fixed in its order dated 10.07.2014 with an increase of Rs.100/- for the base year FY-15. Further, the Commission, keeping in view the requests made by the Stakeholders proposes to provide an escalation of 5.72% per annum for the fuel cost."

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

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

The Appellant has also relied on the judgement of this Tribunal in case of M/s Junagadh Power Projects Pvt. Ltd. Vs. Gujarat Urja Vikas Nigam Ltd. vide judgement dated 2.12.2013 in Appeal Nos. 132 and 133 of 2012. After perusal of the said judgement it can be seen that this judgement is differentiated with the present case as this judgement was in light of fixation of fuel cost by the Gujarat State Commission for a period of 20 years with 5% annual escalation and there was abnormal increase in fuel price after a specific time period. This Tribunal without going into the details what should be price of the fuel, remanded the matter back to the Gujarat State Commission to review/re-

determine the prices of the fuel. In the present case the matter is different, the price of fuel has been fixed by the State Commission for the control period from 1.1.2015 till 31.3.2018 with escalation factor of 5.72% and the Appellant is seeking the re-determination of price at the initial level itself citing the same as inadequate and without any sufficient operational back up data/experience. Thus, the said judgement is not applicable in the present case.

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

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

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

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

“ii. Commission’s Views and Decision

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

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

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

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

Regulatory Commission	SHR Kcal/ kWh	GCV kcal /kg	Specific fuel consumption kg / kWh	Order
Andhra Pradesh	4200	3100	1.35	Dated 16.05.2014
Tamil Nadu	3840	3200	1.20	Draft consultative paper issued in October 2014
Maharashtra	3800	3611	1.05	Draft order dated 06.05.2014
Gujarat	3950	3400	1.18	Dated 08.08.2013
Madhya Pradesh	3800	3600	1.05	Dated 03.05.2013

Rajasthan	4300 during stabilisation and 4200 thereafter	3400	1.27 during stabilisation and 1.24 thereafter	Dated 23.07.2014
CERC	4200 for travelling grate boiler 4125 for AFBC boiler	3100	1.35 for travelling grate boiler 1.33 for AFBC boiler	Dated 15.05.2014

The Commission notes that the SHR varies from 3800 kcal/kWh to 4300 kcal/kWh with an average of 3996 kcal/kWh. The GCV varies from 3100 kcal/kg to 3611 kcal/kg with an average of 3314 kcal/kg. The norms adopted by CERC are 4200 kcal/kWh for travelling grate boiler and 4125 kcal/kWh for AFDC boilers. In respect of GCV, CERC have adopted a norm of 3100 kcal/kg. According to the Indian Institute of Science, Bangalore as cited in the Report of the Committee constituted by CERC, the weighted average GCV of biomass in Karnataka is 3576 kcal/kg. The Commission in its recent order dated 10.7.2014 has approved SHR of 3900 kcal/kWh and GCV of 3300 kcal/kg for air cooled condenser based biomass projects. Further, the TERI Study commissioned by this Commission in 2012-13 had indicated a GCV of 3040 kcal/kg and SHR of 3740 kcal/kWh to 4300 kcal/kWh in respect of fuel used by two plants in Karnataka. Thus, the Commission is of the view that the SHR mainly depends upon the turbine and boiler efficiencies, which in turn vary with the capacity of the plant with higher capacity plants having better efficiencies. However, while determining generic tariff the Commission has to follow a normative SHR and based on the data available, the Commission is of the view that SHR of 4000 kcal/kWh is reasonable. Hence, the Commission approves a SHR of 4000 kcal/kWh

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

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

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

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

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

However, the State Commission while deciding the above issue has taken cognisance of TERI report available with it and also discussed the orders/regulations of other State Regulatory Commissions, CERC and its own order dated 10.7.2014. The State Commission in its order dated 10.7.2014 has approved SHR of 3900 kcal/kWh and GCV of 3300 kcal/kg for air cooled condenser based biomass projects. The same has been accepted by the stakeholders. While keeping GCV at the same level the State Commission has relaxed SHR norm by 100 kCal/kWh.

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

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.....

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

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

14.11. In the aforesaid decision, the Hon'ble Tribunal had considered the aspects related to biomass price. However, the objectors have not specifically objected the price of biomass fuel. They have objected about GCV and SHR of the plant considered by the Commission. The Hon'ble Tribunal has also recommended the study based on independent test results of represented sample. The Hon'ble Tribunal has not accepted the request of the appellant with regard to its reliance on the judgement dated 29.05.2015 in Appeal No. 211 of 2015 and judgement dated 04.05.2016 in Appeal No. 144 of 2013 of the Hon'ble APTEL wherein the issue of GCV and SHR decided by KERC desire to adopt by the Appellant and not rely on the report of the nodal agency of the State of Madhya Pradesh. The Hon'ble Tribunal also upheld the decision of KERC vide its judgement in Appeal No. 211 of 2015. This Commission had also appointed TERI to carry out the study of availability of biomass in the State, its GCV and price. Therefore, the objections of the objectors relying of aforesaid decision to allow the actual cost of generation from biomass projects is not acceptable when specific study was carried out by independent agency TERI and submitted its report for the aforesaid parameters.

14.12. The objectors have also claimed SHR of the power plant, relying on the CERC reports and other SERC's Regulations/Orders is not accepted on the following reasons:

- (i) CERC report is generic in nature based on the various biomass plants of the country.
- (ii) The SHR of the objector's biomass power plants situated in the State of Gujarat is consist of tariff as per the Orders of the Commission dated 17.05.2010, 08.08.2013, 15.03.2018, 22.05.2018 and 31.07.2018 and based on which the PPAs have been signed by them. The SHR considered

and decided in aforesaid Orders of the Commission never been challenged by the biomass power producers and attained its finality.

- (iii) The inefficiency of the power plant operators is not a ground for allowing higher SHR.
- (iv) There is no documentary evidence in support of the aforesaid claim submitted by the Biomass Power Producers. Hence, the contention of the objectors i.e., Biomass Power Producers is not accepted.
- (v) The Biomass Power Producers have signed PPAs and supplementary PPAs as per generic tariff orders issued by the Commission.

15. Now we deal with the issue raised by the objectors that GCV of biomass considered by the Commission need to be revisited based on the CERC report 2013 and Orders of Hon'ble APTEL and other State Commissions' Regulations and Orders. We note that GCV data/basis considered by the Commission in its Order dated 15.03.2018 for the control period was upto 31.03.2020 is relying on TERI report who had carried out State specific biomass study with regards to GCV, availability of biomass, price of biomass etc. with scientific approach. On the aforesaid report, the Commission has invited comments and suggestions from the stakeholders and heard the parties including the objectors, biomass power producers and thereafter passed Order dated 09.02.2018 and decided various parameters consist of GCV of biomass available in the State of Gujarat. The said report is based on State specific study carried out by TERI on behalf of the Commission. The said report attained its finality as it is not challenged before the Higher Forum. Therefore, the parameters which were stated in the report and decided by the Commission in its Order dated 09.02.2018 are inconsonance with the decision of the Hon'ble APTEL to which the biomass power producers are relying upon the judgments as stated in above para.

15.1. The objectors have placed its reliance on CERC reports of 2013 which consist of the Inter-State generators data and decided the common parameters of biomass power generation i.e., GCV of the biomass, cost, SHR of the plant etc. The biomass availability in the State depends upon the nature and type of crop and crop pattern which vary from State to State. The State Commissions are required to verify the availability of biomass in the State and its cost. The determination of

GCV of biomass and its cost by CERC in its reports is an indicative or ceiling parameters. The GCV of biomass is based on the State specific data. The CERC in its reports stated the single GCV for the determination of generic tariff which means there is uniform GCV and it does not change or vary from State to State.

- 15.2. The Commission has appointed TERI an expert body to undertake specific study for biomass generation in Gujarat for verifying different aspects. TERI has carried out the study and submitted its reports consists of the lab reports by NABL accredited lab with regards to GCV of the different biomass. The Commission has also invited comments and suggestions on it and after hearing and considering the submissions of the parties decided the biomass parameters and cost. Based on report of TERI the Commission has also determined the tariff for the biomass projects vide its Generic Tariff Order dated 15.03.2018, Order dated 22.05.2018 in Petitions No. 1113/2011 & 1114/2011 and Order dated 31.07.2018 in Petition No. 1244/2012. The same have attained finality.
- 15.3. The CERC reports do not specify about technical parameters of the State and also not contemplate that when the above parameters are determined and decided by the Commission with consideration of the State specific study etc. Further, if the parameters stated in the CERC reports are only be considered in that case there is no purpose to determine the tariff of biomass, bagasse based generating projects by every SERC. In that situation the tariff determined by the CERC be only adopted. It is against the mandate of the Electricity Act, 2003 where in SERC are mandated to determine the tariff of generating company supplying in the State. It is a fact that the types of biomass, its GCV, moisture content, cost of such biomass vary from State to State and sometime from district to district also. Therefore, whenever any scientific study carried out by the agency like TERI appointed by the State Commission, it is incorrect to ignore and not consider the reports of such agency with regards to agriculture waste. The CERC reports is not State specific biomass parameters and it is also against the decision of Hon'ble APTEL which state that State specific parameters need to be decided with specific study. Similarly, the reliance of the other SERC's Orders and Regulations in this regard are also not applicable as per the Hon'ble APTEL's

decision because the availability of different type of biomass, GCV and its cost are State specific. The CERC reports is a guiding factor and not binding to the SERC. Hence, the contention of the objectors, biomass power producers is not acceptable and hence rejected.

15.4. The contention of the biomass objectors that the GCV figure adopted by the Commission in its Order dated 15.03.2018 based on TERI report dated 09.02.2018 is unrealistic and unreasonable and are not acceptable on following reasons:

- (i) The biomass power producers (objectors) have never challenged the aforesaid orders consists of the TERI report and GCV parameters / cost. Hence, it attained finality.
- (ii) The biomass power producers viz., Amreli, Junagadh and Bhavnagar who have signed the PPAs with GUVNL in their case the tariff has been decided by the Commission with consideration of GCV and other parameters vide Order dated 22.05.2018 with regard to energy charge. Similarly, in case of Bhavnagar Biomass Power Projects the tariff is re-determined and decided by the Commission with regard to energy charge vide Order dated 31.07.2018. The said Orders had not been challenged by the biomass power project developers.
- (iii) The biomass power producers i.e., Amreli, Junagadh and Bhavnagar Power Project Developers have executed supplemental PPAs with GUVNL on 28.09.2010, 26.11.2010 and 11.08.2011 relying on the tariff determined by the Commission vide aforesaid Order wherein the Commission has considered the GCV of the available biomass and its cost relying on the TERI report.
- (iv) The aforesaid issue raised by the objectors i.e., biomass power producers after laps of long time of Orders passed by the Commission its Order and signing of supplemental PPAs which attained finality. It is also observed that some of the biomass project developers have approached the Commission by challenging the gamming levied against them by GUVNL/SLDC where is an issue of GCV of biomass and its cost, non-

predictability of generation etc. issues were raised. These issues beyond the scope of this proceedings. Hence, the same is not accepted.

(v) The objectors have not substantiated their claim with supporting documents in this regard.

(vi) The reliance of earlier tariff order 2010, 2013 and 2018 of the Commission is also not the ground to state that the GCV figures adopted by the Commission is not correct. In fact, the biomass power producers have filed an Appeals No. 132 and 133 of 2013 wherein Hon'ble APTEL had decided and directed to revisit and reconsider the energy charge with consideration of biomass availability and its price etc.

15.5. The fuel cost needs to determine periodically as decided and directed by Hon'ble Tribunal. The cost may vary / change from time to time. The GCV was considered in earlier years might be lower is not the ground that such GCV of fuel be continued by the Commission while determining the tariff. The GCV of the biomass determined and decided by the Commission in Tariff Order, 2018 based on TERI report which is a scientific report for determining the availability of biomass, its GCV, its cost which are utilized for determination of tariff of biomass projects. The GCV and related parameters were derived in the aforesaid report and considered by the Commission after considering the objections/suggestion of the parties and detail analysis of the same. If the contention of the objectors is to be considered that in earlier years GCV was considered lower by the Commission than in such situation there is no need to re-determine the tariff with consideration of GCV of biomass fuel. Further, when specific study was carried out and determine the GCV of fuel in such situation it is incorrect to ignore the GCV derived in the report.

15.6. The contention of the objectors that the GCV of biomass cannot be higher than the biomass fuel is not correct. The coal is available having different GCV notified by the coal companies. The coal is classified on different grade basis where GCV of such coal vary. Like G2 grade coal having GCV between 6700 Kcal/kg to 7000 Kcal/kg. While GCV of G1 grade is between 4000 Kcal/kg to 4300 kCal/kg. The price of such coal is also different and distinct based on GCV of coal. Similarly, in case of biomass also the GCV of the biomass are different and distinct as recorded in TERI report that it vary from 3737 kCal/kg in case of Paddy herk biomass, while

in case of cotton stalk biomass is having GCV of 4473 kCal/kg. Further, the GCV of the fuel is dependent on the chemical composition / carbon components of the fuel / items. It also varies in same type of fuel like coal and similar other fuel. The biomass used for generation of electricity with different types of biomass mix, the GCV of such biomass vary with consideration of the combination of various types of biomass percentage and its GCV. Thus, the contention of the objectors that the GCV of biomass cannot be higher than coal is not accepted.

15.7. The biomass power project developers have contended that the reliance of Commission on TERI report is having various deficiencies as stated under:

1. Sample size of the survey is quite lower.
2. Non-consideration of operational reliability and peculiar characteristics of the biomass fuel management cycle.
3. The quality of biomass / waste is not uniform, containing varied moisture, sand, and inner material affecting the GCV.
4. Non-consideration of storage and handling losses.
5. Qualitative loss in terms of GCV due to exposure to wind and rain.
6. For reduction of moisture economic solution is natural drying.
7. Moisture content vary between 10% in case of mustered husk and 15% in case of cotton stocks.
8. No reasons given for rise in GCV considered while determining tariff order 2018.
9. The sample size utilize for testing GCV is quite lower and tested after long time with consideration of taking sample time.
10. TERI relied on the data obtained from farmers and not from the biomass power producers.
11. The transportation cost assumes 25 kilometers while biomass fuel may be transported as far as 50 kilometers.
12. Cost builds up based on single season biomass and not considered the harvesting season and availability of biomass.

15.8. The aforesaid contentions of the objectors are not acceptable as many of them are in repetitive nature which were earlier raised by the objectors while passing the Order dated 09.02.2018 by the Commission on TERI report. The same pertain to:

- (i) Non-consideration of loss in GCV due to sand, moisture, etc., is concerned the Commission has considered the same and effect of higher quantum of the biomass allowed by adding the loss occurred in the biomass due to above reasons.
- (ii) The aim of study is to assess the gross availability of biomass, cropping pattern, seasonal variation, present utilization pattern, biomass price with emphasis the districts of Amreli, Bhavnagar, Junagadh, Vadodara, Bharuch and Sabarkantha.
- (iii) The database develops with respect to biomass availability on secondary research follow by primary research and field visits of above districts.
- (iv) Information was collected from secondary sources such as publish reports interaction with State agency and district agency related to gross availability of biomass (type of agriculture residue) cropping pattern, seasonal variation. Primary survey was carried out with different stakeholders such as farmers, oil mills, and other industries to collect information about present utilization patterns and biomass pricing.
- (v) Major crops grown in Junagadh, Bhavnagar and Amreli districts are cotton and groundnut. Major quantity of biomass generated and available are groundnut shell, cotton stocks, wheat stock, groundnut stock, Bajra stock. Out of these residues only groundnut shell and cotton stock generate surplus and major other residues are used in fodder, heating application and other use.
- (vi) Major crops grown in Bharuch, Vadodara, Sabarkantha districts are cotton, sugarcane, castor, pigeon, pigeon pea rice, major sources of generating biomass are sugarcane, bagasse, stocks of cotton, castor, maze, pigeon pea, etc. Out of these residue stocks of cotton, pigeon pea, castor, rice husk, sugarcane, bagasse are generated in surplus, while

other residue are used either in fodder, heating application or for other local uses.

- (vii) Sugarcane bagasse is generated from sugar milk and utilized by bio-coal, papermill and plywood industries.
- (viii) The sample of the survey consists of different talukas of the concerned districts and also consist of the crop patterns, availability of crops, pricing of biomass to farmers, cost of cutting shedding of biomass at farm level, cost of labors, cost of transportation, loading, unloading of the fuel cost, margin / trading margin to the agents etc.
- (ix) The various industries like bio-coal industries etc. where visited and data were also obtained from them.
- (x) The data were also obtained from the Director, Agriculture Department with regards to different crop patterns and biomass available from such crops.
- (xi) Utilization of Biomass for different purposes like animal fodders, heating or cooking purpose etc. and net biomass available.
- (xii) The biomass is available either in farm or at oil mill or other places as recorded in the TERI report. Moreover, such biomass may be stored in the storage, sometime must be passed to reach biomass at power plant level and thereafter, it is stored in the storage and it will lead to reduction in the moisture content of the biomass.
- (xiii) The groundnuts are available at oil mills where ground nuts are crushed. The crushing of groundnut is possible only when very less moisture content in it, it is possible to bring the groundnut from the fodders.
- (xiv) The Commission has considered transportation cost of biomass for 25/50 kilometers while deriving the biomass price.
- (xv) The sample of the biomass tested in NABL accredited laboratory and the laboratory has issued the certificate for it. The said certificates state about the GCV of biomass / heat value in particular type of biomass. The moisture content also stated in the said report. The report state about the actual characteristics of biomass fuel and heat value consists by it.

(xvi) The sample of coal or any fuel is required to keep in prescribed manner and store and such sample needs to bring at the laboratory. In case of coal received at power plants from railway the sample size of such coal in comparison of quantum received are quite lower and testing is also carried out on that basis.

(xvii) The TERI report has considered the issue of storage, handling loss, weight loss due to moisture and dust / sand particles. Therefore, the contention that the aforesaid aspects are not considered is not correct.

(xviii) The purpose of testing of any fuel or any item is to verify and determine the actual component or parameters consist by such fuel or items. The NABL accreditation granted to the laboratory by the appropriate and authorized department for testing carried out by such laboratory. The NABL accreditation receivable only after fulfillment of certain criteria and methodology for testing adopted by such laboratory with appropriate and correct equipment at their place. Hence, the contention of the objectors about the test result of the laboratory with regards to different types of biomass is not valid.

15.9. The Commission has considered the various objections raised by the objectors on TERI report and dealt and decided in its Order dated 09.02.2018 which has attained its finality. Therefore, the contention of objectors was earlier decided by the Commission and the same are not permissible to raise in the present proceedings.

15.10. With regard to the contentions of the biomass power producers that TERI has not consulted biomass power producers is concerned, it is an independent survey carried out by TERI for determination of biomass availability, price, GCV etc. While carryout the aforesaid activities if the biomass power producers were not approached by them, it does not mean that the report having deficiencies because the biomass utilized in the power plant is available from the agriculture waste admittedly by the biomass producers. Therefore, the sampling, analysis and testing of such biomass available in field carried out by the TERI not make its

report unrealistic and incorrect. Therefore, the contention of the objectors is not accepted and hence, rejected.

15.11. The TERI has verified the crop pattern, availability of different agriculture products, residues of such agriculture products, its utilization, various factors affecting to the cost, content of moisture, sand, and other materials etc. The samples are also tested in NABL accredited laboratories to verify GCV, moisture content of the biomass. The samples need to be preserved and produce in the laboratory with due precautions of no externality be introduced. Thus, the doubts stated on lab reports submitted with TERI report by TERI is not correct and valid. The report is scientific report. The Hon'ble APTEL in its judgement dated 03.07.2017 in Appeal No. 91 of 2015 upheld the KERC orders on a ground that the Commission has relied on State specific biomass study report adopted GCV value etc. Hence, the contention of the objectors against the same are not valid and acceptable.

15.12. CERC has considered single GCV for the determination of generic tariff of biomass across the country. It is fact that the biomass availability and GCV may vary from State to State and area to area also. There can be no single type of biomass GCV based on which the uniform single tariff be determined. If the GCV based on CERC report be considered and utilized for tariff determination there is no purpose to determine State specific tariff. It is for the generator to arrange / organize the fuel availability and quantum to achieve generation as per schedule by it with consideration of different technical parameters.

15.13. TERI has carried out specific scientific study and verified the various parameters pertaining to availability of biomass and GCV of such biomass, cost of biomass etc. It is incorrect to ignore and not rely on TERI report and contrary to it rely on the CERC report, which has not carried out based on the scientific study with regard to Gujarat State and also the figure adopted by different SERCs in their determination of generic tariff of biomass for their State where the types of biomass, its characteristic etc. are different and distinct from the Gujarat. The biomass power producers i.e., Amreli, Junagadh and Bhavnagar at present have adopted the GCV of biomass, its cost based on tariff determined by the Commission

in its Orders from time to time and also executed supplemental PPAs with the GUVNL and the same are now disputed by the biomass power producers is not valid.

15.14. TERI has collected samples in different districts also obtain data i.e., primary and secondary and thereafter, utilize the same for preparation of the reports. They have considered the different crops and varying crop patterns and accounted for it. The biomass which is collected either from farm level or oil mill level or sugar factory may be transported, stored at plant and thereafter, the same is utilized for generation of electricity. It is necessary to keep proper handling of biomass, store it and utilize in generation of electricity. Any inefficiency in the above parameters leads to affecting the GCV of biomass and it is not a ground that the GCV of the biomass is lower than the GCV specified in TERI Report.

15.15. The contention of the objectors that TERI report is not independent is incorrect as the testing of biomass GCV was carried out in NABL laboratory at Noida and the PGVCL employees / executives are not present or their influence on the laboratory. Further, the TERI report states about the availability of biomass with consideration of seasonal crops, its different utilization with the different losses etc. based on primary and secondary data. Further, they relied on the published data and also surveyed at ground level and reflected in their report.

Station Heat Rate

15.16. The objectors have contended that SHR considered by the Commission is not correct as it is higher. Further, the reliance is placed on CERC 2013 report and different SERC reports/ orders and submitted that SHR of biomass plant considered by the Commission is higher. The aforesaid contention of the objectors is not acceptable on following reasons:

- (i) While passing the generic Tariff Orders dated 17.05.2010, 8.08.2013 and 15.03.2018 the Commission has considered various technical and financial parameters, which includes SHR of biomass plants.
- (ii) The Amreli, Junagadh and Bhavnagar biomass plants producers have signed the PPAs with GUVNL with consideration of SHR considered by the

Commission in the Order issued in the year 2010-11. The said Orders were challenged by the Amreli and Junagadh biomass power project developers before the Hon'ble APTEL wherein they have challenged the energy charge of biomass power plants considered by the Commission and prayed for revisit of the same and determine the energy charge on interval basis. The Hon'ble APTEL had passed Judgement and directed the Commission to revisit the energy charge of biomass power plants. The said Order was also challenged before Hon'ble Supreme Court wherein the Hon'ble Supreme Court has upheld the decision of the Hon'ble APTEL and remanded the matter back to the Commission for redetermination of biomass prices raised in the aforesaid Appeals. Thus, there is no challenge to SHR considered by the Commission in its Order dated 17.05.2010 and PPAs signed with GUVNL by the existing biomass producers in the State. The said Orders attained finality.

- (iii) The Commission had determined the biomass availability, its GCV, its cost etc. based on the TERI scientific study report and determined the tariff for biomass projects vide its Generic Tariff Order dated 15.03.2018.
- (iv) The Commission had passed Tariff Order dated 22.05.2018 for the Amreli and Junagadh biomass projects and based on it they have executed supplemental PPAs with GUVNL. While in case of Bhavnagar Biomass projects, the Commission has issued Order on 31.07.2018 and determined the tariff based on which PPAs were executed with GUVNL adopting the tariff determined by the Commission. The said Orders of the Commission have not been challenged by the above biomass producers /objectors and hence, attained finality. The tariff determined by the Commission with an SHR of 3950 kCal/kWh was accepted by the above biomass power producers and not disputed till date by challenging the same.
- (v) The SHR of the plant is a technical parameter depend on the various technical aspects and efficient utilization of equipment with proper maintenance of such equipment like boiler, turbine etc. Any inefficiency in operation of such equipment lead to higher value of SHR of the plant.
- (vi) The reliance being placed upon the Hon'ble APTEL's decision in case of BPTA by the objectors is concerned, we note that in the said Judgment

Hon'ble APTEL has recorded that the Commission has simply followed the SHR figure which was considered in its previous Orders. In facts and circumstances of the case, it is considered that the SHR is dependent upon a number of uncontrollable factors like sand, moisture, and ash content. The State Commission ought to have adopt figure decided by the Tribunal in its Judgement dated 04.05.2016. We note that SHR considered by the Commission in its Generic Tariff Order dated 15.03.2018 and Orders in case of Amreli and Junagadh biomass projects on 22.05.2018 and Bhavnagar Biomass Projects on 31.07.2018 with consideration that the biomass utilized for projects, the impact of sand, moisture and ash content has been already factored while deciding the GCV of biomass, biomass availability, moisture content etc. The loss or effect of such impurity is already factored by the Commission while deciding the cost of the biomass and given effect as a part of biomass cost. Therefore, the aforesaid impurity which may affect the plant, operation was already considered by the Commission. Hence, it is the duty of the biomass power plant producers efficiently operate their plant with proper and appropriate fuel so that the inefficiency of the plant be avoided which affect to the licensee and consumers.

- (vii) The aforesaid Orders have not been challenged by the Biomass Power Producers till date on a ground of the SHR before Higher Courts. The aforesaid contentions raised by the objectors after an issue of gamming and compensation for it claim by GUVNL and SLDC for which dispute is pending before the Commission since 2020.
- (viii) M/s Abellon Limited during the proceedings of Generic Tariff Order, 2013 before the Commission has stated that Station Heat Rate of 3800 kCal/kWh can be achieved by 10 MW power plants and it was recorded and decided by the Commission in its Order dated 08.08.2013.
- (ix) It is the duty of generator to maintain, operate the power plant in the most efficient and economic manner including, ensuring SHR value so that the benefit of efficiency be available to all beneficiaries, i.e., generator, licensee and consumers.

- (x) The SHR is related to the performance of the machine of the plant. It may vary from plant to plant and its size. The Commission has determined and decided SHR after considering the submissions, objections and suggestions of the stakeholders and the said issue is not challenged till date.
- (xi) The alleged issue referring to CERC report and other SERCs' reports/Orders is concerned, it is clear that the said SHR is not reflecting to the operational parameters of the biomass power plant set up and operating in the Gujarat State.
- (xii) The contention of objector that SHR be considered with consideration of practical realities is not a ground to revisit and re-decide the aforesaid parameters by the Commission. There are no supporting documents submitted by the objectors' biomass power producers. While determining the tariff and fixing the normative parameters like SHR, it requires to consider that a plant be operated in efficient manner by the project developers with consideration of various technical and other parameters and at the same time the consumers are not burden with any inefficient operation of the plant.
- (xiii) SHR is a technical parameters state about capability of the plant to generate the electricity against the energy utilized. It denotes for conversion of one energy to another energy. When SHR was already decided by the Commission since long back and the same was repeatedly considered by the Commission and factored in tariff determination which was not challenged by the biomass power producers who are objectors in the present proceedings is not a ground to revisit and re-decide the same. SHR referred in CEA Regulations 2012 states that SHR of biomass plant as 4000 kCal/kWh which is similar or near to 3950 kCal/kWh considered by the Commission. The SHR mainly depend on turbine and boiler efficiency which may vary with the capacity of the plant. If the plant capacity is higher the efficiency is better. The KERC in its Order had considered the SHR of 4000 Kcal/kWh and it has been approved by the Hon'ble Tribunal in Appeal No. 91 of 2015. In fact, KERC had approved SHR of 3900 kCal/kWh for Air cooled condenser in its Order dated 11.07.2014. The

SHR of 3950 kCal/kWh considered by the Commission after considering the submissions of the different stakeholders. The Abellon Limited had already in earlier proceedings before the Commission accepted the SHR of biomass Plant as 3800 kCal/kWh for 10 MW capacity. The power plants of objectors are having 10 MW capacity. Therefore, it is incorrect to say that SHR considered by the Commission is of lower value and rely on the SHR parameters stated in CERC report or other SERCs is not correct.

- (xiv) The PPAs which were executed between the licensees and generators consist of tariff derived from the parameters of biomass GCV, tariff, SHR shall not be permissible to amend as per the decision of the Hon'ble Supreme Court in case of GUVNL V/s. Solar Semiconductor Power Company (India) Private Limited in Civil Appeal No. 6399 of 2016 and Order/Judgement dated 15.03.2022 of the Hon'ble AP High Court in Writ Appeal No. 383 of 2019.
- (xv) Considering the above, the higher SHR claimed by the objectors' biomass power producers is not acceptable.

16. It is submitted by Shree Khedut Sahkari Khand Udyog Mandali Limited that the Commission have provided control period of three years in the Draft Order (FY 2020-2021 to FY 2022-23). In fact, the period of sixteen months of the Policy period has already lapsed due to Corona pandemic and the effective control period will be shorter to three years. Hence, it is prayed to provide the minimum control period of three financial years from the effect of revised order.

16.1. It is submitted that as per Article 1 of PPA, GUVNL defines that commercial operation of plant should be scheduled before the last date of control period. It is submitted that the time span of 18 to 24 months is required for completion of any cogen project. Prior to that minimum 12 months are required for getting environmental clearances, administrative approvals and financial closer. Therefore, it is requested to provide a period of 36 months for the commercial operation date from signing the Power Purchase Agreement.

16.2. It is submitted that the Commission's Order does not provide for any similar Performance Bank Guarantee (PBG) which is against the spirit of encouraging

bagasse co-generation in the country with low penetration in Gujarat. It is submitted that none of the other major sugar producing States provide for similar Performance Bank Guarantee (PBG). It is submitted that they have agreed to the requirements of para 4.8 of the Commission's Order No. 1 of 2018, which states to provide the required bank guarantee to GETCO. Hence, it is prayed for clarification on the requirement to provide additional PBG outside the purview of the Commission's Orders.

- 16.3. It is also submitted that the Commission's Order does not provide for any similar Liquidated Damage (LD) clause. The severity of this clause is de-motivating towards the cause of renewable energy. It is submitted that none of the other major sugar producing States provide for similar LD clauses. It is requested for deletion of the clause and requirement of any liquidated damages for them and GUVNL. It is submitted that they have also agreed for the tariff to be applied as per prevalent Orders of the Commission. Based on the submissions, it is prayed that the Commission to provide appropriate directions to GUVNL for revision in the draft PPA in line with the Commission's Orders.
- 16.4. Co-generation Association of India has filed its submissions vide email dated 18.07.2020 and submitted that the State having 19 operational cooperative sugar factories having potential of 500 MW installed capacity out of which 300 MW are exportable surplus to GUVNL/GETCO by installation of high efficiency bagasse-based co-generation Power Plant. It is also submitted that no sugar factory has been able to implement this project till date. It is submitted that this potential remains untapped till date although these renewable energy-based projects have substantial socio-economic-environmental & grid benefits at the rural parts of the State. It is also submitted that this is against 400 & odd bagasse-based cogeneration power plants operational today at sugar factories in India (out of 550 operational sugar factories), with cumulative installed capacity of more than 10,000 MW (Exportable surplus of about 6,500 MW). This progress over the last 2 decades has been led by the States of Maharashtra, Uttar Pradesh, Karnataka, Tamil Nadu, Andhra Pradesh, Telangana, Punjab, Haryana, Bihar & Uttarakhand. It is submitted that supportive tariff order may be issued by the Commission to help to tap this green energy potential from biomass fuels in the State of Gujarat.

- 16.5. It is requested the Commission to consider the issues pertaining to PPA as per submission of Shree Khedut Sahakari Khand Udyog Mandali in respect of removal of the conditions for additional PGB & LD clauses being insisted by GUVNL stating that the time period for implementation of projects needs maximum 36 months, from the date of signing the PPA or final tariff order from the Commission, whichever is later and to issue suitable directions to GUVNL to sign the PPA at the earliest.
- 16.6. It is also submitted that the required NOCs/Approval/permissions like Environmental Clearance & consent to establish, loan sanctions & financial closure, electrical inspector's NOC, GEDA NOC, etc., itself takes about 12-15 months, from signing of the PPA. Ordering of the equipment & civil works & project implementation will take another 18-20 months considering the limitations for civil construction & erection of machinery, during the crushing seasons of the sugar factory, the control period of 3 years needs to be revisited by the Commission.
- 16.7. It is submitted that the Commission may issue the directions in the matter to help proposed 50 MW Bagasse based cogeneration power project of SKSKUML, which are presently at the DPR stage, to take off. It is submitted that SKSKUML sugar factory is in the leadership position in the State and Other sugar factories will certainly proceed & take up these projects for implementation, with the progress visible at SKSKUML which help the State of Gujarat to tap this potential, within the next 5-6-year period.
- 16.8. It is also submitted that they have substantiate & endorsed the views, particularly to consider correct calorific values of the biomass materials in the range of 3,100-3,300 kcal/kg and SHR of at least 4,200 kcal/kW for tariff determination. It is submitted that the Commission to consider the computation of variable & fixed cost every year from the next year onwards, based on the fuel (Bagasse & biomass) costs & other provisions as provided in the latest CERC order dated 29.06.2020 or that for the next financial year which has been adopted by many of the State ERCs to remove the opposite opinions on the annual % escalation in the variable costs.

- 16.9. Based on the above, it is submitted that the Commission to issue the final tariff order at the earliest, to kick start these projects.

Commission's Analysis:

17. The objections raised by the objectors with regard to Performance Bank Guarantee (PBG) need to be provided by the generator in the Power Purchase Agreement is pertaining to the contract between the generator and the procurer i.e., distribution licensee who has an obligation for fulfillment of RPO as statutory duty in compliance to the provisions of Electricity Act, 2003 and Regulations framed thereunder. Further, the energy generated from such plant factored by the licensee as availability of energy in physical form and price/expenses needs to be carryout for it and the same is reflected in the tariff determination by the Commission. Any deviation in the Scheduled Commercial Operation Date (SCOD) of the plant will affect aforesaid aspects of the licensee as well as tariff determination of the Commission. Moreover, based on the PPA the generator received the financial closure etc. The finance received by the generator on the basis of PPA (contract) executed between the generator and licensee. In such situation any deviation of SCOD or non-establishment of plant and perform as per the agreement affect the licensee as well as financial institutions also. Moreover, on successful fulfillment of terms of contract the Performance Bank Guarantee may be get refunded by the generator. The security deposit payable to GETCO by the project developer is against the transmission network strengthening etc. carried out by GETCO for the power generation receivable at their Sub-Station and in onward system of the transmission of energy. The said security amount is different and distinct from the Performance Bank Guarantee obtained by the procurer distribution licensee. The Performance Bank Guarantee is an agreed terms between the parties while arriving the terms of contract, which are approved by the Commission. Hence, the contention of the objector is against the same and are not acceptable and hence, rejected.
18. Some of the objectors have submitted that the control period specified in the Draft Order is insufficient to execute the project with consideration of various necessary approvals as well as construction period which requires about 36 months from the

date of signing of the PPA to achieve SCOD of the plant. In this regard, being a special case, we are of the view that to promote the renewable energy available from biomass/bagasse co-generation projects if any project developers approach the distribution licensees and the distribution licensees may consider the proposal and enter into the PPA with project developer with the provisions that the SCOD of such project may have available time up to 36 months from date of signing of the PPA and the tariff receivable by generators should be lower of applicable tariff in two control periods, i.e., (i) date of signing of the PPA and (ii) date of actual SCOD.

19. Shree Kedareshwar Khandsari Udyog submitted that M/s Shree Kedareshwar Khandsari Udyog, is seeking to set up a 10 MW bagasse-based power project along with its sugar manufacturing unit in District Tapi in the State. As the bagasse-based cogeneration is possible with the sugar units only. The Objector will be consuming 4 MW for the purpose of sugar production, auxiliary and balance 6 MW will be exported to the grid.
- 19.1. It is submitted that the Commission has issued a Draft Order proposing the tariff fixed charges for 20 years and variable charges till FY 2022-23 for bagasse-based power projects to be commissioned in the State of Gujarat. Most of the parameters are related to fixed costs are being retained from the Tariff Order dated 15.03.2018 and the variable charges escalation has been brought down from 5% to 3%.
- 19.2. It is stated that the very purpose of co-generation plants is to produce a more efficient form of electricity and also use the Bagasse of sugarcane from the sugar factory as the fuel. Apart from the auxiliary consumption, the sugar factory will also be consuming electricity. Therefore, to simplify, the generator should be asked to declare its net exportable capacity to be sold to the distribution licensee and the tariff should be applicable on the same to avoid any confusion with respect to the eligibility criteria.
- 19.3. It is submitted that capital cost should be determined assuming that the entire cost would be incurred by the project developer and not factoring in the AD benefit.

Further, it cannot be presumed that the grant or subsidy from the Government would be available and therefore no amounts should be assumed to be deducted from capital cost. The reliance being placed on the judgement dated 20.12.2012 of the Hon'ble APTEL in the case of SLS Power Limited V/s. APERC & Ors.

- 19.4. It is submitted that the Hon'ble APTEL in its Judgment dated 18.02.2020 in Appeal No. 170 of 2016 in the case of Biomass Power Producers Association, Tamil Nadu v TNERC & Anr., has fixed the capital cost for FY 2015-16 (Biomass Based Projects) as Rs. 6.1 crores / MW whereas the Commission has only proposed Rs. 5.92 Crores for a project to be commissioned in 2020-21. It is also submitted that the capital cost proposed is extremely low and needs to be enhanced applying an escalation on the CERC determined capital cost of Rs. 492.5 lakhs/MW should be escalated by 5% and determined at Rs. 517.12 lakhs/MW. Hence, the Commission may revisit the capital cost and decide the same.
- 19.5. It is submitted that while deciding the plant load factor, the Commission has considered the Plant Load Factor on seasonal basis. The Commission may give an option to the project developer to approach it for a relaxation for the first season of operation since some stabilization time may be required for the plant.
- 19.6. It is submitted that SHR of the plant proposed as 3600 kCal per kWh. The Hon'ble APTEL in its decision in Appeal No. 170 of 2016 has considered SHR as 4200 kCal per kWh. It is also in consonance with earlier judgment dated 04.05.2015 of the Hon'ble APTEL in the case of MP Biomass Power Producers Association V/s. MPERC & Others. The Commission may also consider SHR as 4200 kCal per kWh.
- 19.7. It is also submitted that the Commission has proposed the Gross Calorific Value (GCV) of 2250 Kcal/Kg as per the CERC fixation whereas the Hon'ble Tribunal in the Judgment dated 18.02.2020 in Appeal No. 170 of 2016 in the case of Biomass Power Producers Association, Tamil Nadu V/s. TNERC & Anr., has decided that for biomass projects, the GCV should be 3200 Kcal / Kg which is consistent with its earlier Judgment dated 04.05.2015 in MP Biomass Power Producers Assn. V/s. MPERC & Anr. The Commission may also consider GCV as 3200 kCal per kWh.

- 19.8. It is submitted that the cost of bagasse considered as Rs. 2075 per MT adopting equivalent heat value approach and therefore, the Commission may consider the details received from the Cane Commissioner of State of Gujarat who determines administered price of sugarcane which would give the correct price for bagasse.
- 19.9. It is submitted that the Commission has proposed 5% escalation on the variable cost should be limited to 3% in the interest of consumers which is arbitrary and against Section 61(d) of the Electricity Act, 2003. It is submitted that the escalation on variable cost be granted as 5% minimum and with a further opportunity to the developer to approach the Commission with an appropriate petition for relaxation in case of sudden and unexpected rise in fuel prices.
- 19.10. During the hearing on 07.12.2021, Mr. Ankur Kanala on behalf of Shree Khandeshwar Khandsari Udyog Gujarat submitted that they desire to set up bagasse-based Power Project and interested to sign the PPA with GUVNL. It is also submitted that since last more than one year they have approaching GUVNL for signing of the PPA for supply of power from their proposed bagasse-based power project. It is submitted that GUVNL has shown its inability to sign the PPA due to non-availability of Tariff Order after 31st March 2020. It is requested to provide Regulatory support by issuing new tariff order for Bagasse based Power Project to enabling them to sign the PPA with GUVNL as per the tariff order of the Hon'ble Commission.
- 19.11. Based on above, the objectors suggested that the Commission may revisit the details of the various components of the Tariff.

Commission's analysis

- 19.12. The objections that the Commission may consider the capital cost incurred by the project developer at 100% without factoring AD benefit and not availing the grant/subsidy from the Government as such subsidy is not available prior to the project coming in operation is concerned, we note that the tariff determined by the Commission with consideration of the amount for project deployed / invest by the project developer. It consists of the equity and/or debt (loan). The aforesaid amount be allowed to recover by the project developer from the procurer of the

energy as a part of tariff consists of fixed charge. The fixed charge is consisting of the return on equity, repayment of loan, depreciation, interest on working capital, O&M charges, and income tax etc. The equity deployed limited to 30% by the Commission with consideration of protection of the interest of procurer i.e., licensee and the consumers as the return on equity allowed at the rate of 14% which is quite higher than interest on loan and helpful to keep the tariff lower and avoid the burden of finance on the project developers. The debt/loan needs to repay by the project developer in stipulated period to the financial institution at the rate of loan / debt granted by them. Therefore, the loan repayment with its interest is considered as a part of tariff determination by the Commission. The interest on loan is at present lower than 14%. Further, the repayment of loan lead to reduce the burden of interest and ultimately the tariff which is borne by the licensee and its consumers. Moreover, the tariff regulations notified by the Commission provides for limitation in debt: equity ratio as 70:30. Therefore, the contention of the objector that 100% equity be allowed is not permitted. The AD benefit, if any, available need to be factored in the tariff as the cost of generation the biomass /bagasse-based plant born by the distribution licensee/ procurer. Hence, any benefit available in form of tax or other way needs to pass on to the licensee/ consumer who bear the cost of energy generation. The contention of objector that any subsidy/grant, if any, available from the Government or any institution may not be factored as the same is available after commissioning and operation of the plant is not acceptable as the subsidy or grant, if any, available from the Government to the project developer is helpful to reduce the cost of the project. Moreover, such subsidy or grant provided by the Government may be promotional aspect and benefit of the same must need to pass on the consumers. The generator is not affected in any manner if such amount is pass on as a part of tariff because their return on equity shall be protected. Hence, the contention of the objectors is not acceptable and rejected.

- 19.13. The objector submitted that the capital cost of Rs. 4.66 crore per MW for bagasse-based cogeneration considered by the Commission as was applicable for the previous control period and it does not reflect the present bagasse-based cogeneration projects and the same may be considered as Rs. 517.12 lakhs per

MW and the Commission may revisit the capital cost and decide the same is concerned, the objector has not provided any supporting documents in this regard. The Commission is of the view that the control period of this order start from 01.04.2020 as per the directives of the Hon'ble Tribunal and will complete on 31.03.2023. The Commission has in earlier part of this Order considered the escalation of 4% in fixed cost considering various factors affecting it and accordingly, allow the same as part of fixed cost of Biomass and Bagasse based power plants for the control period of this Order. Further, the Commission will revisit the aforesaid aspect while determining the tariff for next control period. The Commission is also of the view that in case of higher capital cost incurred by the project developer, they are at liberty to approach the Commission for determination of project specific tariff. In such situation the interest of project developer will not be affected. Hence, at present we are of the view that the escalation in fixed cost provided and tariff for the control period from 01.04.2020 to 31.03.2023 decided in earlier para of this Order be just and reasonable.

19.14. The objector has contended that while deciding the plant load factor, the Commission has considered the Plant Load Factor on seasonal basis. It is also submitted that the Commission may give an option to the project developer to approach it for relaxation be given for the first season of operation since some stabilization time may be required for the plant. The objector has not provided any supporting documents in support of the aforesaid contention. The Commission is of the view that the plant must run on efficient basis and benefit of such efficiency must be available to the generator / licensee and ultimately the consumer who pay the tariff for energy generated from such plant. Further, the project set up by project developer procuring the equipments from the OEM / supplier who assure technical parameters and failure to achieve such parameters the OEM / supplier required to pay penalty to the project developers who set up such plant. We are also of the view that the stabilization period may be required for some plants and it may be varied from plant to plant. However, there is no data available in this regard. Hence, in the absence of any supporting documents / evidence, it is not permissible to allow the stabilization period of one season claimed by the objectors.

19.15. The objector has submitted that the SHR of the plant proposed as 3600 kCal per kWh. The Hon'ble APTEL in its judgement in Appeal No. 170 of 2016 considered the SHR as 4200 kCal per kWh. It is also in consonance with earlier judgment of Hon'ble APTEL dated 04.05.2015 in case of MP Biomass Power Producers Association Vs MPERC & Others. The Commission may consider the SHR as 4200 kCal per kWh. The aforesaid contention of objectors is not accepted as the decision of Hon'ble APTEL in case of MP Biomass Power Producers Association Vs. MPERC in Appeal No. 170 of 2016 pertains to biomass power projects and not bagasse-based power projects. The bagasse-based power projects are utilizing the fuel different type having different GCV than biomass. Moreover, the requirement of boiler and turbine for generation of electricity from biomass and bagasse-based projects having different technical parameters. Moreover, the fuel utilizes in bagasse and biomass power projects also having different characteristic and GCV and affecting the thermal cycle of the plant. Therefore, the contention of objectors that SHR of the biomass-based plant i.e., 4200 kCal/kWh may apply to bagasse-based plant is not accepted.

19.16. The objectors have stated that GCV/SHR of the bagasse-based plant be considered as 3200 kCal per kWh instead of the bagasse considered by the earlier order (GCV of bagasse 2250 kCal/kg and SHR of 3600 kCal/kWh). The aforesaid parameters state that GCV / SHR of the bagasse-based plant is quite better than GCV / SHR of such plant considered by the Commission. As per the submissions of the objectors, such plant may operate with better efficiency than the parameters considered by the Commission. However, the objector has not submitted any supporting documents in this regard. Therefore, we are of the view that the proposed objections are not accepted with consideration that there are no supporting documents provided by the objectors. The SHR of the plant considered by the Commission in its earlier Orders with consideration of SHR of such plant with reasoning on it. The GCV of sugarcane considered as per TERI report who have obtained the data from sugar mills. The Commission has passed Order dated 09.02.2018 on TERI report after considering the objections and suggestions from the Stakeholders and it attained finality. Hence, we have retained the aforesaid parameters of GCV as per the Orders of the Commission.

19.17. The objector has submitted that the cost of bagasse considered as Rs. 2075 per MT adopting equivalent its value approach, the Commission may consider the details calling from the Sugarcane Commissioner of State of Gujarat who determines administered price of sugarcane which would give the correct price for bagasse is concerned, the Commissioner of sugarcane of the State of Gujarat is determining administrative pricing of sugarcane produced in the State and not the residue/waste generated from the sugarcane. The sugarcane waste may be utilized in the paper mill, bio-coal industries and/or for other purpose. The material cost of purchase of biomass from sugar industries is considered by TERI in its report and in para 5.5 and 5.6 and the comments and suggestions have been invited by the Commission thereon and decided the cost of the bagasse, which are mostly co-generation plant co-located at sugar mill. Therefore, the cost of bagasse available at co-located sugar mill having quite lower or negligible transportation, loading and unloading cost etc. Therefore, we are of the view that (i) the GCV and price of bagasse considered in TERI Report, (ii) Order dated 09.02.2018 of the Commission and (iii) Order dated 15.03.2018 of the Commission with consideration of appropriate escalation in fuel cost as discussed and decided by the Commission in earlier para of this Order, fuel cost/energy charge determined for the control period are applicable for energy purchased from the Bagasse based co-generation power plant.

19.18. The Objector has contended that the Commission has proposed 5% escalation on the variable cost should be limited to 3% in the interest of consumers is arbitrary and against Section 61(d) of the Act. The escalation on variable cost be granted as 5% minimum. The Commission decided that the escalation in fixed cost and fuel cost of bagasse-based co-generation plant be allowed with consideration of various factors economic factors affecting the bagasse price and accordingly fixed charge and energy charges for control period determined in this Order.

19.19. It is observed that the stakeholders have contended that 3% escalation considered by the Commission in the cost of biomass fuel is quite lower and without any supporting data/documents. Some of the objectors stated that the escalation in the biomass fuel be considered as 5.72% as considered by the Commission in

earlier order and accordingly, the fuel cost/energy charge for biomass projects for the control period starting from 01.04.2020 to be considered. On contrary, some of the stakeholders stated that the biomass price is reduced and escalation of 3% considered is higher.

19.20. While deciding about the applicable escalation rate, the Commission has analyzed the historical as well as the current trends in various relevant items under the price indices, including the labour indices. It is observed from data for the most recent period that the escalation rate for such items in indices is in the range of 4% to 5%. Hence, Commission is of the considered view that the escalation rate of 5% on year-to-year basis shall be permitted on fuel price of biomass and bagasse-based projects for the control period starting from 01.04.2020.

19.21. While deciding about the applicable escalation rate, the Commission has analyzed the historical as well as the current trends in various relevant items under the price indices, including the labour indices. It is observed from data for the most recent period that the escalation rate for such items in indices is in the range of 4% to 5%. Hence, Commission is of the considered view that the escalation rate of 5% shall be allowed on fuel price/energy charge of biomass and bagasse-based projects for the control period starting from 01.04.2020.

Parameters	Biomass Based Power Projects with Water-cooled Condensers	Biomass Based Power Projects with Air-cooled Condensers	Bagasse based Co-generation projects
Tariff	Energy Charge/Variable Cost	Energy Charge/Variable Cost	Energy Charge/Variable Cost
FY 2020-21	4.21	4.38	4.20
FY 2021-22	4.42	4.60	4.41
FY 2022-23	4.64	4.83	4.63

19.22. The Commission noted that Government of India had allowed biomass power project and bagasse-based co-generation power project owners to avail accelerated depreciation at the rate of 40% in the first year on written-down value (WDV) basis as per Union Budget. In addition to this, the amendment in the Finance Act 2012 allowed an additional depreciation of 20% to the power generation projects during the first year of commissioning of project. With this the

biomass power project and bagasse-based co-generation project owners can avail 60% depreciation in first year of commissioning. The Commission, therefore, in the discussion paper had proposed two tariffs (i) with accelerated depreciation benefit and (ii) without accelerated depreciation benefit for procurement of power by utilities from biomass power project and bagasse-based co-generation power projects. The Commission in the Draft Order had calculated the annual levelized tariff.

Suggestions from Objectors:

No comments have been received the stakeholders.

Commission's Decision

19.23. The Commission has in earlier para of this Order decided that the fixed cost of the Biomass based Power Projects with Water-cooled Condensers, (ii) Biomass based Power Projects with Air-cooled Condensers and (iii) Bagasse based Power Projects with consideration of escalation of 4% as discussed in this Order. Similarly, the energy charge/variable cost for above type of projects is decided with consideration of escalation of 5% on year to year basis in energy charge/variable charge of earlier order. The same are stated below:

<i>Parameters</i>	<i>Biomass based Power Projects with Water-Cooled Condensers</i>	<i>Biomass based Power Projects with Air-Cooled Condensers</i>	<i>Bagasse based Co-generation Projects</i>
<i>Tariff</i>	<i>Levelised Fixed Component of Tariff for 20 years for the projects commissioned during FY 2020-21 to FY 2022-23</i> <i>(a) without AD benefit: Rs. 1.87/kWh</i> <i>(b) with AD benefit: Rs. 1.72/kWh</i>	<i>Levelised Fixed component of tariff for 20 years for the projects commissioned during FY 2020-21 to FY 2022-23</i> <i>(a) without AD benefit: Rs. 1.99/kWh</i> <i>(b) with AD benefit: Rs. 1.82/kWh</i>	<i>Levelised Fixed component of tariff for 20 years for the projects commissioned during FY 2020-21 to FY 2022-23</i> <i>(a) without AD benefit: Rs. 1.98/kWh</i> <i>(b) with AD benefit: Rs. 1.81/kWh</i>
	<i>Energy Charge/Variable cost</i> <i>FY 2020-21 – Rs. 4.21/kWh,</i> <i>FY 2021-22 – Rs. 4.42/kWh,</i> <i>FY 2022-23 – Rs. 4.65/kWh.</i>	<i>Energy Charge/Variable cost</i> <i>FY 2020-21 – Rs. 4.38/kWh,</i> <i>FY 2021-22 – Rs. 4.60/kWh,</i> <i>FY 2022-23 – Rs. 4.84/kWh.</i>	<i>Energy Charge/Variable cost</i> <i>FY 2020-21 – Rs. 4.20/kWh,</i> <i>FY 2021-22 – Rs. 4.41/kWh,</i> <i>FY 2022-23 – Rs. 4.63/kWh.</i>

19.24. Other Commercial Issues

(1) Transmission and Wheeling Charges

The Commission recognizes the fact that the cost of transmission/distribution assets created for evacuation of power from any generating project should be recovered to, a reasonable extent, from such generators. Otherwise, it will amount to cross-subsidizing such generators by other consumers. The category of consumer who generally source power through open access can afford to pay normal transmission and wheeling charges from the savings made through such transactions. Therefore, the Commission decides that the biomass and bagasse-based co-generation projects availing open access for third-party sale shall be liable to pay the following:

- i. Wheeling of power for third party sale from the biomass and bagasse-based co-generation projects shall be allowed on payment of transmission charges, wheeling charges and losses of energy fed to the grid, as applicable to normal open access consumers. Set off of wheeled energy at recipient unit(s) shall be carried out in the same 15-minute time block.

However, in case of biomass and bagasse-based cogeneration projects opting for wheeling of power for self-use, the Commission decides to allow lower transmission / wheeling charges. Therefore, the Commission decides that the transmission and wheeling charges applicable to captive open access users shall be as under:

- ii. Wheeling of power to consumption site at 66 kV voltage level and above:
Wheeling of electricity generated from biomass and bagasse-based co-generation projects within the State shall be allowed on payment of transmission charges and transmission losses as applicable to normal open access consumer.
- iii. Wheeling of Power to consumption site below 66 kV voltage level: In case the injection of power is at 66 kV or above and drawal is below 66

kV, wheeling of electricity generated from biomass and bagasse based co-generation projects within the State, shall be allowed on payment of transmission charges and transmission losses applicable to normal open access consumers and 50% of wheeling charges and 50% of distribution losses of the energy fed into the grid as applicable to normal open access consumers.

- iv. Wheeling of electricity for injection at 11 kV and drawal at 11 kV and below voltage level within the same distribution area: When the point of injection is at 11 kV and drawal is at 11 kV or below, and the injection point as well as the drawal point lies within the same distribution area, the charges levied on the user shall be 50% of wheeling charges and 50% of wheeling losses of the energy fed to the grid as applicable to normal open access consumers. No other charges shall be levied on such transaction.
- v. Injection at 11 kV and drawal at 11 kV and below voltage level in different distribution area: When the point of injection is at 11 kV and drawal is at 11 kV or below, and the injection and drawal is in different distribution area, the charges levied on the user shall be 50% of wheeling charges and 50% of wheeling losses of the energy fed into the grid as applicable to normal open access consumers. In addition, transmission charges and transmission losses as applicable to normal open access consumer shall be payable.

Further, the Commission specifies that biomass and bagasse-based co-generation power project owners, who wheel the electricity for captive use / third party sale, to more than one location, shall pay 5 Paisa/kWh of energy fed into the grid to the concerned distribution company in the area, in which the power is consumed in addition to above mentioned transmission charges and losses applicable.

(2) Cross Subsidy Surcharge and Additional Surcharge

The Commission decides that the biomass and bagasse-based co-generation projects who desire to wheel electricity under third party open access has to pay

50% of CSS and additional surcharge as applicable to normal open access consumers.

(3) State Energy Metering

The Commission decides that the developers of biomass power and bagasse-based co-generation projects shall provide energy metering and communication facility in accordance with the following Regulations/Codes/Orders and their subsequent amendments.

- 1) Central Electricity Authority (Installation and Operation of meters) (Amendment) Regulations 2010 and its subsequent amendments
- 2) Gujarat Electricity Grid Code 2004 and its subsequent amendments
- 3) GERC (Terms and Conditions of Intra-State Open Access) Regulations, 2011 and its subsequent amendments
- 4) GERC Distribution Code 2004 and its subsequent amendments

However, for the purpose of energy accounting, such projects shall have to provide ABT compliant meters at generators and if the power is to be wheeled to consumer's premises, then ABT compatible meter is to be installed at the consumer premises also.

The project developers shall have to install Remote Terminal Unit (RTU) for transferring the real time data to SLDC for its monitoring purpose.

(4) Pricing of Reactive Power

The Commission decides that for the purpose of having uniformity the following reactive energy charges shall be applicable to all biomass-based power projects and bagasse-based co-generation power projects from the date of issue of this order:

“10 paise/kVARh – For the drawal of reactive energy at 10% or less of the net energy exported.

50 paise/kVARh – For the drawal of reactive energy at more than 10% of the net active energy exported”.

(5) Sharing of Clean Development Mechanism (CDM) Benefits

Considering the initial cost of registering CDM projects and long-time frame taken to realize the CDM benefits, the Commission decides that the sharing of net proceeds on account of CDM benefits realized through sale of CER generated from corresponding annual energy generation from biomass-based projects and bagasse-based co-generation projects shall be as follows:

- 100% of net proceeds through sale of CER generated from the energy generation in the first year after the date of commercial operation of the project shall be retained by the beneficiary/developer.
- In the second year, the share of the beneficiary shall be 10% which shall be progressively increased by 10% every year till it reaches 50% in the sixth year; thereafter the proceeds shall be shared in equal proportion by the power generating company and the beneficiary.

Biomass based projects and bagasse-based co-generation projects availing CDM benefit shall share the net CDM proceeds annually as per above, by 31 March of every year with affidavit stating the annual energy generation (date of commissioning as starting point of the first year), CER generated, gross receipts, and net receipts.

(6) Banking of Surplus Energy

Biomass based power projects and bagasse-based co-generation projects generate power with controlled supply of fuel and hence the power generated from such projects can be predicted and scheduled in line with loads. The Commission, therefore, decides not to allow any banking facility to biomass-based power projects and bagasse-based co-generation projects either selling power to third party or wheeling for self-use.

(7) Purchase of surplus power from biomass-based power projects and bagasse-based co-generation projects opting for captive use and third-party sale under open access.

The Commission decides that the surplus power over and above the settlement as per schedule given by the captive users and those opting for third-party sale of power from biomass-based power project and bagasse-based power projects of 4 MW and above capacity shall be treated as per the provisions of the Intra-State ABT order in force.

(8) Renewable Energy Certificates for Third-Party Sale and Captive Use of power generated from biomass power projects and bagasse-based co-generation projects

The Commission decides to specify the concessional treatment available to the captive and third-party biomass and bagasse-based co-generation projects not registered under REC mechanism. The qualification of captive and third-party biomass and bagasse-based co-generation projects registering in the REC mechanism, in case they avail any concessional benefits, is governed by the CERC REC Regulations and its amendments, if any, and the same shall also be applicable to the projects commissioned in Gujarat.

The captive projects set up in the State of Gujarat and meeting the eligibility conditions, specified in CERC (Terms and Conditions for Recognition and Issuance of REC) Regulations, 2010 and the subsequent amendments are only eligible for availing RECs. As the Intra-State ABT is implemented in the State from 05.04.2010, the energy settlement for the projects registered under REC scheme will be done according to the provisions of the Intra-State ABT Orders.

(9) Security Deposit

The Commission decides that Bank Guarantee of Rs. 5 lakh/MW as security deposit needs to provide by the project developer to GETCO. Bank Guarantee is essential to assure GETCO about the seriousness of biomass and bagasse project developers. As such, considering the size and potential of biomass-based power

projects and bagasse based co-generation projects, the Commission decides to retain the provision of bank guarantee of Rs. 5 lakh / MW by the project developers to GETCO. Project developers are required to commission the project within 4 years from the date of sanction of the power evacuation line. The bank guarantee shall be encashed by GETCO if the project is not commissioned within the specified time period. In case of delay in commissioning the project beyond the prescribed time period due to unforeseen reasons beyond the control of project developer, the developer may approach the Commission for approval of time limit extension.

(10) Contract Demand for Commissioning/Start-up Power

The plants commissioned during the earlier control period are liable to pay relevant charges as of the provisions of the respective Orders of the Commission. If the developers have any concern in this regard, they may approach the Commission separately with a petition.

The Commission decides that for start-up and stand-by power used by the biomass-based power projects, demand charges will be exempted and energy charges will be equal to HT Industrial consumer tariff / category having similar connected load. The bagasse-based co-generation projects can meet the start-up / stand-by power requirement from the existing power supply available at the sugar factory.

(11) Monitoring Mechanism for the use of fossil and non-fossil fuel

In order to ensure continuous supply of fuel for such projects the Ministry of New and Renewable Energy has allowed use of certain percentage of fossil fuel along with the main biomass/bagasse fuel. However, to restrict such projects to use the allowed minimum percentage of fossil fuel and to keep check on the same, the Commission decides that the generators shall submit the details of monthly fuel usage to GEDA on quarterly basis and distribution licensees with whom PPA has been signed at the beginning of each quarter for the previous quarter in accordance with the details to be submitted under 'A+ Fuel Usage Statement'

below. The Commission nominate GEDA as the nodal agency for monitoring the usage of fossil fuel by the Biomass power and bagasse-based cogeneration projects set up in the State. The biomass-based power project and bagasse-based co-generation project developers shall submit the following information duly certified by a practicing Chartered Accountant empaneled by C&AG:

[A] Fuel Usage Statement

The biomass-based power project and bagasse-based co-generation project developers shall furnish a fuel usage statement and fuel procurement statement for each month, along with the monthly energy bill. The statement should cover the following details:

- i. Quantity of fuel (in tonnes) for each fuel type (non-fossil fuel and fossil fuel) consumed and procured during the month for power generation purposes,
- ii. Cumulative quantity (in tonnes) of each fuel type (non-fossil fuel and fossil fuel) consumed and procured till the end of that month during the year,
- iii. Actual (gross and net) energy generation (denominated in units) during the month,
- iv. Cumulative actual (gross and net) energy generation (denominated in units) until the end of that month during the year,
- v. Opening fuel stock quantity (in tonnes),
- vi. Receipt of fuel quantity (in tonnes) at the power plant site and,
- vii. Closing fuel stock quantity (in tonnes) for each fuel type (non-fossil fuel and fossil fuel) available at the power plant site.

Non-compliance to the condition regarding limited use of fossil fuel, during any financial year shall result in withdrawal of “Preferential tariff” as per this Order for such biomass and bagasse-based co-generation project.

[B] Information System for Creation of Database

The Commission decides to continue the maintenance of database for further review of the technical/financial parameters for the next tariff order. Hence, the

biomass-based power project and bagasse-based co-generation project developers are advised to keep the records of the following data and provide the same to GEDA and the Commission annually to create database for future.

- i. Number and categories of employees for different purposes.
- ii. Administrative and General Expenses.
- iii. Repair and Maintenance work carried out during the year specifying activities carried out with time period and spare/ material replaced and its cost.
- iv. Details of Spare parts of the plant / machines replaced during the year with justification and cost.

19.25. Other Issues

(i) Power Factor and EHV Rebate on Third Party sale and Captive Consumption

The treatment of Power Factor and EHV Rebate will be as per provisions of the distribution tariff orders passed by the Commission.

19.26. Applicability of the Order

In the draft Order it was proposed that the fixed and variable components of the tariff proposed in this draft Order will be made applicable for the biomass-based power projects and bagasse-based co-generation projects commissioned during the control period starting from 01.04.2020 to 31.03.2023.

The Hon'ble APTEL in its Order dated 15.11.2021 in Appeal No. 277/2021 and IA No. 1832 of 2020 held that the Order should be effective from 01.04.2020. Hence, we decide that Order is effective from 01.04.2020 to 31.03.2023.

The biomass-based power projects and bagasse-based co-generation projects commissioned during the control period of previous tariff orders shall get the variable component of tariff decided in this Order. The tariff determined by the Commission in this Order shall be applicable to the projects for which PPA would be signed and project would be commissioned. For the older projects, all the

provisions as given in their generic tariff orders read with provisions of PPAs for their respective control period shall prevail.

Further, we are of the view that to promote the renewable energy available from biomass/bagasse co-generation projects if any project developers approach the distribution licensees and the distribution licensees may consider the proposal and enter into the PPA with project developer with the provisions that the SCOD of such project may have available time up to 36 months from date of signing of the PPA and the tariff receivable by generators should be lower of applicable tariff in two control periods, i.e., (i) date of signing of the PPA and (ii) date of actual SCOD.

The Commission also decides that the bagasse-based co-generation projects shall have to undertake annual energy audit through the energy auditors empaneled by the State nodal agency.

20. We order accordingly.

Sd/-
[S. R. Pandey]
Member

Sd/-
[Mehul M. Gandhi]
Member

Place: Gandhinagar

Date: 27/06/2022