

Before the
MAHARASHTRA ELECTRICITY REGULATORY COMMISSION
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Case No. 1/SM/2022

In the matter of
Generic Renewable Energy Tariff for FY 2022-23 under MERC (Renewable Energy Tariff) Regulations, 2019

ORDER (SUO-MOTU)

Dated: 29 July 2022

Background:

1. The Commission notified the MERC (Terms and Conditions for Determination of Renewable Energy Tariff) Regulations, 2019, ('RE Tariff Regulations, 2019') on 30 December 2019 after following due process. These Regulations have become applicable from 1 April 2020 for determination of tariff for RE Technologies. The first Review Period under these Regulations is of five (5) financial years (FY), from FY 2020-21 up to the end of FY 2024-25.
2. As per Regulation 7.1 of RE Tariff Regulations, 2019, Tariff for following types of RE Projects shall invariably be determined through a transparent process of competitive bidding under Section 63 of the Act:
 - a. Wind Energy Power Projects;
 - b. Solar PV Power Projects;
 - c. Non-Fossil Fuel-based Co-Generation;
 - d. Biomass based Projects;
 - e. Hybrid RE Power Projects.

Thus, for all the above RE Technologies, the Commission is not determining the Generic Tariff and only adopts the tariff discovered through transparent competitive bidding process as has been specified in the RE Tariff Regulations, 2019.

3. Scope of determination of Generic Tariff under RE Tariff Regulations, 2019 is limited to notification of the generic tariff for Solar Roof-top PV and determination of variable charge for existing Biomass and non-fossil fuel-based Co-generation Projects. Relevant Regulation

is reproduced below:

“8. Generic Tariff

The Commission shall notify the generic tariff for Solar Roof-top PV Power Projects and determine the Variable Charges for Biomass and Non-fossil fuel-based Co-generation Projects, in accordance with the norms specified in these Regulations:

Provided that the above Generic Tariff determination of Variable Charges shall not apply for Biomass and Non-fossil fuel-based Co-generation Projects, whose tariff has been determined through the competitive bidding process and adopted by the Commission.”

4. As regards generic tariff for Solar Roof-top PV power project, Regulation 64 of the RE Tariff Regulations, 2019 states that it shall be notified in accordance with the approach specified in Regulation 7.3. Said Regulation 7.3 of RE Tariff Regulations, 2019 is reproduced below:

“7.3 The tariff for RE Power Projects below threshold limit of eligibility for participating in Competitive Bidding shall be considered equal to the following cases, in order of priority:

- a) Latest Tariff discovered through Competitive Bidding by concerned Distribution Licensee for similar RE project and adopted by the appropriate Commission;*
- b) The Tariff discovered through Competitive Bidding for similar RE project by Other Distribution Licensee(s) in the State and adopted by the appropriate Commission;*
- c) The Tariff discovered through Competitive Bidding for similar RE project in the Country and adopted by the appropriate Commission.”*

Thus, the above Regulations specify that the process of tariff determination for Roof-top PV is not envisaged in the RE Tariff Regulations, 2019. It only envisages notification of tariff as per the Regulation 7.1 of the RE Tariff Regulations, 2019.

5. As regards determination of variable charges for Biomass and Non-fossil fuel-based Co-generation Projects, the Regulations envisage such determination only for existing projects whose Energy Procurement Agreements (EPAs) are signed based on Generic Tariff determined by this Commission in the past. For the existing Projects which are covered under competitive bidding and all future projects, which shall be through competitive bidding only or EPAs whose tariff are pegged to competitively discovered tariff, variable charges shall be governed by their respective PPA and charges determined in this Order would not be applicable.
6. For determination of variable charge/fuel cost, RE Tariff Regulations 2019, stipulates

following:

For Biomass-based Power Project:

“46 The biomass fuel price for the first year of the Project shall be determined based on the prevailing prices of the fuel mix for each Project and based on an independent study by the Commission, and shall thereafter be linked to the indexation mechanism specified in Regulation 47:

For Non-fossil Fuel-based Co-Generation Project:

“ 56 The price of bagasse for the first year of the Project shall be determined based on the prevailing price of bagasse as assessed through an independent study by the Commission, and shall thereafter be linked to the indexation mechanism specified in Regulation 57:

In accordance with the above stipulations of RE Tariff Regulations, 2019, an independent study was to be initiated by the Commission to evaluate the Biomass and Bagasse fuel availability and their Prices in the State of Maharashtra. As the said study was not initiated at the time of issuance of first Generic Tariff Order under RE Tariff Regulations 2019, the Commission in its Order in Case No. 77 of 2020 dated 2 April 2020 ruled as follows:

“ 7. In accordance with the above stipulations of RE Tariff Regulations, 2019 an independent study was to be initiated by the Commission with assistance from reputed Firms/Institutions /Agency to evaluate the district-wise Biomass and Bagasse fuel availability and their Prices including transportation cost, loading/unloading cost, escalation factor for fuel price, losses in storage, opportunity cost in terms of alternative use etc in the State of Maharashtra. As this study involves actual field survey and collection of realistic data, the same cannot be initiated in the prevailing circumstances of COVID-19. Therefore, in the interim, the Commission deems it fit to continue with the existing variable charges for Biomass and Non-fossil fuel based Co-generation Projects as determined under RE Tariff Order dated 30 April 2019 in Case No. 52 of 2019 on provisional basis until the Commission duly determines the variable cost for these projects based on fuel cost arrived through independent study which is to be commissioned. Any variation in variable cost so determined shall be applicable as a variable charge for 2020-21 and shall be adjusted in subsequent bills.

8. Since fresh determination of variable charges is not being undertaken at present for Biomass and Non-fossil fuel-based Co-generation Projects, there is no necessity of Public Consultation Process.

9. The Public Consultation Process will be carried out and participation opportunity will be given to all the stake holder when the Commission receives the report of the

proposed independent study.”

7. Subsequently, the Commission initiated the study through ‘The Energy and Resource Institute (TERI)’ to determine the Biomass and Bagasse fuel availability and their Prices in the State of Maharashtra. The Study commenced in July 2020 with the expected time period of 8 months for completion. However, with the travel and other restrictions imposed due to COVID-19, TERI was not able to complete the study within the stipulated time period and hence additional time was allowed for the same.
8. As study was yet to be concluded, the Commission in its Order in Case No. 29 of 2021 dated 1 April 2021 ruled as follows with respect of variable charges for FY 2021-22:

“ 9. Therefore, in the interim, the Commission will continue with variable charges for Biomass and Non-fossil fuel- based Co-generation Projects as determined under RE Tariff Order dated 30 April 2019 in Case No. 52 of 2019 on provisional basis. Post completion of the study by TERI, the Commission will initiate the Public Consultation Process providing participation opportunity to all the stakeholders to finalize the Prices of Biomass and Bagasse fuel in the State of Maharashtra. Any variation in variable cost so determined shall be applicable as a variable charge for FY 2020-21 and FY 2021-22, and shall be adjusted in subsequent bills.”

9. Thus, the Commission vide its Orders dated 2 April 2020 (Case No. 77 of 2020) and dated 1 April 2021 (Case No. 29 of 2021) notified the Generic tariff for Rooftop PV and provisional variable charges for Biomass and Non-fossil fuel-based Co-generation projects for FY 2020-21 and FY 2021-22.
10. Thereafter, as study Report from TERI got submitted to the Commission, the Commission decided to seek suggestions and objections from stakeholders on the said Report. In order to convey the implications of TERI report, the Commission in draft RE Tariff Order for FY 2022-23 computed indicative variable charge for Biomass and non-fossil fuel based co-generation projects by using the fuel cost as recommended by TERI in its Report and the performance parameters as stipulated in RE Tariff Regulations, 2019.
11. Through a Public Notice published in the daily newspapers The Times of India and The Economic Times (English) and Maharashtra Times and Loksatta (Marathi) on 30 March 2022 the Commission invited comments by 20 April 2022 on its draft RE Tariff Order and TERI Report which was made available on its websites. Subsequently, in view of request of stakeholders, the Commission through Public Notice dated 20 April 2022 extended the last date for submission of comments till 10 May 2022.
12. The E-Public Hearing was held on 17 May 2022. The list of persons who submitted their comments, suggestions and objections in writing and/or made oral submissions during the Public Hearing is at **Appendix-1** and the list of those who participated in the Public Hearing is at **Appendix-2**.

13. After considering the responses received on the Draft Order and TERI Report published by the Commission and in discharge of its mandate under Regulation 10.1 of the RE Tariff Regulations, 2019, the Commission is hereby notifying Generic Tariff rates for Rooftop PV projects for FY 2022-23 and undertaking process of determining variable charges for Biomass and Non-fossil fuel-based Co- generation Projects for FY 2020-21 to FY 2022-23 based on the financial principles and technology specific parameters as explained in the subsequent sections of the Order.

14. Comments/Objections received and the Commission's Ruling

The Commission has categorised the comments received in three major parts i.e. (A) Comments on TERI's Report and fuel pricing study (B) Comments on Generic Tariff of Solar PV projects (C) Comments on Small & Micro Hydro projects.

(A) Comments on TERI's Report and Fuel pricing Study

14.1. Procedural aspect of study conducted by TERI

Stakeholders Comments/Suggestions:

M/s. AA Energy Ltd., M/s. Maharashtra Vidhyut Nigam Pvt. Ltd, Biomass Energy Developers Association and Manas Agro Industries & Infrastructure Ltd. have objected that the study has been undertaken during nationwide lockdown in Covid-19 pandemic period and hence does not represent the actual picture.

M/s. Maharashtra Rajya Sahakari Sakhar Karkhana Sangh Ltd, M/s. West Indian Sugar Mills Association, M/s. Western India Sugar Mills Association and M/s. Cogeneration Association of India have submitted that the fuel price depends very heavily on the material collected by survey agency during the primary survey. TERI has sub-contracted its survey activity. Such subcontracting of work to a private profit-making entity is clearly contrary to the letter and spirit of the MERC RE Tariff Regulations, 2019 and the Request for Proposals (RfP) (floated by the Commission while contracting the survey work) in terms of reliability of the primary data collected. Hence, the TERI report needs to be discarded.

M/s. Maharashtra Rajya Sahakari Sakhar Karkhana Sangh Ltd, M/s. West Indian Sugar Mills Association, M/s. Western India Sugar Mills Association and M/s. Cogeneration Association of India have pointed that TERI in its report has indicated that five (5) plants were closed, and twenty-six (26) bagasse plants have been surveyed. RfP clearly outlines that the selected bidder shall visit and assess at least 25% of the total installed project capacity in each district for the purpose of collecting primary data. The seriousness with which the primary data seems to have been collected is extremely doubtful.

Commission's Ruling:

As summarized in initial part of the Order, new RE Tariff Regulations have come into force from 1 April 2020 and study for fuel cost as envisaged in the Regulations has been initiated in July 2020. During that period restrictions on account of Covid-19 pandemic were in forced, due to which original timeline of 8 months for undertaking this study was extended. Whenever there was relaxation in Covid-19 restrictions, TERI had undertaken field study. Secondary data collection and analysis is not affected by Covid-19 restrictions. Also it is important to note that as base fuel cost for FY 2020-21 was to be decided through this Study, TERI has assessed historical performance (financial & technical) data, more particularly of FY 2019-20. Nationwide lockdown has been enforced from 24 March 2020. Hence data gathered and relied upon (except 8 days of March 2020) is of pre Covid-19 period. Hence argument that the survey data is not representing actual picture is untenable.

Regarding subcontracting of responsibility, the Commission notes that TERI has subcontracted field survey related activity to M/s PPS Energy Solutions Pvt. Ltd. It is important to note that M/s PPS Energy Solution Pvt. Ltd. is empanelled consultant with MERC also. Such subcontracting does not mean that entire responsibility has been passed on to a third party. TERI has trained the agency personnel for collection of data and also accompanied them at few locations. Further, it is industrial practice to subcontract field survey work and supervise that work. Hence, the Commission is not inclined to accept the objection that as TERI has subcontracted field survey to third party, its Report lacks credibility.

Regarding inability to complete survey of all identified generators, the Commission notes that even after challenges posed by Covid-19 restrictions, representatives of TERI have visited all identified sites of the generators. However, some of the generators, inspite of being in their own interest, have not provided access or shared desired data to TERI. This is after the Commission having issued letter / email authorizing TERI for collection of data. Intervention of the Commissioner Sugar, Govt of Maharashtra and Maharashtra Energy Development Agency was also used for directing these generators to cooperate with TERI. But still some of the generators have not shared the required data with TERI. Hence, TERI cannot be faulted with for not collecting data from all identified generators.

In view of above, the Commission rejects all objections on procedural aspects raised against TERI Report. In fact, the Commission appreciates the efforts taken by TERI to complete this study under severe pandemic situations.

14.2. Fuel Cost recommended by TERI:

Stakeholders Comments/Suggestions:

M/s. AA Energy Ltd., M/s. Maharashtra Vidhyut Nigam Pvt. Ltd Biomass Energy Developers Association and Manas Agro Industries & Infrastructure Ltd. stated that due to

non-takers of biomass during lockdown (study period), Biomass prices were down. Presently cost of Diesel is up by almost 20% and its corresponding impact on Transportation cost is 6.85%. Further, under value added tax regime (VAT) biomass energy projects were entitled for the rebate of 2%. After implementation of Goods and Service tax (GST), this rebate is no longer provided. TERI Report fails to consider above aspects. Further, the Ministry of Power vide its Notification dated 8 October 2021 directed the Coal based Thermal Power Plants to mandatorily use 5% of blend of biomass pellets along with their coal requirement. This competition will increase the cost of Biomass for purely Biomass based project. They requested the Commission to adopt the Biomass tariff stipulated by CERC.

M/s. Maharashtra Vidhyut Nigam Pvt. Ltd submitted that in last quarter of FY 2021-22 energy is traded on IEX platform at the rate of Rs.12/-. This aspect needs to be considered by the Commission while decide the fuel and variable charges for Biomass based power projects.

M/s. Maharashtra Rajya Sahakari Sakhar Karkhana Sangh Ltd, M/s. West Indian Sugar Mills Association and M/s. Western India Sugar Mills Association have submitted that TERI report mentions Spilt Cost method for estimation of bagasse price. While justifying split cost method the report states that price of sugarcane and price of sugar are controlled by the Government. TERI has failed to recognize that the Government does not control the price of sugar and it is purely governed by market forces. This single observation is sufficient to show that TERI Report is completely misdirected. As far as production cost method is concerned TERI report is referring to UP model which is itself under litigation before Hon'ble High Court at Allahabad. TERI has computed Bagasse price based on average FRP of sugar cane for all surveyed plants. As per objectors FRP cannot be averaged out. TERI's observation regarding no alternative market/competitive market for bagasse is also not tenable. They have further contended that historically, for determination of fuel prices the Commission has followed the modalities adopted by the CERC. In so far as the determination of price of Bagasse is concerned, the RE Tariff Regulations, 2019 have introduced the concept of prevailing price. The price prevalent would have two aspects – (i) the price in so far as a particular geographical location is concerned; and (ii) the price in so far as a particular time is concerned. The TERI Report does not conform to either of these considerations.

Manas Agro Industries & Infrastructure Ltd. in its submission suggested following weightages for computation of cost of bagasse:

Sr. No.	Approaches	Weightages
1	Coal Equivalent method	20.00%
2	Alternate fuel GCV equivalent method	10.00%
3	Market Rate of Bagasse	10.00%
4	Modified Split off Method	10.00%
5	Preference Tariff Method	0.00%

6	Production Cost Method	25.00%
7	Bagasse cost derived by CERC for the year FY 2021-22	25.00%

Average price of Bagasse after considering above weightages works out to be Rs.2821.20/MT. Manas Agro Industries & Infrastructure Ltd. pointed out that use of fossil fuel of 15% of total energy consumption in kCal during crushing season is allowed. But no impact of same on Bagasse pricing has been considered. Further, TERI in its report has mentioned that GCV of Rice Husk is 3200 Kcal/Kg @ 10% Moisture. But considering the impurities like dust etc the average GCV of Rice Husk observed is 3100 Kcal/Kg. Rice Husk is main fuel in Biomass based power Plant as majority of the boiler is Fluidized Bed Combustion (FBC) Type.

M/s. Cogeneration Association of India has submitted that the approach of linking the fuel cost with equivalent coal cost or heat value or any other alternative approach can be followed in states where there is limited experience of bagasse-based cogeneration so that the fuel costs can be benchmarked. In the state like ours where bagasse-based cogeneration plants are operating for some time and there is a clearly measurable bagasse market, the actual fuel costs derived from prevalent market price of bagasse with periodic revisions of the variable cost ought to have been the preferred approach. Hence, the 'prevailing price' approach adopted by the Hon'ble Commission in Regulation 56 of the RE Tariff Regulations-2019 thereby linking the price of bagasse to its prevailing market price is a time-appropriate and welcome step. M/s. Cogeneration Association of India prayed to accept the bagasse price as evidenced from the invoices at which its members have procured bagasse in open market and adopt such price as fuel price under Regulation 56 of the RE Tariff Regulations-2019

M/s. Cogeneration Association of India further stated that it is imperative that the Commission calls for a fresh study and then determines the prevailing price of bagasse. In the alternative, either the Commission may (i) adopt the bagasse price as evidenced from the invoices at which members of Cogen India have procured bagasse in open market; or (ii) accept the TERI Report to the limited extent and adopt the market price of Rs. 2590/MT mentioned therein; or (iii) adopt the bagasse price of Rs. 2763.60/MT fixed by CERC for bagasse-based cogeneration plants situated in the state of Maharashtra.

Further, during hearing Advocate appearing on behalf of M/s. Cogeneration Association of India referred to Hon'ble Appellate Tribunal's Judgement in the case of ***South Indian Sugar Mills Association v. Tamil Nadu Electricity Regulatory Commission, 2013 SCC OnLine APTEL 122***. Relevant extract is reproduced below:

“
53. The State Commission is bound to be guided by the Central Commission's principles and methodology having regard to the local conditions in the State. Accordingly, the State Commission ought to have considered the equivalent heat value method and the market price of bagasse before deciding the price of bagasse.”

Commission's Ruling:

The Commission notes that TERI in its report has proposed cost of fuel for biomass plant based on actual fuel procurement details made available by the plants during field survey. Whereas in respect of bagasse-based cogeneration plants, TERI has arrived at fuel cost by weighted average of six different methods for arriving at price of bagasse used in Cogen plant. This is because most of the bagasse used in Cogen plant is generated inhouse in Sugar factory by crushing of sugar cane.

Objectors have claimed that there are various drawbacks in approach adopted by TERI for arriving at fuel cost. Further during the Public hearing the Commission's attention is drawn towards recent APTEL judgment in Appeal No. 229 of 2018 dated 2 August 2021 (*South Indian Sugar Mills Association Vs Karnataka Electricity Regulatory Commission*) dated wherein Hon'ble APTEL has ruled that SERC is obligated to consider the CERC's equivalent heat value method and market price of bagasse while deciding the price of bagasse. In view of the said judgment of the Hon'ble APTEL, the Commission in subsequent part of this Order has used methodology suggested by APTEL for arriving at price of bagasse. Same approach has been adopted for arriving at price of biomass. Therefore, the Commission is not addressing the specific objections raised on the fuel cost recommended by TERI Report. However, as explained in subsequent part of the Order, the Commission has also considered the market value of bagasse as reported in TERI Report for arriving at price of bagasse in combination with CERC's equivalent heat value method.

As far as objection that recent escalation in diesel cost has not been factored in, the Commission notes that said fuel cost being determined in the present Order is base cost for FY 2020-21 which is then escalated by 5% per annum. Such escalation provided as per provisions of RE Tariff Regulations 2019 is for factoring escalation in fuel prices. Hence, issue of fuel cost escalation has already been addressed. As far as issue of increase in biomass cost on account of mandate of 5% co-firing of biomass in coal fired thermal station, the Commission notes that objectors have not substantiated the claim with data and hence the same cannot be considered purely on conjectures.

One of the objectors has also referred to recent rate on Power exchanges for seeking higher variable cost. In the opinion of the Commission such argument by relying upon abnormal increase in tariff on power exchanges for limited period cannot be considered in the tariff setting exercise. This is especially true for the projects u/s 62 of the Electricity Act 2003. When rates on power exchanges were on lower side, the generators have never referred to the same, leave aside proposing reduction in their tariff. Hence, such selective reliance on power exchange rates that too which is prevailing for a very limited period cannot be accepted.

14.3. Other issues related to bagasse and biomass:

Stakeholders Comments/Suggestions

M/s. Maharashtra Rajya Sahakari Sakhar Karkhana Sangh Ltd, M/s. West Indian Sugar Mills Association, M/s. Western India Sugar Mills Association and M/s. Cogeneration Association of India have submitted that as per TERI reports, driers are used only in two sugar mills namely Malegaon Sahakari Sakhar Karkhana and Ashok Sahakari Sakhar Karkhana and these two units have shown a better bagasse to steam ratios. Objectors pointed out that the driers used in above mentioned sugar factories were only as experimental and demonstration purposes and are part of temporary arrangements. During the visits by survey team these driers were on experimental operation. Therefore, reference to driers is completely misplaced.

M/s. Maharashtra Rajya Sahakari Sakhar Karkhana Sangh Ltd, M/s. West Indian Sugar Mills Association, M/s. Western India Sugar Mills Association and M/s. Cogeneration Association of India submitted that the payment of FRP within prescribed mandated period depends upon the revenue accruals of the different units in the sugar complex. Resultantly the distillation units and cogeneration units significantly impact the payment of FRP. Therefore, any arbitrary fixation of Tariff will significantly impact the same.

Commission's Ruling:

The Commission observes that the TERI in its report reported the presence of driers in Malegaon Sahakari Sakhar Karkhana and Ashok Sahakari Sakhar Karkhana. It is admitted fact that when survey activities were carried out, driers were in place. It is not known whether dryers have been used for full season or only for partial period. TERI report concludes that sugar mills with dryers have shown better bagasse to steam ratio. Said observation does not have any impact on fuel cost being determined in this Order, however considering usefulness of dryers based on its own due diligence, Cogen plant may consider it for improving their efficiency i.e. bagasse to steam ratio.

As far as contention that arbitrary tariff fixation impacts FRP of bagasse, the Commission notes that as a sectoral Regulator it is duty bound to protect the interest of electricity consumers. The Commission in this Order has determined variable cost for bagasse Cogen and biomass based generating plant by relying on APTEL Judgment and RE Tariff Regulations framed by it. If Cogen Plants are foreseeing any implication on FRP on account of such tariff determined by the Commission, they can approach the Government for necessary remedial measure. The Commission has no role in deciding FRP for sugar cane.

(B) Generic Tariff for Rooftop PV:

14.4. Tariff for procurement of surplus solar power under net-metering arrangement

Stakeholders Comments/Suggestions:

MSEDCL has contended that the Commission in its Draft Order has notified Rs. 3.00/kWh as a Generic Tariff rate for procurement of surplus power at the end of financial year from Rooftop-PV projects for FY 2022-23. The Commission has considered the tariff adopted by it in Case No. 141 of 2021 dated 3 December 2021 (Mukhyamantri Saur Krishi Vahini Yojana Projects). The Rooftop-PV projects are installed by the consumers for their self-use and therefore export of surplus units may not be encouraged. The purchase of power at higher tariff may encourage the consumer to oversize the Rooftop-PV projects. Also, MSEDCL has contracted sufficient solar power quantum for fulfillment of its solar RPO target. Hence, the lowest discovered tariff may be considered as Generic Tariff rate for procurement of surplus power from Rooftop-PV projects. As on March 2022, the Rooftop PV solar projects installed in MSEDCL Licensee area is 973 MW. The Commission vide its Order dated 11 March 2022 in Case No. 10 of 2022 has adopted the tariff rate of Rs. 2.42/kWh discovered in the MSEDCL's tender for procurement of 500 MW Power from Grid Connected Solar projects. Accordingly, MSEDCL requested the Commission to consider the Generic Tariff rate as Rs. 2.42/kWh for procurement of surplus power at the end of financial year from Rooftop-PV projects for FY 2022-23.

Commission's Ruling:

The Commission notes that MSEDCL is suggesting for consideration of the tariff discovered in its tender for procurement of 500 MW grid connected solar projects. In this regard it is relevant to mention that utility scale projects often have lower per kW installation and maintenance cost due to economics of scale. Project capacity tied up under MSKVY is between 2 MW to 10 MW. Further, such surplus solar power is available at consumer end as against grid scale projects whose power is available at Maharashtra STU periphery, therefore if impact of transmission charges, transmission and distribution losses is added, then effective rate of grid scale project will come around that of MSKVY project. Hence, Commission deems it fit to adopt tariff of projects discovered in MSKVY instead of 500 MW utility scale projects.

14.5. Amendment in MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019:

Stakeholders Suggestions and Objections

TPC-D has suggested that Regulation MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019 needs to be amended. As per the regulation 6.3 of MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019, five percent variation in the rated capacity of the system being installed is allowed hence the procurement of surplus power at the end of year under Net-metering arrangement at Generic Tariff should be limited to the 5% of the average monthly quantum generated.

Further, under Net-billing arrangement, it should be the discretion of the Distribution Licensee to enter into EPA or not, as average Power Procurement Cost (APPC) which would be constant for entire period of EPA is much higher than the purchase cost of the Solar RE available in the market. In case the Commission is in favour of making it compulsory for the Distribution Licensee to enter into EPA then the tariff should be as per the Regulation 7.3 of RE Tariff Regulations, 2019.

Commission's Ruling:

Scope of this proceedings is limited to notification of generic tariffs for Solar Roof-top PV and determination of variable charge for biomass and non-fossil-based co-generation projects for FY 2022-23. The issue flagged by TPC-D needs to be dealt in separate Petition. Accordingly, TPC-D is granted liberty to approach the Commission separately under relevant provisions of the EA-2003 with detailed justification.

(C) Issues related to Small Hydro and Mini Hydro Projects

14.6. Guidelines for applicability of tariff to Small Hydro Project having EPA but yet to be commissioned

Stakeholders Comments/Suggestions:

MSEDCL has submitted that it has signed PPAs with below mentioned Small Hydro Projects as per the RE Tariff Regulations 2015 which are not yet commissioned. As per the PPA the tariff applicable is as per the year of commissioning of the project. The details of such projects are as under:

Sr. No.	SHP Name	Project name	Capacity (MW)	Location	PPA Date
1	Sanjay B. Patil	Jambre	2	Kolhapur	29.03.2017
2	Shreehari Associates Pvt. Ltd	Mukane	1.45	Nasik	06.05.2015
3	Khare & Tarkunde Infrastructure Pvt Ltd	Purna	0.5	Amravati	06.03.2018
4	Wat-ere-source Technologies Pvt. Ltd.	Karwand	1.25	Dhule	27.06.2018
5	Sneus Hydro Pvt. Ltd.	Khadkwasla	1.2	Pune	21.08.2019

MSEDCL requested for guidelines regarding the applicable tariff to above projects.

Commission's Ruling:

The Commission observes that MSEDCL has pointed out an issue in implementation of EPAs under RE Tariff Regulations, 2015 regime under control period governed by RE

Tariff Regulations, 2019. However, concerned project developers are not party to the present proceeding. Principle of natural justice mandates hearing both parties which cannot be fulfilled in present case. Therefore, the Commission cannot address this issue in present proceeding. MSEDCL is at liberty to file separate Petition on this aspect as per the law by making these project developers party to those proceedings.

15. Notification of Generic Tariff for Rooftop PV:

15.1. The Regulation 64 of RE Tariff Regulations, 2019 specifies the provision for Technology-specific parameters for Utility-Scale Solar PV Power Projects and Solar Roof-top Project as under:

“64. Technological Aspects:

The norms specified under these Regulations shall be applicable for determination of project-specific tariff for Utility-Scale Solar PV Power Projects, using sunlight for direct conversion into electricity through Photo Voltaic technology as approved by MNRE:

Provided that for Solar Rooftop PV Power projects, the Generic Tariff shall be notified in accordance with the approach specified in Regulation 7.3.”

15.2. The Regulation 7.3 is reproduced under para 4 above which specifies three options for considering the latest tariff in order of priority. The Commission notes that none of the Distribution Licensee in the State has discovered tariff for procurement of energy from Rooftop PV projects through competitive bidding. Further, rates discovered in other States may not be exactly similarly placed in terms of subsidy component, any other tariff benefits or state specific conditions, which are not available in Maharashtra.

15.3. The Commission notes that presently Distribution Licensees are procuring surplus power under Net-Metering arrangement or all power generated by Rooftop PV under Net-billing arrangement as prescribed under MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019. In this Regulation, it is stipulated that Distribution Licensee shall procure surplus power at the end of year under Net-metering arrangement at Generic Tariff approved by the Commission for that year. Whereas under Net-billing arrangement, Distribution Licensee has to enter into EPA at Average Power Procurement Cost (APPC) which would be constant for entire period of EPA. Thus, the Commission has to notify Generic Tariff for Rooftop PV which would be used for procurement of surplus energy at the end of financial year. APPC rate for entering into EPA under Net-billing arrangement would be based on power procurement approved in Tariff Order of respective Distribution Licensee.

15.4. As stated earlier, none of the Distribution Licensees in the State has discovered tariff for procurement of energy from Rooftop PV through competitive bidding. The Commission notes that under Net-metering arrangement it is expected that consumer will install

Rooftop PV for self-consumption only and would not have a planned surplus except for only a negligible unintended quantum, more due to climatic/weather factors. Provision of annual banking allowed under Net-metering arrangement would further reduce such surplus available at the end of financial year. Such surplus power procured by Distribution Licensee is used for meeting its Solar RPO. Distribution Licensees have option of meeting their Solar RPO by procuring energy from grid scale solar PV projects and Licensees in the State have already been exercising such option. Hence, the Commission deems it fit to use latest tariff rate discovered for Grid Scale Solar project as a Generic Tariff for procurement of surplus energy from Rooftop PV projects. The Commission notes that in its Order dated 3 December 2021 in Case No. 141 of 2021 has adopted tariffs quoted in the range of Rs. 3.00/kWh to Rs.3.05/kWh under ‘Mukhyamantri Saur Krishi Vahini Yojana’ from 2 to 10 MW capacity projects. Accordingly, the Commission hereby notifies Rs. 3.00/kWh as a Generic Tariff rate for procurement of surplus power at the end of financial year from Rooftop-PV projects for FY 2022-23. It is mandatory for Distribution Licensees to procure such surplus power at the end of financial year which would in any case be counted towards meeting their Solar RPO.

16. Notification of APPC rate:

16.1. Although, it is not required to notify APPC rate under RE Tariff Regulations and it can be computed based on Tariff Order of respective Distribution Licensee, for ease of understanding of various stakeholders, the Commission is representing the same in this Order. The Commission notes that RE Tariff Regulations, 2019 provide the definition of Average Power Purchase Cost (APPC) as under:

“2.1 (c) Average Power Purchase Cost” or “APPC” means the weighted average price at which the Distribution Licensee has purchased or is expected to purchase electricity (excluding procurement from RE sources and liquid fuel sources), including the cost of self-generation, if any, as approved by the Commission in the relevant Tariff Order or any other general or specific Order;

16.2. Thus, while determining APPC, procurement from renewable energy sources and liquid fuel sources needs to be excluded. Accordingly, Distribution Licensee wise APPC for FY 2022- 23 is given below:

Distribution Licensee	Tariff Order dated 30 March 2020	APPC excluding RE & Liquid Fuel Source for FY 2022-23 (Rs/kWh)
	Case No	
MSEDCL	322 of 2019	4.05
BEST Undertaking	324 of 2019	4.70
AEML-D	325 of 2019	4.25
TPC-D	326 of 2019	4.43
MBPPL	328 of 2019	4.07
KRCIPL	329 of 2019	3.92
GEPL	330 of 2019	3.95

APPC rate mentioned in last column of the above table shall be used by Distribution Licensee for entering into an EPA with Rooftop PV under Net-billing arrangement for project commissioned in FY 2022-23. Further such rate will be constant for entire period of EPA.

17. Variable charges of Biomass and Non-fossil fuel-based Co-generation Projects:

A. Price for Bagasse used in non-fossil fuel based Cogeneration Plant:

17.1. The Commission notes that for ascertainment of bagasse price, TERI has suggested following six (6) approaches and by application of 16.7% weightage to each approach has estimated price of bagasse:

Approaches	Bagasse cost (Rs/MT)	Weightage	Weighted cost
Coal equivalent method	2281	16.7%	380.1
Alternate fuel GCV equivalent method	1892	16.7%	315.3
Market rate of bagasse	2590	16.7%	431.7
Modified Split off cost	1608	16.7%	268
Preferential tariff method	1857	16.7%	309.5
Production cost method (UPERC + KERC)	790	16.7%	131.7
Average cost (Rs./ton)		100%	1836.3

17.2. The Commission notes that various stakeholders have expressed their reservations on approaches considered by TERI in its report. Further, during public hearing stakeholders have supplemented their arguments by relying on APTEL Judgements in Appeal No.199 of 2012 dated 4 September 2013 (*The South Indian Sugar Mills Association & Ors Vs Tamil Nadu Electricity Regulatory Commission*) and Appeal No. 229 of 2018 dated 2 August 2021 (*South Indian Sugar Mills Association Vs Karnataka Electricity Regulatory Commission*).

17.3. Major stakeholders such as CAI has pointed out that Regulation 56 of MERC RE Tariff Regulations,2019 mandates that the price of bagasse for the first year of the Project shall be determined based on the prevailing price of bagasse as assessed through an independent study. CAI in its submission advocated for market rate adoption approach and equated the prevailing price with market discovered rate.

17.4. The Commission finds that at present there is no data available for competitive procurement of bagasse. CAI has submitted invoices of bagasse procurement, but these are typically for a very quantity and hence cannot be considered as to conclusively arrive at the market price. Further, TERI in its report has considered Market rate as one of the approaches. The price of bagasse changes based on locality, season and quality of bagasse. Hence, restrictive reading of prevailing price of bagasse as market price is not appropriate.

The Commission notes that TERI in its report has rightly pointed out all the possible approaches (though few are under litigation) for ascertainment of bagasse price.

17.5. However, the Commission notes that Hon’ble APTEL in its judgment in Appeal No. 229 of 2018 dated 2 August 2021 (*South Indian Sugar Mills Association Vs Karnataka Electricity Regulatory Commission*) has referred to its earlier Judgement in Appeal No.199 of 2012 dated 4 September 2013 (*The South Indian Sugar Mills Association & Ors Vs Tamil Nadu Electricity Regulatory Commission*) which has clearly stipulated modalities to be followed by SERCs while giving considerations to fuel prices of bagasse/biomass-based projects. Relevant para of the Judgement reads as below:

“53. The State Commission is bound to be guided by the Central Commissions principles and methodology having regard to the local conditions in the State. Accordingly, the State Commission ought to have considered the equivalent heat value method and the market price of bagasse before deciding the price of bagasse.” (Emphasis added)

Considering above mandate, the Commission has decided to consider combination of equivalent heat value method and market price approach as explained below:

17.6. Equivalent Heat Value Method:

a. The Commission notes that CERC while computing fuel price has considered landed cost of coal for thermal Stations for respective States. Accordingly, as base fuel cost is to be determined for FY 2020-21, the Commission has decided to consider fuel cost approved for MSPGCL’s coal based thermal stations for FY 2020-21 in its MYT Order dated 30 March 2020 issued in Case No. 296 of 2019. Accordingly, relevant details are tabulated below:

Station/Unit	FY 2020-21		
	Landed Cost of Coal	GCV	Rs/Kcal
	Rs./MT	kcal/kg	
Bhusawal	4812	3890	1237.04
Chandrapur	3109	3624	857.81
Khaperkheda	3312	3494	948.04
Koradi	3805	3702	1028.09
Nashik	4276	3928	1088.56
Paras Units 3 & 4	3829	3450	1109.81
Parli Units 6 & 7	4749	3193	1487.55
Khaperkheda Unit 5	3438	3561	965.38
Bhusawal Units 4 & 5	4723	3669	1287.25
Koradi Units 8, 9 & 10	3335	3495	954.37
Chandrapur Units 8 & 9	3612	3748	963.51
Parli Unit 8	4697	3269	1436.78
Average			1114

- b. The Commission notes that while giving consideration to landed cost of coal, CERC nowhere mentions whether the stations under consideration are pit head stations or otherwise. In case of Thermal station cost of transportation and associated coal handling can be a significant component. It is evident from MSPGCL's MYT filing in Case No.296 of 2019, such costs are to the tune 18.11% to 26.75% of landed cost of coal.
- c. As against coal which needs to be transported from coal mines to plant location, bagasse is generated within the factory premises and utilized in the Cogen unit. In such scenario transportation cost is not involved in case of bagasse. Therefore, coal cost of pit head thermal stations would have been appropriate for computing price of bagasse on heat equivalent method. Most of the plants in Maharashtra are non-pit head stations. Therefore, to factor local conditions, the Commission thinks it is appropriate to consider cost associated with coal only and not transportation.
- d. From Trued-up figures submitted by MSPGCL in its MYT Petition in Case No. 296 of 2019, it is evident that transportation cost works out to be 18.11% of Landed cost of coal. Accordingly following coal cost has been computed for Equivalent Heat Value Method

Particular	Rs/kcal (a)	GCV (b)	Landed Cost of bagasse on heat equivalent basis (c) = [(a) x (b)/1000]	Landed Cost of bagasse on heat equivalent basis less Transportation (d)= (c)-(18.11%(c))
FY 2020-21	1114	2250	Rs. 2507 / MT	Rs. 2053 / MT

17.7. Market Based approach:

- a. The Commission notes that TERI in its report amongst other approaches has also considered market-based approach for arriving at bagasse price and proposed bagasse price of Rs. 2590/MT on this approach. M/s. Cogeneration Association of India in its submission as one of the alternatives has suggested to accept the TERI Report to the limited extent and adopt the market price of Rs. 2590/MT mentioned therein.
- b. In this regard, the Commission notes that although TERI has suggested market-based approach as one of the approaches for arriving at the price of bagasse, TERI in its Report has also pointed out that most of bagasse is used internally by Cogen plant and there is no alternative market for bagasse.
- c. In view of above observation based on field survey undertaken by TERI, the Commission is of the opinion that restricting the methodology to the market-based approach cannot be used for arriving at price for bagasse.

17.8. Price of Bagasse:

- a. As stated above, due to insignificant or non-existence of market for bagasse, market-based approach cannot be used. Hence, in compliance with APTEL judgment, the Commission is using equivalent heat value method as explained in para 17.6 above.
- b. Further, it is also important to factor in possible impact of policy initiatives. The Commission notes that Govt. of India has mandated cofiring of biomass (bagasse is part of biomass) in coal based thermal stations. Such policy initiatives may increase demand for biomass including bagasse. At present there is no concrete data on the impact of this policy on the pricing of bagasse. However, the Commission is of the opinion that there is a possibility of atleast a limited impact on the pricing of bagasse and hence deems it appropriate to allow additional 10% increase in price arrived based on equivalent heat value method.
- c. Accordingly, final price of bagasse for FY 2020-21 is as follows:

Particulars	Bagasse Price (Rs/MT)
Price based on Heat equivalent Method (a)	2053
10% Increase (b)	205
Final Price of Bagasse (c = a + b)	2258

B. Price for biomass used in Biomass fired generation Plant:

17.9. As bagasse is subset of Biomass, the Commission deems it appropriate to extend the principle used for determination of bagasse price to Biomass. Accordingly, combination of heat equivalent method and market price is to be used for computing price of biomass.

17.10. Equivalent Heat Value Method:

- a. Unlike Bagasse, biomass is the commodity generated outside the electricity generating plant. Accordingly, transportation cost is substantial in case of biomass-based projects. Hence, landed cost of coal has been considered which is inclusive of transportation cost.
- b. Considering cost parameters for MSPGCL's stations as mentioned in Para 17.6, following coal cost has been considered for Equivalent Heat Value Method:

Particular	Rs/kcal (a)	GCV (b)	Landed Cost of biomass on heat equivalent basis (c) = [(a) x (b)/1000]
FY 2020-21	1114	3611	Rs. 4023 / MT

17.11. Market Based Approach:

- a. Unlike bagasse-based Cogen plant, biomass-based power plant has to procure biomass from farmer/other agencies. Also, the details (including the price) of procurement of

Biomass is available for a high quantity and hence market based approach is relevant for determining price of biomass.

- b. TERI in its report has mentioned that biomass consumption study has been performed for seven (7) plants and worked out average price of biomass to be Rs.3238 per Ton. The Commission notes that this price is determined based on actual data submitted by generating plants during the survey.
- c. Out of ten (10) bio-mass based units are operational in Maharashtra, survey covers Seven (7) plants. Therefore, fuel cost computed (Rs. 3238 per MT) by TERI based on data provided by these 7 plants can be considered as market price for biomass.
- d. Further, as stated in earlier part of this Order, biomass price needs to factor in impact of policy initiatives of cofiring of biomass in coal-based power plant. Hence, above market-based price recommended by TERI is increased by 10% and Rs. 3562 per MT and the same is considered for further determination of biomass price.

17.12. Price of Biomass:

- a. Based on above considerations final price of biomass for FY 2020-21 is assessed as below by allocating the equal weightages to Equivalent Heat Value Method and Market Price.

Particulars	Bagasse Price (Rs/MT)	Weightages	Weighted Price
Heat equivalent Method	4023	50%	2011
Market based approach	3562	50%	1781
Average Cost (Rs/MT)			3792

C. Variable cost for Biomass and non-fossil fuel-based Cogeneration plant:

17.13. MERC RE Tariff Regulations 2019 stipulated following formula for determination of variable charge for biomass-based power project:

“47.1 In the case of both existing and new Biomass-based Power Projects, the following indexing mechanism for adjustment of fuel prices for each year of operation will be applicable for determination of the variable charge component of tariff:

The Variable Charge for the nth year shall be computed as under:

$$VC_n = VC_1 \times (P_n / P_1)$$

where,

VC₁ represents the Variable Charge based on Biomass Price P₁ for first year as specified under Regulation 46, and which shall be determined as under:

$$VC1 = \frac{\text{Station Heat Rate (SHR)}}{\text{Gross Calorific Value (GCV)}} \times \frac{1}{(1 - \text{Auxiliary Consumption Factor})} \times P1 / 1000$$

P_n = Price per tonne of biomass for the *n*th year to be considered for tariff determination;

P_{n-1} = Price per tonne of biomass for the (*n-1*)th year to be considered for tariff determination;

P1 shall be the Biomass price for FY 2020-21 as specified under Regulation 46;

47.2 The Biomass fuel price shall be revised by the Commission taking into consideration the Biomass fuel price determined by the Central Commission, or a normative escalation factor based on an independent study by the Commission, or 5% per annum, as the Commission may consider appropriate.”

17.14. Similar formula has been stipulated in Regulation 57 of RE Tariff Regulations 2019 for computing variable charge for non-fossil fuel-based co-generation project.

17.15. Following parameters have been used in above stipulated formula for computation of variable charge:

Parameter	Source	Biomass Project	Non-fossil fuel based co-generation project
Station Heat Rate (SHR)	Regulation	4200 kcal/kWh	3600 kcal/kWh
Gross Calorific Value (GCV)	Regulation	3611 kcal/kg	2250 kcal/kg
Auxiliary Consumption Factor	Regulation	10%	8.50%
Fuel Price	As above	Rs. 3792 /MT	Rs. 2258 / MT
Escalation on fuel Cost	Regulation	5%	5%

17.16. By using above parameters in the formula stipulated in the Regulations, Variable Charges are determined as below:

Year	Biomass Project	Non-fossil fuel-based co-generation project
FY 2020-21	Rs. 4.90/kWh	Rs. 3.95/kWh
FY 2021-22	Rs. 5.15/kWh	Rs. 4.15/kWh
FY 2022-23	Rs. 5.40/kWh	Rs. 4.35/kWh

17.17. Now, as variable charges for FY 2020-21 to FY 2022-23 is determined through this Order, earlier levied provisional tariff need to be adjusted as per earlier Commission’s ruling in Order dated 1 April 2021 which is reproduced below:

“ 9. Therefore, in the interim, the Commission will continue with variable charges for Biomass and Non-fossil fuel- based Co-generation Projects as determined under RE

Tariff Order dated 30 April 2019 in Case No. 52 of 2019 on provisional basis. Post completion of the study by TERI, the Commission will initiate the Public Consultation Process providing participation opportunity to all the stakeholders to finalize the Prices of Biomass and Bagasse fuel in the State of Maharashtra. Any variation in variable cost so determined shall be applicable as a variable charge for FY 2020-21 and FY 2021-22 and shall be adjusted in subsequent bills.”

In view of above, Biomass based project and non-fossil fuel-based co-generation project has to reconcile the difference between provisional tariff levied till date and above determined tariff in their future bills. Accordingly, Distribution Licensee shall adjust the same through upcoming bills in six equal installments.

17.18. Further, the Commission also notes that although registration of transmission connected RE generating plant with Maharashtra State Load Despatch Center (MSLDC) has been made mandatory by the State Grid Code Regulations, still some of the plants have not registered themselves with MSLDC. Such registration is critical for secure and reliable grid operations. Even after repeated follow up with these RE generators, they are not complying with the mandate of registration. Hence, the Commission now has no other option other than directing MSEDCL to withhold payment of monthly bill amount of Cogen and Biomass plants covered by this RE tariff Order and who are yet to registered with SLDC as per requirement of Grid Code. In case these generators fail to register with SLDC within 2 months from date of this Order, from 3rd month onward, MSEDCL shall withhold 50% amount of their monthly bill towards supply of RE power at generic tariff and said withheld amount be paid without any interest once such generator registers himself with MSLDC. Normally, the Commission is not inclined to get in the issues pertaining to release of payments but in this case it is extremely concerned about ensuring secure and reliable grid operation. This action is necessitated for which the only alternative before the MSLDC would be to take coercive action of disconnection from the grid which needs to be avoided.

18. **Date of Applicability of RE Tariff Order:**

18.1. Previous RE Tariff Order was applicable till 31 March 2022. Tariff Order for FY 2022-23 is being issued through present Order after due public consultation process. Hence, there is need to provide clarity on the aspect of tariff applicable for the period of 1 April 2022 to date of this Order.

18.2. The Commission in draft Order published for public consultation through Public Notice dated 30 March 2022 has stipulated that this tariff Order will be applicable for FY 2022-23 with effect from 1 April 2022. Therefore, all stakeholders are well informed about applicability with effect from 1 April 2022.

18.3. Further, generic tariff for Rooftop Solar and APPC is just notification and not

determination of tariff. Same is clarified in draft Order itself. Hence, same can be easily made applicable from 1 April 2022. Further, in respect of variable charges for biomass and bagasse-based cogeneration plants, provisional charges have been approved till determination of changes in present proceeding with condition that variation in charges will be recovered from generator. Therefore, these stakeholders were also well informed about retrospective applicability of variable charges.

18.4. Hence, the Commission rules that Tariff rates notified in this Order shall be applicable for FY 2022-23 with effect from 1 April 2022. In respect of biomass and non-fossil based cogeneration plant, variable charges for FY 2020-21 and FY 2021-22 needs to be adjusted as ruled in para 17.17 above.

19. With the above dispensation, the Commission disposes of suo-motu case registered as Case No. 1/SM/2022.

Sd/-
(Mukesh Khullar)
Member

Sd/-
(I.M. Bohari)
Member

Sd/-
(Sanjay Kumar)
Chairperson


(Abhijit Deshpande)
Secretary



Appendix-1**List of Organisations/persons who submitted Suggestions and Objections**

Sr. No.	Name
1.	M/s. A.A.Energy Limited
2.	M/s. Maharashtra Vidhyut Nigam Pvt. Limited
3.	Maharashtra State Electricity Distribution Co. Ltd. Mumbai
4.	M/s. Maharashtra Rajya Sahakari Sakhar Karkhana Sangh Ltd.
5.	M/s. West Indian Sugar Mills Association
6.	The Tata Power Company Limited
7.	Western India Sugar Mills Association
8.	Manas Agro Industries & Infrastructure Ltd. (Unit 3)
9.	Manas Agro Industries & Infrastructure Ltd. (Unit 5)
10.	Shee Renuka Sugars Limited
11.	M/s. Maharashtra Biomass Energy Developers Association of India
12.	Cogeneration Association of India
13.	M/s. Maharashtra Energy Development Agency

Appendix-2**List of Organisations/persons at the Public Hearing held on 17 May, 2022**

Sr. No	Name
1.	Shri. Swapnil Agarwal , M/s. A.A. Energy Limited.
2.	Smt. Kavita Gharat , MSEDCL
3.	Shri. S.R. Nargolkar , Maharashtra Rajya Sahakari Sakhar Karkhana Sangh Ltd.
4.	Shri. S.R. Nargolkar , M/s. West Indian Sugar Mills Association
5.	Smt. Hawwa Inamdar , The Tata Power Company Limited
6.	Shri. S.R. Nargolkar , Western India Sugar Mills Association
7.	Shri. Nitin Mudholkar, Manas Agro Industries & Infrastructure Ltd. (Unit 3)
8.	Shri. Nitin Mudholkar, Manas Agro Industries & Infrastructure Ltd. (Unit 5)
9.	Shri. Kuldeep Kulkarni, Shee Renuka Sugars Limited
10.	Shri. Vijay Hiremath , M/s. Maharashtra Biomass Energy Developers Association of India
11.	Smt. Aarti Ranade , M/s. Maharashtra Biomass Energy Developers Association of India
12.	Smt. Vaidehi Naik, Cogeneration Association of India
13.	Shri. Shirish S Garud, TERI , New Delhi
14.	Shri. Nagendra Kumar, TERI , New Delhi