

BEFORE THE HARYANA ELECTRICITY REGULATORY COMMISSION  
BAYS NO. 33-36, SECTOR-4, PANCHKULA-134113, HARYANA  
(Case No. HERC/PRO – 53 of 2019)

DATE OF HEARING : 19.11.2019  
DATE OF ORDER : 20.12.2019

**IN THE MATTER OF**

**Determination of levelized tariff for Waste to Energy (WtE) projects as well as other RE projects viz. Biomass, Biogas & Bagasse etc. commissioned during the FY 2019-20 & FY 2020-21 on the basis of the parameters provided in the Haryana Electricity Regulatory Commission (Terms and Conditions for determination of Tariff from Renewable Energy Sources, Renewable Purchase Obligation and Renewable Energy Certificate) Regulations, 2017- Suo Motu.**

**Present: -**

Shri Sri Sanapala , Fatehabad Bio Energy LLP  
Shri Varun Pathak, Advocate, Fatehabad Bio Energy LLP  
Shri Amit Sharma & Sh. Jatinder, President, HLPL  
Shri Rohit Sharma, AGM, JBM Group  
Shri P.K. Nautiyal, SE 'A' HAREDA  
Shri R.S. Poonia, PO, HAREDA  
Shri R.K. Saini  
Shri Romi Singla, ADA, DULB  
Smt. Seema Sidana, AE / HPPC  
Shri Randhir, AEE / HPPC  
Shri Vikrant Sangwan, AEE / HPPC  
Shri Yogesh Mittal, CFO, JBM  
Shri Amar Nair, Advocate, JBM  
Shri Vikash Kadian, XEN, HPPC  
Shri Raj Kumar, Director, Bio Energy

**Quorum**

|                                      |                 |
|--------------------------------------|-----------------|
| <b>Shri D.S. Dhesi,</b>              | <b>Chairman</b> |
| <b>Shri Pravindra Singh Chauhan,</b> | <b>Member</b>   |
| <b>Shri Naresh Sardana,</b>          | <b>Member</b>   |

**ORDER**

**Brief Background**

1. The Commission had issued the Haryana Electricity Regulatory Commission (Terms and Conditions for determination of Tariff from Renewable Energy Sources, Renewable Purchase Obligation and Renewable Energy Certificate) Regulations, 2017, on 30.06.2018 (hereinafter referred to as "the HERC RE Regulations"), which provide for terms and conditions and the procedure for

determination of tariff of the following categories of Renewable Energy (RE) generating stations: -

1. Wind Energy;
  2. Small Hydro Projects;
  3. Biomass Power Projects with Rankine Cycle technology;
  4. Non-fossil fuel-based co-generation Plants;
  5. Solar PV Power projects;
  6. Biomass Gasifier based projects;
  7. Biogas based power projects;
  8. Processed Municipal Solid Waste (WtE) Projects
2. As per Regulation 6 (1) of the HERC RE Regulations, project specific tariff, on case to case basis, may also be determined by the Commission for the following types of projects: -
- (a) Processed Municipal Solid Waste (WtE) Projects
  - (b) Poultry litter / Cow dung etc.
  - (c) Mixed feed
  - (d) small / micro hydro power projects of 25 MW and below
  - (e) Wind
  - (f) Any other new renewable energy technologies approved by MNRE
  - (g) The renewable energy projects which have been commissioned before the control period specified in these Regulations but for which no power purchase agreement has been signed.
  - (h) Solar PV and Solar Thermal Power projects, if a project developer opts for project specific tariff: Provided that the Commission while determining the project specific tariff for Solar PV and Solar Thermal shall be guided by the provisions of these Regulations.
  - (i) Hybrid Solar Thermal Power plants
  - (j) Biomass project other than that based on Rankine Cycle technology application with water cooled / air cooled condenser.
3. Section 61 read with Section 181 (2) of the Electricity Act, 2003 casts statutory obligation on the State Commissions to promote co-generation and generation of electricity from renewable sources of energy and to make Regulations by way of notifications to carry out the provisions of the Act.
4. The Commission, in accordance with the provision of Regulation 7(1) of the HERC RE Regulations in vogue, considered it appropriate to suo motu initiate the process of determination of generic tariff of certain RE projects for the third & fourth year of control period i.e. FY 2019-20 & FY 2020-21.
5. Accordingly, the Commission issued Public Notice proposing determination of levelized tariff rates for Waste to Energy (WtE) projects as well as other RE projects viz. Biomass, Biogas & Bagasse etc. commissioned / to be commissioned during the FY 2019-20 & FY 2020-21 on the basis of the parameters provided in the HERC RE Regulations, 2017 and invited comments/suggestions/objections from the stakeholders.
6. Public Notice, inviting comments/suggestions/objections on or before 31<sup>st</sup> October, 2019 was issued in The Tribune (English) and Dainik Bhaskar (Hindi)

dated 24th October 2019. The date of public hearing i.e. 19.11.2019 was also mentioned in the said notice. Further, the Commission, vide Memo No. 211-224 dated 29.10.2019 also intimated a large number of stakeholders, on record of the Commission, regarding the date of hearing of the present case.

7. In response, to the ibid public notice the following stakeholders filed their comments/suggestions/objections: -

- (a) Shri R.K. Jain, Advisor / Legal & Power, Panchkula.
- (b) Shri Varun Todi, Director, M/s Star Wire (India) Vidyut Pvt. Ltd. New Delhi.
- (c) M/s Haryana Power Purchase Centre (HPPC), Panchkula.
- (d) Shri S.Sanapala, M/s Sri Jyoti RE Pvt. Ltd.
- (e) M/s Urban Local Bodies, Haryana, Panchkula.
- (f) STM, New & Renewable Energy Department, Haryana.

8. The issues raised by the afore mentioned interveners and the Commission's view thereto are as under: -

9. **The following submissions have been made by Shri R.K. Jain: -**

As per S.86 (1) (e) of the Electricity Act, 2003, the State Commissions are required to discharge the following function,

(e) promote co-generation and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee;

Even the Tariff Policy notified by the Government of India lays stress on the procurement of power from such RE Projects at the rates determined by the State Commissions, The Para 6.4 (1) (ii) of the Policy reads as under,

(ii) Distribution Licensee(s) shall compulsorily procure 100% power produced from all the Waste-to-Energy plants in the State, in the ratio of their procurement of power from all sources including their own, at the tariff determined by the Appropriate Commission under Section 62 of the Act.

Even the Commission through Reg. 64(3) of RE Regulations (HERC/23/2011/1st Amendment) made following provision in this regard,

64 (3) In case the renewable energy generating company offers to sell energy generated by it from its renewable energy generating station located in Haryana to the distribution licensee at the rates determined by the Commission, the distribution licensee shall not refuse to purchase power from such generating company, without prior approval of the Commission.

In spite of these policy initiatives taken by the Hon'ble Commission and the GoI, the actual progress in the State of Haryana is not very encouraging. Hon'ble Commission may kindly examine the present hurdles which are not encouraging the project developers in the State. Effort has been made to identify some of the common causes, which are enlisted hereunder,

1. Reluctance of the Power Utilities to buy power from renewable energy sources.

- (i) The Utilities have been reluctant in buying the RE power at the generic tariff approved by the Hon'ble Commission;
- (ii) The Utilities even went to the extent of asking the RE Project Developer to accept APPC price and suggest to the State Govt. to bear the difference in Generic Tariff and the APPC rate. How could the Developer go ahead in this atmosphere of uncertainty? (Naraingarh Sugar Mills, K2Gen, etc.)
- (iii) Although Hon'ble Commission has repeatedly instructed through Regulations and the judgments pronounced in specific Petitions that the cost of power evacuation line is to be borne by the Power Utility but they are not ready to bear the cost of such lines. (reference to the case of JBM Solar Power)
- (iv) Provision for adoption of least tariff condition in PPAs.
- (v) Undue concern for the impact on overall tariff while Hon'ble Commission allows such cost in the ARR.

### **Commission's View**

The Commission has taken note of the above submissions as well as the Orders of the Commission in the cases cited by the intervener. The Commission in its ibid Orders has decided against the proposal of HPPC to offer APPC price as tariff, therefore, the apprehension of the intervener is unfounded. The Commission agrees with the contention of the intervener that power purchase cost from all sources approved by the Commission is a pass through in the ARR / Tariff of the DISCOMs. The Commission is duty bound to safeguard interest of all stakeholders including consumers of the State and to promote competition. The Commission has also taken note of the Tripartite Memorandum of Understanding dated 11.03.2016, executed amongst Ministry of Power, Government of India, Government of Haryana and Haryana DISCOMs, as part of UDAY Scheme. Clause 1.3 (n) of the said MoU has specified in unequivocal terms that "the DISCOMs shall procure power through the transparent process of competitive bidding". Therefore, it would not be appropriate for the Commission to allow the RE power generators the benefits of generic tariff. Instead, the tariff determined in the present Order shall be "indicative levelized tariff", which may form the basis of fixing ceiling tariff while floating NIT for procurement of such RE power.

### **2. Lack of clarity regarding applicable open access charges and other issues in the Regulations:**

- (i) There has been lot of controversy in the matter of exemptions applicable to the Solar Power Plants in the State.
- (ii) Although the Solar Power policy notified by the State Govt. in Sept. 2014 & thereafter in March 2016 clear exemptions were given on Solar Projects

with regard to Intra-State Open Access charges, electricity taxes & cess, electricity duty, wheeling charges, cross subsidy charges, transmission & distribution charges and surcharges. But this remains an illusion even till date.

- (iii) Even the Haryana Bio-energy Policy, 2018 notified in March 2018 by the State Government provided all exemptions on such projects similar to that of the Solar Power Plants set up in the State. No such exemption has been actually given to the Bio-energy plants so far.
- (iv) Exemptions granted by the Hon'ble Commission till date are so complicated that it has resulted in total road block for the development of these projects.
- (v) While in other States large RE Project capacities have been set up but in Haryana these natural renewable sources remain untapped.
- (vi) Hon'ble Commission may kindly look into these impediments and at least allow these exemptions for all RE Projects installed up to a cutoff date (as done by the Central Govt. for exemption from CTU charges for Solar and Wind Projects commissioned up to 31.03.2022) and not to link it with any particular capacity or preparedness of the developer.
- (vii) Even the last notification issued by the State Govt. dated 08.03.2019 has failed to attract investors to go ahead with Solar Power projects in the State.
- (viii) There is confusion in the implementation of provisions under the existing Regulations i.e. Haryana Electricity Regulatory Commission (Rooftop Solar Grid Interactive System based on Net Metering) Regulations, 2014 (HERC/34/2014 dated 25.11.14) and Haryana Electricity Regulatory Commission (Terms and Conditions for determination of Tariff from Renewable Energy Sources, Renewable Purchase Obligation and Renewable Energy Certificate) Regulations, 2017 (HERC/40/2018 dated 24.07.18). While the first Regulation deals with Rooftop Solar Projects, the second Regulations covers all RE Projects. Reg. 7.2 and 9.1 of first Regulations cast some restrictions on the capacity of Rooftop Solar Plant to be installed and adjustment of the power so generated but in the second Regulations there is no such restriction. However, due to confusion in the field offices, these two are being interconnected and the developers are being harassed unnecessarily.

### **Commission's View: -**

The Commission is well aware of the statutory provisions including the regulations notified by it and acts within the four corners of the same. It is once again made clear that the RE Projects falling in the ambit of the RE Regulations / Tariff including cost of evacuation, banking & settlement, exemptions ought to be dealt with accordingly.

#### 3. Multiple determination of tariff for RE Projects:

While the Tariff Policy clearly states that the Distribution Licensees will compulsorily purchase RE power at the tariff determined by the Appropriate Commission, but the Utility does not follow these guidelines. The very purpose of determination of a generic tariff by the State Commission is to guarantee the developer the generic tariff for sale of power to the Power Utilities but it has been observed that in many recent cases the Developers are being asked to get the project specific tariffs. This not only results in delay for execution of the project but also leads to creation of uncertainty about tariff to be allowed to the developer for the project. In the absence to a pre-determined tariff, even the Project Financers find it difficult to sanction the Project Loans.

Some examples are:

HERC order dated 30.04.2019 in Petition No. HERC/PRO-20 of 2019 covering projects of,

- (i) M/s Sainsons Paper Industries,
- (ii) Haryana Liquors,
- (iii) Cleantech Power, and
- (iv) Mor Bio-energy.

Similar is the situation in HERC order dated 18.12.18 in Petition No. HERC/PRO-44 of 2018 where the Project Developer has been asked to get the project specific tariff approved from the Commission.

### **Commission's View: -**

The Commission has considered the above and observes that HERC RE Regulations (regulation 6 (1) also provides that the Commission may determine Project specific tariff, on case to case basis **Provided that the financial norms as specified under Chapter-3 of the said Regulations, except for capital cost, shall be ceiling norms while determining the project specific tariff** (emphasis added). In such cases the generic tariff shall be an indicative tariff which will provide the desired market signal to the stakeholders for attaining financial closure. Hence, for aforementioned projects i.e., M/s Sainsons Paper Industries, Haryana Liquors (biomass co-gen), Cleantech Power, and Mor Bio-energy (gasifier), the generic tariff determined herein shall be an indicative tariff.

#### 4. That Utilities undue insistence to allow least of the tariffs other than the generic tariff approved by the State Commission: -

It has been submitted that the Utilities insist for signing PPAs with tariffs other than the Generic Tariff approved by the Hon'ble Commission. After all Hon'ble Commission spends so much of its precious time on undertaking the exercise of determination of generic tariff, but the Utilities force the Project Developers to accept least of the tariff i.e. Generic Tariff, Tariff demanded by the Project Developers and Project Specific tariff to be determined by the Hon'ble Commission. This has been followed in all projects of Siwana Solar, JBM Solar, Haryana Liquors, and others.

Although Hon'ble Commission has repeatedly directed to adopt the standard PPA approved by the Commission but the Utilities are not honoring these directions.

Resultant Public Nuisance being created due to accumulation of Biomass, Municipal Solid Waste, Poultry Bird Droppings, etc.

There is immense air pollution in and around NCR/North India due to large cases of stubble burning by farmers. The housefly menace in areas near Poultry Farms has made life of the people awful. This is high time Hon'ble Commission considers these issues of Public Importance and make the environment conducive to larger and faster development of RE Projects. Large scale concessions/ relaxations/ exemptions need to be given so that more and more RE Projects are set up in the State, which will not only help in combating the pollution menace but also help in improving the financial health of the farmers.

Incentive to the RE Project Developers to directly sell RE power to the industrial consumers in the State:

Due to levy of heavy Open Access charges and surcharges for sale of power by the RE Project Developers directly to the industry or other Bulk Consumers, many of such projects are not able to take off. For example, there is huge potential of Solar and Biomass Projects which can be set up in the State but these are not coming up due to heavy burden of the above charges. Some of the charges being loaded for such projects are,

- i) Cross Subsidy Surcharge (78 Ps/unit)
- ii) Additional Surcharge (116 Ps/unit)
- iii) Transmission Wheeling Charges (27 Ps/unit)
- iv) Distribution Wheeling Charges (83 Ps/unit)
- v) In addition, there are line losses, FSA and ED etc.

All such charges lead to additional burden of over Rs.3/unit, which renders the proposal financially unviable.

**Commission's View: -**

The Commission is not commenting on the various charges cited by the intervener as the same are beyond the purview of the limited exercise of tariff determination being undertaken in the present Order. Regarding non-compliance of directions / regulations remedies are provided in the Electricity Act, 2003.

**10. Shri Varun Todi, Director, M/s Star Wire (India) Vidyut Pvt. Ltd. New Delhi.**

On the issue of O&M cost of biomass based RE Power Plants It has been submitted by the intervener that with the introduction of GST, the O&M cost of biomass power plants have increased drastically due to change in law. Hence, it has been requested that the Commission may consider the effect of GST as no input credit is available due to electricity being beyond the ambit of GST. The entire GST paid for services and purchase of spares is an additional cost to the plant. The value of GST is 18% on service and as high as 28% on spare parts of boilers and its auxiliaries.

That the Commission had earlier considered cost of fuel handling as a part of fuel cost. The fuel cost and the biomass handling cost has increased due to impact of GST, Inflation and hike in diesel prices. Additionally, it has been submitted that the country faces serious issues with regard to pollution caused by burning of paddy straw in the fields by the farmers, hence, the Commission may consider a mechanism through which separate fuel cost is allowed to existing plants for using paddy straw for power generation. The existing power plants would have to undergo huge modification at extra cost to be able to utilize straw as fuel. Also, the GCV of paddy straw is very low and it contains high amount of inherent moisture.

**Commission's View: -**

The Commission has considered the above submission and observes that GST shall be treated in accordance with Regulation 64.b of HERC RE Regulations, 2017, which provides as under:

“64.b In case of additional cost on account of GST, the generator can approach the Commission with necessary details for allowing additional tariff”.

**11. HPPC:-**

The intervener, HPPC, has submitted as under: -

- i. That the generic tariff considering the benefit of accelerated depreciation may also be calculated in line with the CERC, so as the true signal on tariff be communicated to the developer claiming the benefit of accelerated depreciation.
- ii. It has been submitted that MNRE (Waste to Energy Division) vide its letter dated 30<sup>th</sup> July, 2018 has circulated program guidelines on energy from Urban, Industrial and Agriculture Waste / residues for plan period (2017-18



and 2019-20), which provides for capital subsidy of Rs. 3.0 Crore / MW subject to a maximum of Rs. 10.0 Crore per project. Levellised tariff or WtE based power projects may be calculated by considering the capital subsidy available to such projects.

**Commission's View: -**

The Commission has considered the above submission and observes that HERC RE Regulations, 2017 does not provide for computation of accelerated depreciation benefits, hence, the same as per past practice, is not being computed. It is further observed that HERC depreciation schedule as well as cost of capital is largely in line with those of CERC. Hence, the per unit accelerated benefit impact computed by the CERC in its RE Tariff Order for the FY 2019-20 provides fair idea of the same and can be used, if required. Further, the issue of capital subsidy involved in Waste to Energy plants, has already been decided by the Commission in its Order dated 28.09.2016, as under:

**7.2 Capital Subsidy / Grant / Central Financial Assistance (CFA) etc.**

The issue of treatment of any capital subsidy, grant central, or State financial assistance that may be available to the project developers was raised by the Commission in the hearing on 8.09.2016. The Urban Local Body vide Memo No. TA II /DULB/2016/9038 dated 21.09.2016 clarified that grant of 20% of the estimated capital cost is to be utilized vehicles/Machineries related with door to door collection of waste and its transportation at the designated place. This grant shall not be used for setting up of the power plant. Additionally, It has been submitted that the CERC has also not taken into account the capital grant for determination of generic waste to energy tariff. Therefore, The Commission has also not taken into account any capital subsidy/grant/CFA while determining tariff in the present order.

- iii. That the Regulations are silent on sharing of benefits accrued to the project developers from the sale of by-products like manures, bio-char, bio-vinegar etc. Normative proceeds may be considered while calculating generic tariff.

**Commission's View: -**

The fuel cost considered in the relevant cases is net of any proceeds from sale of by-products / digester effluent. As such there is no need to mention the same separately, while determining indicative levelized tariff. However, the Commission may consider the same while determining project specific tariff under Section 62 of the Electricity Act, 2003.

#### iv. WACC

Further, Weighted Average Cost of Capital (WACC) for determination of discount factor may be used in line with WACC used by CERC for calculation of generic tariff for RE Projects. CERC has considered the same as 9.36% against 11.32% used by HERC.

#### **Commission's View: -**

The Commission in the present Order has calculated WACC, as provided in regulation 62 of HERC RE Regulations, 2017, reproduced below:

Discount Factor. – The discount factor for working out levelised generic tariff shall be the weighted average cost of capital (WACC).

Further, HERC RE Regulations, 2017 provides Debt Equity Ratio as 70:30, ROE as 14% and Interest on Term Loan as average Marginal Cost of funds-based lending rate (MCLR) (one-year tenor) of SBI prevailing during the last available six months plus a margin of up to 200 basis points i.e. 2%.

Average of SBI MCLR (one-year tenor) from July-Dec 2019 comes to 8.125%. Therefore, Interest on Term Loan is to be taken at 10.125%.

In view of the above, discount factor for working out levelized tariff comes to 11.29%  $(.70 \times 10.125\% + .30 \times 14\%) / 2$ .

However, it is added that the tariff payable is the year to year tariff computed by the Commission for the entire life of the project. The relevance of levelized tariff impacted by WACC is limited to comparing projects across the life of the project, as the same normalizes front loading/ back loading of tariff.

#### **12. In addition to the above, HPPC, vide Memo No. Ch-10 / CE / HPPC / XEN – LTP – III / HLPL / Biomass dated 10.12.2019 made additional submissions, the same is briefly stated as under: -**

The levelized generic tariff can be determined on the basis of parameters defined in the Regulations in vogue. Tariff for Solar PV Rooftop, ground mounted, canal based / water works solar projects, wind power and small hydro based power projects needs to be determined on case specific basis. The Regulations should also specify the Capital Cost of Solar and Wind Power Projects. The normative Capital Cost along with other parameters should be the ceiling limit for determination of project specific tariff. It has been further submitted that the RE Projects involving cost of fuel may be determined as two-part tariff in line with the methodology used for coal based generating plants.

Further, must run status ought not to be granted for RE Projects of 10 MW and above. Procurement of power ought to be on competitive bidding basis.

**Commission's View: -**

The Commission has taken note of the above submissions / suggestions and observes that the Commission shall determine tariff within the four corners of the HERC RE Regulations. The terms and conditions including must – run status shall be as per the said Regulations except in specific cases where the Commission has relaxed or deviated from the norms by issuing an Order.

**13. HAREDA**

HAREDA has submitted that it is promoting biomass power projects in the State. Accordingly, based on the inputs received from the District level officers in the State, minimum average cost of biomass works out to Rs. 3337 / MT and maximum average cost is RS. 4202 / MT.

**Commission's View: -**

The Commission has taken note of the above submissions on cost of biomass and has dealt with the same at the relevant paragraph of the present Order.

**14. M/s Sri Jyoti RE Pvt. Ltd.**

It has been submitted by the intervener that the Commission may promote air cooled condenser-based projects only and allow new projects to come up only on-air cooled condenser based only. Further, the current renewable energy water – cooled condenser projects may be allowed to convert at a one – time pass through cost to air cooled condenser to save water.

That fuel cost should be a pass through after applying prudence checks as the cost of fuel is the major expenditure in renewable energy generation. The pass through on account of fuel again will be passed on to the farmers which will have a positive impact on the economy of the State and also help reduce pollution.

**Commission's View: -**

The Commission has taken note of the suggestion for promoting projects based on air – cooled condenser only. The Commission observes, for new plants, higher Capital Cost and higher tariff itself should provide incentive for biomass projects based on air – cooled condenser. However, for the older / existing biomass power plant, one-time conversion cost, may need further deliberations including additional cost that may be required and mechanism for passing on the same if not automatically recovered through comparatively higher tariff. The fuel cost shall be considered in line with the HERC RE Regulations in vogue.

#### 15. **Urban Local Bodies (ULB)**

That the Commission has determined the levelized tariff of Rs. 7.05/unit for waste to energy projects for the FY 2016-17 & 2017-18, vide its order dated 28.09.2016, which was considered for the projects awarded in the FY 2017-18 for Gurgaon-Faridabad Cluster & Sonapat-Panipat Cluster.

ULB further submitted that they have initiated process for setting up two more Waste to Energy plants in Ambala-Karnal cluster and Rohtak Cluster with maximum 12 MW and 9 Mw capacity, respectively.

In view of the above, ULB has requested the Commission to determine the Generic Tariff for Waste to Energy (WtE) projects for the control period of its Regulations i.e. from the FY 2017-18 to FY 2020.21.

#### **Commission's View: -**

The Commission had determined the levelized tariff of Rs. 7.05/unit for the FY 2016-17 & FY 2017-18 in its Order dated 28.09.2016. In the present Order the Commission shall be determining WtE tariff for the projects commissioned / to be commissioned in the FY 2019-20 and the FY 2020-21.

#### 16. **Fatehabad Bio Energy LLP (through Counsel Shri Varun Pathak)**

That the present regulations are being framed by this Hon'ble Commission pursuant to its regulatory powers prescribed under section 181 of the Electricity Act, 2003 (hereinafter "the Act").

The jurisdiction of this Hon'ble Commission with respect to regulation framing power has been extensively discussed and elaborated upon in the celebrated judgment of the Hon'ble Supreme Court of India in PTC India Ltd. v. Central Electricity Regulatory Commission, (2010) 4 SCC 603 (hereinafter "PTC Case"). In the said judgment at paragraph 28 the Hon'ble Court noted that the Act contemplates three types of delegated legislation and the power of the Central Commission and the State Commissions is at the same level vis-à-vis, sections 178 and 181. Paragraph 28 is reproduced below for ease of reference: -

- "28. The 2003 Act contemplates three kinds of delegated legislation. Firstly, under Section 176, the Central Government is empowered to make rules to carry out the provisions of the Act. Correspondingly, the State Governments are also given powers under Section 180 to make rules. Secondly, under Section 177, the Central Authority is also empowered to make regulations consistent with the Act and the rules to carry out the provisions of the Act. Thirdly, under Section 178, the Central Commission can make regulations consistent with the Act and the rules to carry out the provisions of the Act. SERCs have a corresponding power under Section

181. The rules and regulations have to be placed before Parliament and the State Legislatures, as the case may be, under Sections 179 and 182. Parliament has the power to modify the rules/regulations. This power is not conferred upon the State Legislatures. A holistic reading of the 2003 Act leads to the conclusion that regulations can be made as long as two conditions are satisfied, namely, that they are consistent with the Act and that they are made for carrying out the provisions of the Act.” (Emphasis Supplied)

The Hon’ble Supreme Court in the PTC Case further held that regulations framed by the Central or the State Commission can also over-ride contracts as the Commissions performing contemporaneous and various functions have to adopt a holistic picture. The relevant portions are reproduced below for ease of reference:

- “53. Applying the above mentioned tests to the scheme of the 2003 Act, we find that under the Act, the Central Commission is a decision-making as well as regulation-making authority, simultaneously. Section 79 delineates the functions of the Central Commission broadly into two categories — mandatory functions and advisory functions. Tariff regulation, licensing (including inter-State trading licensing), adjudication upon disputes involving generating companies or transmission licensees fall under the head “mandatory functions” whereas advising the Central Government on formulation of National Electricity Policy and tariff policy would fall under the head “advisory functions”. In this sense, the Central Commission is the decision-making authority. Such decision-making under Section 79(1) is not dependent upon making of regulations under Section 178 by the Central Commission. Therefore, functions of the Central Commission enumerated in Section 79 are separate and distinct from functions of the Central Commission under Section 178. The former are administrative/ adjudicatory functions whereas the latter are legislative.
54. As stated above, the 2003 Act has been enacted in furtherance of the policy envisaged under the Electricity Regulatory Commissions Act, 1998 as it mandates establishment of an independent and transparent Regulatory Commission entrusted with wide-ranging responsibilities and objectives inter alia including protection of the consumers of electricity. Accordingly, the Central Commission is set up under Section 76(1) to exercise the powers conferred on, and in discharge of the functions assigned to, it under the Act. On reading Sections 76(1) and 79(1) one finds that the Central Commission is empowered to take measures/steps in discharge of the functions enumerated in Section 79(1) like to regulate the tariff of generating companies, to regulate the inter-State transmission

of electricity, to determine tariff for inter-State transmission of electricity, to issue licences, to adjudicate upon disputes, to levy fees, to specify the Grid Code, to fix the trading margin in inter-State trading of electricity, if considered necessary, etc. These measures, which the Central Commission is empowered to take, have got to be in conformity with the regulations under Section 178, wherever such regulations are applicable. Measures under Section 79(1), therefore, have got to be in conformity with the regulations under Section 178.

55. To regulate is an exercise which is different from making of the regulations. However, making of a regulation under Section 178 is not a precondition to the Central Commission taking any steps/measures under Section 79(1). As stated, if there is a regulation, then the measure under Section 79(1) has to be in conformity with such regulation under Section 178. This principle flows from various judgments of this Court which we have discussed hereinafter. For example, under Section 79(1)(g) the Central Commission is required to levy fees for the purpose of the 2003 Act. An order imposing regulatory fees could be passed even in the absence of a regulation under Section 178. If the levy is unreasonable, it could be the subject-matter of challenge before the appellate authority under Section 111 as the levy is imposed by an order/decision-making process. Making of a regulation under Section 178 is not a precondition to passing of an order levying a regulatory fee under Section 79(1)(g). However, if there is a regulation under Section 178 in that regard then the order levying fees under Section 79(1)(g) has to be in consonance with such regulation.

...

58. One must understand the reason why a regulation has been made in the matter of capping the trading margin under Section 178 of the Act. Instead of fixing a trading margin (including capping) on a case-to-case basis, the Central Commission thought it fit to make a regulation which has a general application to the entire trading activity which has been recognised, for the first time, under the 2003 Act. Further, it is important to bear in mind that making of a regulation under Section 178 became necessary because a regulation made under Section 178 has the effect of interfering and overriding the existing contractual relationship between the regulated entities. A regulation under Section 178 is in the nature of a subordinate legislation. Such subordinate legislation can even override the existing contracts including power purchase agreements which have got to be aligned with the regulations under Section 178 and which could not have

been done across the board by an order of the Central Commission under Section 79(1)(j).” (Emphasis Supplied)

The issues being faced in the power sector within Haryana, especially the renewable energy sector, well within the knowledge of this Hon’ble Commission are that the different arms of the government of Haryana speak in different languages. Whereas, the Government of Haryana, through HAREDA, has tried to promote renewable energy and supports private investment through various policies, however, unfortunately, the same are not implemented within the scheme work of the Act by this Hon’ble Commission and further, the distribution licensees relentlessly oppose private developers even where the government of Haryana through HAREDA is supporting the private developers. Once, such instance, amongst many is the issue of new projects which are being implemented to reduce paddy burning within Haryana as that has an adverse impact on the quality of air in North India. As there are pilot projects, it is important that the projects are developed in a viable manner. However, on one hand on various issues, HAREDA is insisting that the developers go ahead with the projects and invest further, on the other hand the distribution licensees are litigating. It is submitted that all arms of the government of Haryana should be on the same page. The Hon’ble Commission can clearly provide for this aspect of extra cost in the regulations framed by it to avoid unnecessary litigation.

These policy hindrances for the development of the renewable energy sector with Haryana can be addressed by this Hon’ble Commission in its regulatory jurisdiction by adopting uniform parameters such as the some of the suggestions stated below:

- (a) Follow norms specified by the Central Commission as they specifically touch upon various aspects pertaining to Haryana and are based on ground realities which have been arrived at after following a detailed exercise in accordance with law.
- (b) Promote transparency and certainty in tariff determination through clear objective norms being provided under the regulations in order to reduce unnecessary litigation.
- (c) Reconcile the view of the Haryana Government agencies by ensuring one stand being taken by the different arms of the government as it promotes certainty.
- (d) As huge investments are being made by developers frequent changing of regulations be avoided and projects be provided certainty through firm policy framework.
- (e) Private investments help in creating jobs. Contradictory arguments of the distribution licensees to that of HAREDA are fallacious as the private investors only get a fixed rate of return.
- (f) Two-part tariff should be introduced for the renewable energy projects to ensure their viability.

- (g) Further, the Hon'ble Commission is also aware that there is water shortage and the ground water is depleting, therefore, the Hon'ble Commission may promote air cooled condenser-based projects and allow present water-cooled projects to convert at a one-time pass through cost to save water. Further, water shortage may also lead to adverse impact on farmers and may also affect the law and order situation, therefore, the Hon'ble Commission may in its foresight act at this stage itself.
- (h) Also, the Hon'ble Commission may consider promoting waste to energy plants with freedom to the plants to procure all kinds of agricultural waste with priority in running status to promote environmentally friendly generation of power. This will have a two-fold impact as it will help the farmers in getting compensated for their agricultural waste and will also help reduce pollution within the state of Haryana and northern India.
- (i) Lastly, the Hon'ble Commission may consider making fuel cost a pass through after applying prudence check as the cost of fuel is the major expenditure. This may be done for all projects whether under section 62 or 63 to ensure the viability of the projects and to ensure transparency. The pass through on account of fuel will be passed on to the farmers which will have a positive impact on the economy of the state and also help reduce pollution. Further, it will keep the generation viable with a sustained reduction of carbon foot-prints. The pass through of fuel cost may be done for all renewable waste to energy projects, future and existing, in order to incentivize them.

The Supreme Court of India in Hindustan Zinc Ltd. v. Rajasthan Electricity Regulatory Commission, (2015) 12 SCC 611 has held that the promotion of clean renewable energy is a mandate of the Act in light of the directive principles of State policy as provided in Article 48-A read with fundamental duties under Article 51-A(g) of the Constitution.

### **Commission's View**

The Commission has taken note of the submissions including the diverse and often conflicting stand taken by different stakeholders / authorities. However, as far as the Licensee(s) / Discoms are concerned they are bound by the terms of License issued by the Commission as well as the relevant statutes and Regulations occupying the field.

17. The Commission held public hearing in the matter on 19.11.2019. The interveners mostly reiterated their written submissions already reproduced above. Hence, the same are not being repeated here.



18. The Commission, after due deliberations, is of the considered view that cost of solar generation is continuously seeking downwards level. Hence, as per the explanation provided under regulation 6 of the principle RE Regulations it would be appropriate for the Discoms / HAREDA to procure such power through competitive bidding route u/s 63 of the Electricity Act, 2003. The Commission would prefer that all solar projects are selected through competitive bidding. Hence, the same should necessarily come up through the competitive bidding route or through SECI. Further, scope of wind-based generation projects is almost nil in Haryana. Hence, the Commission has confined the present Order to determination of generic tariff for Biomass, Co-generation Bagasse / biomass, Biogas, Bio gasifier, WtE and Paddy Straw / stubble-based power-based projects. In the case of small hydro power projects, in line with regulation 25 of the HERC RE Regulations, the Commission shall determine project specific tariff only and accordingly determine project specific capital cost as well as CUF, if required, based on case specific hydrological data.
19. At the onset the Commission observes that the interveners have by and large, except for impact of GST on Capital Cost & O&M, raised the issue of hindrances faced by the RE Project developers in Haryana and referred to the CERC RE Regulations, 2019 including discounting factor, tariff in case accelerated depreciation is availed and WtE Tariff after taking into account MNRE Capital Subsidy. The Commission agrees with the Ld. Counsel Shri Varun Pathak that promotion of clean renewable energy is a mandate of the Act in light of the directive principles of State policy as provided in Article 48-A read with fundamental duties under Article 51-A(g) of the Constitution. However, as this Commission has notified RE Regulations the CERC Regulations cannot be taken recourse to except as guiding principles where the HERC Regulations are silent or not very specific including cost of fuel wherever applicable. The Commission, while determining tariff in the present case has considered the objections / suggestions filed by the Intervener including their oral submissions, provisions of the Act and the Regulations framed thereto as well as the CERC RE Regulations and Tariff Order dated 19.03.2019 in petition no. 1/SM/2019 (Suo – Motu).
20. **Biomass (Rankine Cycle)** using water cooled condenser and air-cooled condenser. The various parameters as per HERC RE Regulations considered for tariff determination have been summarized in the following table: -

|   |   |   |
|---|---|---|
| 1 | Useful life (Regulation 2(35)(b) /<br>Tariff Period                           | 20 years  |
| 2 | Capital Cost (Rs. Crore / MW)<br>during the Control Period<br>(Regulation 30) | i) 5.59 & 6.10 for single fuel) (Water Cooled)<br><br>ii) 6.0 & 6.52 for single fuel (Air Cooled) |
| 3 | Plant Load Factor (PLF %)<br>(Regulation 31)                                  | 1st Year of Operation including Stabilization: 65%<br><br>From 2nd Year onwards: 80 %             |
| 4 | Auxiliary Energy Consumption (%)<br>(Regulation 32)                           | i) 10% (Water Cooled)<br><br>ii) 12% (Air Cooled)   |
| 5 | Station Heat Rate (Kcal / kWh)<br>Regulation 33)                              | 4126 (Travelling grate)<br>4063 (AFBC)  |
| 6 | O&M (Regulation 34)   | Rs. 0.40 Crore /MW for FY 2017-18<br>escalated at the rate of 5.72% per annum thereafter.         |

21. The financial principles i.e. Debt – Equity ratio, Loan Tenure and Interest, Depreciation, RoE, Working Capital computation and interest thereto for determination of generic tariff has been considered as per regulations 12 to 16 of the principle RE Regulations in vogue.
22. Fuel Cost (biomass / paddy straw) – The Commission observes that the provision for biomass fuel cost, as per the HERC RE Regulations as under: -

*“38. Fuel Cost. – Biomass fuel price during first year of the Control Period shall be Rs. 3270 /MT and shall be escalated at the rate of 5% per annum for arriving at the levelised tariff for the entire useful life of the project”. Further, the calorific value of the biomass fuel has been pegged at 3100 (kCal/kg).*

As the first year of the control period (Regulation 4) is the FY 2017-18, the Commission has considered the same after escalating the fuel cost by 5% for the FY 2018-19 and the FY 2019-20 to arrive at the base year. Further, the fuel cost was escalated by 5% per annum for the entire tariff period.

The Commission observes that the cost of biomass considered by CERC for Haryana for FY 2019-20 is Rs.3605.61 / MT while HAREDA has submitted minimum average of Rs 3336.941 / MT and Maximum Average of Rs. 4201.806/MT. Hence, after considering escalation of 5% for FY 2018-19 and FY 2019-20, the fuel cost as per HERC Regulations will also reach the CERC levels and about the mid value of price range submitted by HAREDA. Hence, the Commission has considered the biomass fuel cost as per the HERC RE Regulations including the fuel price escalation factor of 5% per annum.

As far as paddy straw is concerned HAREDA has submitted an average rate of Rs. 2241.667 / MT with wide variations in circle wise rates while CERC for the FY 2019-20 for Haryana has considered the same at Rs. 3605.61 / MT. The Commission for the FY 2019-20 has considered the fuel cost of Rs. 3605.61 / MT in line with the CERC for Haryana (for Punjab CERC has considered a higher cost i.e. Rs. 3771 / MT) as the HERC RE Regulations does not separately provide for the same.

23. In order to arrive at the levelled tariff, the discounting factor as worked out earlier i.e. 11.29 % has been used in the present Order.

Additionally, the Commission has kept in mind the following provision of regulation 38 of the HERC Regulation in vogue.

*“the Commission, for biomass / bagasse-based power project, both existing and to be set up, may consider two-part tariff wherein the fixed cost shall be the levelled tariff already determined for the existing projects and the fuel cost shall be as determined on a year to year basis so that the issue of fuel cost and escalation there to is addressed.*

*With an objective to utilize and thereby prevent burning of paddy straw / stubble in the farms, the Commission would like to promote use of the same in the power projects. Hence, while determining fuel cost / GCV on a year to year basis applicable for the existing as well as to be commissioned biomass / bagasse power projects, appropriate price weightage could be considered. HAREDA may provide the relevant data collected from the field for consideration of the Commission. However, the details of usage of paddy straw / stubble shall be certified by the IPPs and verified by HPPC based on the data emanating from the local authorities concerned.*

*Further, given the single fuel-based generation for paddy straw / stubble-based power projects in Haryana, working capital norms shall be accordingly determined”.*

24. The Commission has taken note of the contention of the Intervener that Biomass projects based on air cooled condenser needs to be promoted in Haryana. The Commission agrees with the same given the fact that ground water is fast depleting in Haryana. However, the higher project cost, auxiliary consumption etc. are already built into the comparatively higher tariff of biomass-based projects to be set up in Haryana.
25. In the case of single fuel / paddy stubble-based (single fuel) power projects, given the fact that the project developers shall be required to collect the feed stock upfront at the end of paddy season for the entire year to meet its generation requirement, the working capital and interest thereto shall be considered for a period of 6 months, which in normal biomass-based projects, is 4 months. Additionally, in the case of single fuel CUF, Auxiliary Consumption and SHR has been considered in line with CERC as the HERC RE Regulations do not separately provide for the same.
26. In view of the above discussions, the resultant tariff for biomass-based power projects including the projects using single fuel / paddy stubble / straw / co-generation is placed at **Annexure – A** of the present Order.
27. **Co-generation (Bagasse)**

The various parameters as per HERC RE Regulations considered for tariff determination have been summarized in the following table: -

|   |   |   |
|---|---|---|
| 1 | Useful life (Regulation 2(35)(b) / Tariff Period                        | 20 years  |
| 2 | Capital Cost (Rs. Crore / MW) during the Control Period (Regulation 40) | 4.925   |
| 3 | Plant Load Factor (PLF %) (Regulation 41)                               | 53%   |
| 4 | Auxiliary Energy Consumption (%) (Regulation 42)                        | 8.5%  |
| 5 | Station Heat Rate (Kcal / kWh) (Regulation 43)                          | 3600  |
| 6 | O&M (Regulation 46)   | Rs. 0.21 Crore /MW for FY 2017-18 escalated at the rate of 5.72% per annum thereafter |

28. The financial principles i.e. Debt – Equity ratio, Loan Tenure and Interest, Depreciation, RoE, Working Capital computation and interest thereto for determination of generic tariff has been considered as per regulations 12 to 16 of the principle RE Regulations in vogue.

29. Fuel Cost - The Commission observes that the provision for fuel cost, as per the HERC RE Regulations is as under: -

45. Fuel Cost. –

“(1) The price of Bagasse shall be Rs. 2307/ MT and shall be escalated at the rate of 5% per annum for determination of levelized tariff for the entire useful life of the project”.

As the first year of the control period (Regulation 4) is the FY 2017-18, the Commission has considered the same after escalating the fuel cost by 5% for the FY 2018-19 and the FY 2019-20 to arrive at the base year. Further, the fuel cost was escalated by 5% per annum for the entire tariff period. Hence, the Commission has considered fuel cost @ Rs. 2543.47 / MT for FY 2019-20 and 5% escalation per annum thereafter i.e. almost the same level (2543.75) as considered by the CERC. GCV and SHR has been considered as per HERC RE Regulations in vogue.

30. In order to arrive at the levelized tariff, the discounting factor as estimated in the present Order i.e. 11.29% has been used.

Additionally, the Commission has kept in mind the following provision of regulation 38 of the HERC Regulation in vogue.

*“the Commission, for biomass / bagasse-based power project, both existing and to be set up, may consider two-part tariff wherein the fixed cost shall be the levelized tariff already determined for the existing projects and the fuel cost shall be as determined on a year to year basis so that the issue of fuel cost and escalation there to is addressed.*

31. GST – O&M – The Commission has considered the submissions of the intervener and observes that the following regulation exists in the HERC RE Regulations in vogue.

“22. Taxes and Duties. – Tariff determined under these regulations shall be exclusive of taxes and duties as may be levied by the appropriate Government. Any tax / duty levied by the appropriate Government shall be allowed as pass

through on actual incurred basis and should have been actually paid to the authority (ies) concerned”.

32. In view of the above discussions, the resultant tariff for bagasse -based co-generation power projects & other than bagasse co-generation projects are placed at **Annexure – B** of the present Order.
33. The year to year tariff determined by the Commission for the “Tariff Period” as defined under HERC RE Regulations shall be applicable to all Non-fossil fuel based Cogeneration Projects set up during the control period as defined in the HERC RE Regulations.
34. **Processed WtE Power plants (Processed Municipal Solid Waste (WtE) based Power Projects - Rankine Cycle Technology)**

The various parameters as per HERC RE Regulations considered for tariff determination have been summarized in the following table: -

|   |  |   |
|---|--|---|
| 1 | Useful life (Regulation 2(35)(e) / Tariff Period                           | 20 years  |
| 2 | Capital Cost (Rs. Crore / MW) during the Control Period (Regulation 51 (3) | 15.0 Crore  |
| 3 | Plant Load Factor (PLF %) (Regulation 53 (2)                               | 65% - 1 <sup>st</sup> year<br>75% - 2 <sup>nd</sup> year onwards                                |
| 4 | Auxiliary Energy Consumption (%) (Regulation 53(3)                         | 15.5%   |
| 5 | O&M (Regulation 53(4)  | 6.5% of normative Capital Cost (FY 2017-18) escalated at the rate of 5.72% per annum thereafter |

35. The financial principles i.e. Debt – Equity ratio, Loan Tenure and Interest, Depreciation, RoE , Working Capital computation and interest thereto for determination of generic tariff has been considered as per regulations 12 to 16 of the principle RE Regulations in vogue .
36. In order to arrive at the levelized tariff, the discounting factor of 11.29% has been used as estimated earlier in the present Order.

37. GST – O&M – The Commission observes that the following regulation exists in the HERC RE Regulations in vogue.

“22. Taxes and Duties. – Tariff determined under these regulations shall be exclusive of taxes and duties as may be levied by the appropriate Government. Any tax / duty levied by the appropriate Government shall be allowed as pass through on actual incurred basis and should have been actually paid to the authority (ies) concerned”.

38. In view of the above discussions, the resultant tariff for Processed Municipal Solid Waste (WtE) based Power Projects - Rankine Cycle Technology power projects are placed at **Annexure – C** of the present Order.

39. The year to year tariff determined by the Commission for the “Tariff Period” as defined under HERC RE Regulations shall be applicable to all **Processed Municipal Solid Waste (WtE) based Power Projects - Rankine Cycle Technology** Projects set up during the control period as defined in the HERC RE Regulations. This shall, however, exclude any such projects that may be set up through competitive bidding route.

40. **Biogas Power Projects: -**

As per regulation 52 of the HERC RE Regulations a biogas power projects shall be as under:-

52. Biogas based power projects. –

“(1) A technology for generation of power using a mixture of different gases produced by the breakdown of organic matter (anaerobic digestion with anaerobic organisms in the absence of oxygen / fermentation of biodegradable materials) i.e. produced from raw materials such as agricultural waste, manure, poultry droppings, cow dung, municipal waste, plant material, sewage, green waste or food waste. The projects shall qualify as biogas-based power project provided it is using new plant and machinery and having a grid connected system that and uses 100% biogas fired engine with MNRE approved technology”.

The various parameters as per HERC RE Regulations considered for tariff determination have been summarized in the following table: -

|   |  |  |
|---|--|--|
| 1 | Useful life (Regulation 52(2) /<br>Tariff Period   | 20 years   |
| 2 | Capital Cost (Rs. Crore / MW)<br>during the Control Period<br>(Regulation 52 (3))          | Rs. 8.86 Crore / MW  |
| 3 | Plant Load Factor (PLF %)<br>(Regulation 52 (4))   | 90%  |
| 4 | Auxiliary Energy Consumption<br>(%) (Regulation 52(5))                                     | 12%  |
| 5 | Specific Fuel Consumption<br>(Regulation 52(6))  | 3.0 Kg / kWh of substrate mix  |
| 6 | O&M (Regulation 52(7))   | Rs. 0.53 Crore / MW for the base year i.e.<br>the FY 2017-18 with annual escalation of<br>5.72% thereafter                         |
| 7 | Fuel Cost (Regulation 52(8)) net<br>of cost recovery from digester<br>effluent as per CERC | Base year (FY 2017-18) fuel cost (Feed<br>Stock Price) shall be Rs. 1229 / MT and<br>the same shall be escalated @ 5% per<br>annum |

41. The financial principles i.e. Debt – Equity ratio, Loan Tenure and Interest, Depreciation, RoE , Working Capital computation and interest thereto for determination of generic tariff has been considered as per regulations 12 to 16 of the principle RE Regulations in vogue .

42. Fuel Cost - The Commission observes that the provision for fuel cost, as per the HERC RE Regulations is as under: -

52(8). Fuel Cost. –

“(8) The base year (FY 2017-18) fuel cost (Feed Stock Price) shall be Rs. 1229 / MT and the same shall be escalated @ 5% per annum for the purpose of arriving at levelized tariff for the entire useful life of the project. Provided the cost recovery from digester effluent shall be set off against the Fuel Cost (feed stock price) while determining generic levelized tariff”.

As the first year of the control period (Regulation 4) is the FY 2017-18, the Commission has considered the same after escalating the fuel cost by 5% for the FY 2018-19 and the FY 2019-20 to arrive at the base year. Further, the fuel cost was escalated by 5% per annum for the entire tariff period. Hence, the Commission has considered fuel cost @ Rs. 1355 / MT for FY 2019-20 and 5% escalation per annum thereafter. As the RE Regulations provides for specific fuel consumption in terms of Kg/kWh, has been specified to estimate quantum of fuel



that may be required at the normative PLF and the same has been multiplied by the price of fuel (Rs / MT) to arrive at the total cost of fuel.

43. In order to arrive at the levelized tariff, the discounting factor of 11.29% has been considered as estimated by the Commission earlier in the present Order.

44. GST – O&M – The Commission observes that the following provision exists in the HERC RE Regulation in vogue.

“22. Taxes and Duties. – Tariff determined under these regulations shall be exclusive of taxes and duties as may be levied by the appropriate Government. Any tax / duty levied by the appropriate Government shall be allowed as pass through on actual incurred basis and should have been actually paid to the authority (ies) concerned”.

45. In view of the above discussions, the resultant tariff for biogas power projects are placed at Annexure – D of the present Order.

**46. Biomass Gasifier based Power Project**

As per regulation 51 of the HERC RE Regulations a biomass gasifier is a process achieved by reacting biomass at a high temperature without combustion / incomplete combustion, with a controlled amount of oxygen and/or steam resulting in production of combustible gases consisting of a mix of Carbon Monoxide (CO), Hydrogen (H<sub>2</sub>) and traces of Methane (CH<sub>4</sub>), which shall be called synthesis gas to be used as fuel. The projects shall qualify as biogas based power project provided it is using new plant and machinery and having a grid connected system that uses 100% syngas engine with MNRE approved gasifier The various parameters as per HERC RE Regulations considered for tariff determination have been summarized in the following table: -

|   |  |                     |
|---|--|---------------------|
| 1 | Useful life (Regulation 51(2) / Tariff Period  | 20 years            |
| 2 | Capital Cost (Rs. Crore / MW) during the Control Period (Regulation 51 (3) after considering subsidy | Rs. 4.43 Crore / MW |
| 3 | Plant Load Factor (PLF %) (Regulation 51 (4)   | 85%                 |
| 4 | Auxiliary Energy Consumption (%)   | 10%                 |

|   |   |   |
|---|---|---|
|   | (Regulation 51(5))                              |   |
| 5 | Specific Fuel Consumption<br>(Regulation 51(6)) | 1.25 Kg / kWh of substrate mix  |
| 6 | O&M (Regulation 51(7))                          | Rs. 0.53 Crore / MW for the base year i.e. the FY 2017-18 with annual escalation of 5.72% thereafter                      |
| 7 | Fuel Cost (Regulation 51(8))                    | Base year (FY 2017-18) fuel cost (Feed Stock Price) shall be Rs. 3270 / MT and the same shall be escalated @ 5% per annum |

47. The financial principles i.e. Debt – Equity ratio, Loan Tenure and Interest, Depreciation, RoE , Working Capital computation and interest thereto for determination of generic tariff has been considered as per regulations 12 to 16 of the principle RE Regulations in vogue .

48. Fuel Cost - The Commission observes that the provision for fuel cost, as per the HERC RE Regulations is as follows “51(8). Fuel Co (8) The base year (FY 2017-18) fuel cost shall be Rs. 3270 / MT and the same shall be escalated @ 5% per annum for the purpose of arriving at generic levelled tariff for the entire useful life of the project”. As the first year of the control period (Regulation 4) is the FY 2017-18, the Commission has considered the same after escalating the fuel cost by 5% for the FY 2018-19 and the FY 2019-20 to arrive at the base year. Further, the fuel cost was escalated by 5% per annum for the entire tariff period. Hence, the Commission has considered fuel cost @ Rs. 3605 / MT for FY 2019-20 and 5% escalation per annum thereafter. As the RE Regulations provides for specific fuel consumption in terms of Kg/kWh, has been specified to estimate quantum of fuel that may be required at the normative PLF and the same has been multiplied by the price of fuel (Rs / MT) to arrive at the total cost of fuel.

49. In order to arrive at the levelized tariff, the discounting factor of 11.29% has been used as estimated by the Commission earlier in the present Order.

50. GST – O&M – The Commission observes that the HERC RE Regulation in vogue provides as under: -

“22. Taxes and Duties. – Tariff determined under these regulations shall be exclusive of taxes and duties as may be levied by the appropriate Government. Any tax / duty levied by the appropriate Government shall be allowed as pass through on actual incurred basis and should have been actually paid to the authority (ies) concerned”.

51. In view of the above discussions, the resultant tariff for biogas power projects are placed at Annexure – E of the present Order.

The year to year tariff determined by the Commission for the “Tariff Period” as defined under HERC RE Regulations shall be an indicative tariff applicable to all RE Power Projects set up during the control period as defined in the HERC RE Regulations.

This order is signed, dated and issued by the Haryana Electricity Regulatory Commission on 20.12.2019.

Date: 20.12.2019  
Place: Panchkula

(Naresh Sardana)  
Member

(Pravindra Singh Chauhan )  
Member

(D.S. Dhesi)  
Chairman

HERC













Biomass generic tariff (Water Cooled - AFBC) Single Fuel (Paddy)

Table of Parameters
Capital cost (Rs. in Million / MW) 61.000
Residual value (10%) 6.10
Total depreciation (Rs in Million / MW) 54.90
Loan component (Rs in Million / MW) 42.70
Equity component (Rs in Million / MW) 18.30
CUF (stabilisation) six months 60%
CUF 1st year (Including Stabilisation) 65%
CUF 2nd year onwards 80%
O&M (Rs Million / MW) 4.47
O&M escalation 5.72%
Depreciation (first 13 years) 5.38%
ROE (1st 10 years) 14%
ROE (11th year onwards) 14%
Income tax (MAT) pass through 0.00%
Income tax (Corporate Tax) pass through 0.00%
Interest on term loan 10.13%
Interest on working capital 9.13%
Auxiliary consumption (1st year) 10%
Auxiliary consumption (2nd year onwards) 10%
Fuel cost (Rs. / MT) 3605.61
Fuel price escalation 5%
Heat rate (Kcal/kWh) 4125
GCV (Kcal/kg) 3100
Discount rate WACC 11.29%
Levilled tariff 10.34

CERC

4.00 4.2288 4.470687

MCLR +2%
MCLR + 1%

AFBC Boiler CERC

Year-wise financial summary table with columns for years 1-20 and rows for Fuel cost escalation, O&M escalation, Outstanding Loan amount, Loan repayment, Interest on loan, Working Capital, Fuel cost for 6 months, One month O&M, 2 Months receivables, Maintenance spares 15% of O&M, Total, Interest on working capital.

Variable Costs

Parameters Derivation table showing various costs and tariffs over 20 years. Includes Capacity (MW), Generation (Million Units), Auxiliary Cons (%), Station Heat Rate (Kcal/kWh), Overall Heat (Gcal), Fuel Consumption (MT), Cost of fuel per MT, Total Cost of fuel (Rs Million), Fuel Cost (Rs/kWh), Fixed Costs (O&M Expenses, Depreciation, Interest on Term Loan, Interest on Working Capital, Return on Equity, Income tax on ROE), Fixed Cost, Fixed cost (Rs/kWh), Total cost (Fixed+variable), Tariff (Rs/kWh), Per unit tariff components, Levilled tariff, Discount factor, Discounted tariff components, Fuel (Variable Cost) Rs/kWh, and Levilled Tariff (Rs/kWh).









