

BEFORE THE HARYANA ELECTRICITY REGULATORY COMMISSION AT PANCHKULA

Case No. HERC/Petition No. 2 of 2023 and IA No. 10 of 2023

Date of Hearing : 13.03.2024

Date of Order : 27.05.2024

In the Matter of

Petition under Section 62 of the Electricity Act, 2003 read with regulation 7 of the HERC (Terms and conditions for determination of tariff from Renewal Energy sources, Renewal Purchase Obligations and Renewable Energy Certificate) Regulations 2021 seeking determination of tariff for 100% bagasse based co-generation power plant of M/s Karnal Cooperative Sugar Mill Ltd., for 20 years in compliance to the order dated 20.10.2022 in HERC/Petition No. 55 of 2022.

Petitioner

The Karnal Cooperative Sugar Mills Ltd.

Respondent

Haryana Power Purchase Centre, Panchkula (HPPC)

Present on behalf of the Petitioner

1. Shri Naveen S. Bhardwaj, Advocate
2. Shri Ankit, Dy. Chief Engineer

Present On behalf of the Respondent

1. Ms. Sonia Madan, Advocate
2. Shri Gaurav Gupta, Xen, HPPC

Quorum

**Shri Nand Lal Sharma
Shri Naresh Sardana
Shri Mukesh Garg**

**Chairman
Member
Member**

ORDER

Brief Background of the case

1. The present petition has been filed by M/s. Karnal Cooperative Sugar Mills Ltd, seeking determination of tariff under section 62 read with regulation 7 of the HERC (Terms and conditions for determination of tariff from Renewal Energy sources, Renewal Purchase Obligations and Renewable Energy Certificate) Regulations 2021, for its 100% bagasse based co-generation power plant, for purchase of upto 13.2 MW out of 18 MW bagasse based co-generation power for 20 years, in compliance to the order dated 20.10.2022 in HERC/Petition No. 54 of 2022, at the tariff to be determined by this Commission under Section 62 of the Electricity Act, 2003 subject to the mutually agreed ceiling tariff of Rs. 6.67/unit.
2. M/s. Karnal Cooperative Sugar Mills Ltd., has filed an amended petition, received in the Commission vide IA No. 10 of 2023, after removing the deficiencies which were noticed during first hearing before this Commission held on 22.02.2023. The petitioner had prayed that the Hon'ble Commission may take on record the amended tariff petition instead of earlier tariff petition and requested to determine

the tariff on the basis of amended tariff petition, in the interest of justice. The submissions of the petitioner, as per the amended tariff petition, is as under: -

3. **The petitioner has submitted as under:-**

- 3.1 That the Commission, vide its order dated 20.10.2022 (petition no. 54 of 2022), had granted approval to HPPC to procure upto 13.2 MW power during sugarcane crushing season out of 18 MW bagasse based co-generation power plant of the petitioner for 20 years from the date of commercial operation of the last unit or balance normative life of power station whichever is earlier at the tariff determined by this Hon'ble Commission subject to mutually agreed levelized ceiling tariff of Rs. 6.67 kWh. The tariff payable shall be year to year tariff as determined under Section 62 of the Electricity Act, 2003 by this Commission on the petition to be filed by the Sugar Mill.
- 3.2 That in compliance to the direction of this Commission, complete project details with reference to each components of the tariff, norms and parameters of the HERC RE Regulations, has been submitted, as under: -
- 3.2.1 **Capital cost:-** The capital cost, as specified in the HERC RE Regulations, is inclusive of land cost, pre-development expenses, all capital work including plant and machinery, initial spares, civil work, erection and commissioning, cost of financing and interest on term loan, submitted by the petitioner is as under: -
- 3.2.1.1 **Land:-** The project of the petitioner is erected on the land measuring 31 Kanal 12 Marla situated at Meerut Road District Karnal. The cost of the aforesaid land is Rs. 19,20,00,000/-. The cost of the land has been determined by Tehsildar, Karnal on the basis of collector rate list of 2022 (annexed at annexure P-3/A of the petition).
- 3.2.1.2 **Civil buildings and roads:-** The cost of civil works and roads are of Rs. 13,44,20,979/- (calculation sheet annexed at annexure P-3/B of the petition).
- 3.2.1.3 **Machinery foundations:-** The cost of the machinery foundation is Rs. 6,40,15,000/- as per the calculation sheet annexed at annexure P-3/C and P-3/D of the petition. The invoices of civil building and roads and machinery foundations are combined. (combined invoices are annexed at annexure P-3/E of the petition).
- 3.2.1.4 **Plant and machinery:-** The cost of plant and machinery of the project is Rs. 43,38,20,000/- (calculation sheet annexed at annexure P-3/F of the petition).
- 3.2.1.5 **Erection and commissioning:-** The cost of erection and commissioning is Rs. 5,80,00,435/- (calculation sheet and breakup of bills annexed at Annexure P-3/H of the petition).
- 3.2.1.6 **Interest on term loan:-** The petitioner borrowed term loan of Rs. 63,05,00,000/- from HARCO Bank and State Government for the bagasse based co-generation plant. Interest on the term loan capitalization during construction period is Rs. 12,54,03,000/- (calculation of interest capitalization during construction and sanctioned order of term loan are annexed at annexure P-3/J of the petition).

- 3.2.1.7 **Pre-development expenses:-** It has been submitted that the petitioner spent an amount of Rs. 1,42,79,497/- as pre-development expenses on the project. (calculation sheet of pre-development expenses on various components are annexed at annexure P-3/K of the petition).
- 3.2.1.8 The capital cost of the power plant adds up to Rs. 55.98 million per MW. After excluding the land cost, the amount comes out to Rs. 45.31/- million per MW.
- 3.2.2 **Residual value (10%):-** The residual value of the project considered for the purpose of calculating depreciation works out to Rs. 4.53 million/MW @ 10% as per normative standards of the HERC RE regulations.
- 3.2.3 **Depreciation:-** The depreciation is to be based on term loan repayment, which comes out @6.22%, as against the normative rate of @5.38% due to equity component being on lower side and term loan on a higher side at 80.95%. The debt to equity ratio provided in the HERC RE Regulations is 70:30 by HERC RE regulations. (depreciation calculation sheet is annexed at annexure P-4 of the petition).
- 3.2.4 **Loan components, Equity components & Interest on term loan:-** As per HERC RE regulations, the loan tenure of 13 years is to be considered but the loan tenure of the Sugar Mill (petitioner) is of 8 years. The loan arrived at in the manner indicated above is to be considered as gross normative loan for calculation for interest on loan. The value based for computing equity eligible for return is to be lower of capital cost as determined under the HERC regulations which is as per normative standards.
- 3.2.5 **CUF:-** The capacity utilization factor for bagasse co-generation project is to be considered at 53% as per HERC RE Regulations.
- 3.2.6 **Operation and maintenance:-** The operation and maintenance expenses comprises of repair and maintenance, establishment including employee expenses, administrative and general expenses for determination of tariff on the basis norms specified in the regulations for the first year of the control period which shall be Rs. 0.24 crore/MW. Thereafter, shall be escalated @ 2.93% per annum over the tariff period. The copy of calculation sheet of operation and maintenance expenses is annexed at annexure P-6 of the petition.
- 3.2.7 **Interest on working capital:-** The working capital requirement in respect of bagasse based co-generation project is to be computed as under:-
- a) Fuel cost for four month at normative PLF,
 - b) Operation and maintenance expenses for one month,
 - c) Receivable equipment for two months of fixed and variable charges for sale of electricity calculated on normative PLF,
 - d) Maintenance spare @15% of operation and maintenance expenses.

- Accordingly, the calculation of interest on working capital is annexed at annexure P-7.
- 3.2.8 **Auxiliary energy consumptions:-** The auxiliary energy consumptions factor may be taken as 8.5% as per HERC RE Regulations.
- 3.2.9 **Fuel cost:-** The petitioner sugar mill falls under the jurisdiction of NCR Delhi. Therefore, the rate of bagasse is of Rs. approximate Rs. 400 per quintal during season. Even then, the rate of bagasse may kindly be considering @ Rs.243 per quintal on the basis of purchase order of the bagasse for the FY 2021-22.
- 3.2.10 **Fuel price escalation :-** as per HERC Re regulations, the bagasse price shall be escalated @ 2.93% per annum for determination of levelized tariff for the entire useful life of the project whereby the petitioner Sugar Mill adopted the same as per normative standards of the HERC RE Regulations.
- 3.2.11 **Heat rate :-** The heat rate of 3600 kCal / kWh for power generation component may be considered for computation of tariff for non fossil fuel based co-generation project. Whereas, the petitioner sugar mill have heat rate of 4522 kCal/kWh for power generation component because the boiler steam parameters pressure is 110.00 kg/cm² with '540+5 Celsius therefore the steam flow at turbine stock value is 100 TPH which is latest technology installed in the petitioner sugar mill therefore the steam consumption is at par 5.20 kg / kWh during season. The copy of heat rate justification and turbine specifications are annexed at annexure P-10.
- 3.2.12 **Gross Calorific Value :-** The gross calorific value for bagasse may be considered as 2250 kCal/ kg, as per norms provided in the HERC RE Regulations.
- 3.2.13 **Working capital :-** The working capital requirement shall be computed in accordance with operation and maintenance expenses for one month, fuel cost for four month, two month receivable and maintainable spares @15% of O & M, which comes out to Rs. 25,05,81,895/- of the petitioner sugar mill, as per the calculation sheet annexed at annexure P-11.
- 3.3 That on the basis of aforesaid calculation as per tariff computation of bagasse based co-generation plant, the Sugar Mill (petitioner) prepared a calculation sheet for levelized tariff which comes out @ Rs. 9.19/-. The copy of the calculation sheet for levelized tariff is annexed at annexure P-12.
- 3.4 That the following prayers have been made:-
- a. Allow the instant petition, in the interest of justice,
 - b. Determine the tariff on the basis of tariff computation (Annexure P-3) as well as calculation sheet of levelized tariff (Annexure P-12) of the petitioner sugar mill, in the interest of justice,

- c. Pass such order or direction as this Hon'ble Commission may deem fit and necessary in view of facts and circumstances of the case, in the interest of justice.

Proceedings in the Case

4. The cost of generation directly impacts the cost of delivered power to the electricity consumers. Hence, in order to afford an opportunity to the general public / Stakeholders to study / analyze the proposal and file their objections / suggestions / comments, the petition filed by M/s. Karnal Cooperative Sugar Mills Ltd., was made available on the website(s) of the Commission as well as that of the petitioner. A public notice was issued by M/s. Karnal Cooperative Sugar Mills Ltd in the Newspapers, having wide circulation in Haryana, for inviting objections/suggestions from the stakeholders / General Public or any interested person, in accordance with the provisions of Section 64 of the Electricity Act, 2003 read with the Haryana Electricity Regulatory Commission (Conduct of Business) Regulations, 2019 as amended from time to time. The said public notice was published by the petitioner, in the following newspapers:-

Name	Language	Date of publication
Indian Express	English	26.10.2023
Dainik Jagran	Hindi	04.08.2023

5. In response to the public notice, no comments / objections were filed by any stakeholder. However, the respondent No. 1 (HPPC), filed an affidavit dated 15.05.2023, submitting their comments for the consideration of the Commission while determining tariff in the present matter.

The comments/objections filed by HPPC are as under:-

- 5.1 That the amended petition shall only be considered for inclusion of correct particulars and removal of inconsistencies. However, the petitioner has escalated/altere the value claimed for certain parameters, which is uncalled for. It is, therefore, pertinent to have a comprehensive review of the original petition as well as the amended petition to assess the reasonable value of various parameters for tariff determination in the instant case.
- 5.2 That the petitioner has filed the present amended tariff petition as per Section 62 of the Electricity Act, 2003, which provides that the tariff has to be determined for the project subject to the prudence check by the Appropriate Commission. Reliance in this regard is placed upon the Hon'ble APTEL's Judgement dated 27.04.2011 titled *Maharashtra State Power Generation Co. Ltd v. Maharashtra Electricity Regulatory Commission & Ors*, wherein it was held as under:-

"7.2. ...

The capital cost has to be determined on the basis of actual expenditure incurred on completion of the project subject to prudence check by the State Commission. The

dictionary meanings of the word 'prudent' are "sensible and careful when you make judgments and decisions and avoiding unnecessary risk". The prudence check of the capital cost has to be looked into considering whether the Appellant has been careful in its judgments and decisions while executing the project or has been careful and vigilant in executing the project"

5.3 That the Hon'ble Commission, vide order dated 20.10.2022 in PRO-54 of 2022, had with respect to the instant plant of the petitioner directed that the tariff shall be decided on the separate petition to be filed by M/s. Karnal Cooperative Sugar Mills Ltd under section 62 of the Electricity Act, 2003, subject to the levelized ceiling tariff of Rs. 6.67/kWh. It was thereafter specifically mentioned that – *"The tariff petition shall include DPR and all other relevant documents as per the HERC RE Regulations in vogue, to arrive at a prudent capital cost and all other tariff components."* The Respondent had raised an objection in reply to original petition to the effect that copy of DPR, purchase order, invoices etc. have not been placed on record. In the amended petition, although the petitioner has placed on record certain invoices, however, a copy of the DPR/Consultant report, Audited Balance Sheets, Generation reports etc. have still not been placed on record.

5.4 That Regulation 7(2) of HERC RE Regulations, 2021 categorically provides that the petition of determination of tariff should be accompanied by information in prescribed forms along with technical and operational details, site specific aspects, premise for capital cost and financing plan etc. along with breakup of capital cost. The petitioner shall therefore be directed to place on record Detailed Project Report, technical and Operational reports thereby enabling the Hon'ble Commission to determine project specific tariff effectively.

5.5 Capital Cost of the Project: -

5.5.1 That in the original petition, the petitioner had earlier claimed a total capital cost of Rs. 70.00 crore which is divided under two broad parts, i.e. a) Cost of Co-Gen Machinery including E&C and Civil – Rs. 63.50 crores; and b) Cost of 132 KV Power Evacuation Line – Rs. 6.50 crore.

5.5.2 That in the amended petition, the petitioner has claimed a total capital cost of Rs. 100.76 crores, the breakup of which is tabulated hereunder :-

Sr. No.	Particulars	Value (in Rs.)
1.	Land	19,20,00,000
2.	Civil buildings and roads	13,44,20,979
3.	Machinery foundations	6,40,15,000
4.	Plant and machinery	43,38,20,000
5.	Erection and Commissioning	5,80,00,435
6.	Interest on term loan	12,54,03,000
7.	Pre-development expenses	Not included
Total Capital Cost		100,76,59,414

- 5.5.3 That in the amended capital cost claimed by the petitioner, while the cost of the evacuation line has been excluded, however, the cost of land and interest on term loan has been included. Insofar as the exclusion of the cost of the evacuation line is concerned, the same is justified in view of the objection taken by the respondent in reply to the original petition wherein it was averred that the cost of the evacuation line cannot be considered in tariff determination and has to be excluded from the total capital cost in view of Clause 5.4 of PPA. In view of said clause, the cost of the transmission line as well as the associated cost has to be excluded from the capital cost to be factored in tariff and the petitioner exclusively has to bear the said cost.
- 5.5.4 The cost of land now included by the petitioner is unjustified and untenable. Firstly, the petitioner has not acquired any land for setting up of power plant. The land was acquired way back at the time of the setting up of the sugar mill. The installation of a power plant was envisaged only because the land was already available for the same. The cost of land must have been capitalized in the accounts of the sugar mill. The petitioner cannot, therefore, be allowed to take double benefit at the cost of the larger public by again capitalizing the same asset in the accounts of the power plant. The petitioner cannot be allowed to unjustly enrich itself by including the cost of land as a pass-through in the tariff. Secondly, the petitioner has claimed the cost of land based on the collector rate list for the year 2022. There is no rationale for considering the current cost of land when the land was acquired way back probably at the time of setting up of Sugar Mill. If at all, the Petitioner is able to set up a case that the cost of land when acquired/allotted was not included in the books of Sugar Mill, even then it is only the actual cost of such acquisition/allotment which may be considered.
- 5.5.5 The interest on term loan has been wrongly included in the capital cost. As per standard tariff determination process, interest on term loan is separately considered as a distinct component. The same, therefore, cannot be made a part of capital cost.
- 5.5.6 The capital cost claimed by the petition after excluding the cost of land and interest on term loan comes to Rs. 69,02,56,414/- (Rs. 69.02 crores). Insofar as other components of capital cost are concerned, the details of the same are provided in the following annexures –

Sr. No.	Particulars	Value	Reference Annexure
1.	Civil buildings and roads	13,44,20,979	P-3/B, P-3/D, P-3/E
2.	Machinery foundations	6,40,15,000	P-3/C,
3.	Plant and machinery	43,38,20,000	P-3/F, P-3/G
4.	Erection and Commissioning	5,80,00,435	P-3/H, P-3/I

- 5.5.7 The petitioner has provided the breakup of civil buildings and road cost on page 75 of the amended petition. A perusal of the said breakup evinces that the same includes

- the cost of rainwater harvesting, departmental head residences, supervisory and workers quarter. The same cannot be considered towards the cost of the power plant.
- 5.5.8 The details of cost towards machinery foundations, plant and machinery and erection and commissioning may be considered after prudence check.
- 5.6 Residual Value – The residual value shall be subject to consideration of the total cost of the power plant. The normative standards of 10% of such cost shall be considered.
- 5.7 Depreciation –The total value of depreciation shall be subject to the value of the Capital Cost (excluding Land cost) to be finalized by this Hon'ble Commission after prudence check. Even though the total value of depreciation (in Rs. million/MW) has been considered based on 90% of the Capital Cost (excluding Land cost for depreciation) claimed by the Petitioner, yet it is imperative that the petitioner shall submit Audited Balance Sheets of the Plant to substantiate the actual depreciation taken in the books of the petitioner. The benefit of accelerated depreciation shall also be considered while determining tariff.
- 5.8 Loan, Equity, and Interest on term Loan – Interest on Loan was earlier claimed @ 10.10% per annum. However, the same has been now reduced to 9.85% per annum based on the average of loan rate from two different banks. However, no documents have been placed on record in support of the same except a tabular statement on page 611 of the amended petition. The petitioner should support its claim with annual reports, Auditor Certificates, financial agreements with banks etc. Lower of normative or actual parameters ought to be considered for tariff determination.
- 5.9 CUF - The petitioner has considered the normative value of CUF. However, no generational reports have been placed on record to substantiate the same. Higher of normative or actual CUF should be considered for tariff determination.
- 5.10 Operation and Maintenance (O&M) Cost - Insofar as the O&M Expenses are concerned, the petitioner has earlier claimed the same as Rs. 4.25 crores. However, in the present amended petition, the same has been claimed at the normative cost of Rs. 4.32 crores. The plant of the petitioner has been operational. It is, therefore, essential for the petitioner to place on record the audited balance sheets and accordingly claim on actual basis. In the absence of such documentary evidence, the O&M shall be permitted limited to the value earlier claimed as Rs. 4.25 crores with the normative escalation of 2.93%. Lower of the normative or actual value shall be considered for the determination of tariff.
- 5.11 Interest on Working Capital –The interest on working capital shall be computed on the working capital determined in terms of the normative formula after assessing the value of requisite parameters after considering the submissions of the respondent made in the present reply.

- 5.12 Auxiliary Consumption - Auxiliary energy consumption shall be taken as 8.5% as specified in the Regulations or actual whichever is lower.
- 5.13 Fuel Cost – The Petitioner had earlier claimed fuel cost as Rs. 4000 per MT. The same has now been claimed as Rs. 2430 per MT. The amended claim is based on a copy of 5 invoices dated 19-20.12.2022 and 28-29.04.2022. In these 5 invoices, the rate of bagasse is Rs. 400 per quintal or Rs. 231 per quintal, which has huge variation. The said letter, by no means, is cogent evidence of the market value of loose bagasse. Furthermore, what cannot be lost sight of is the fact that the majority of fuel is a by-product of the Sugar Mill and therefore, has no associated cost. The respondent is appending herewith the fuel statements of the petitioner for the month of January to March 2023, which shows that fuel consumed in the plant is lesser than the fuel produced in the sugar mills. Meaning thereby, in real effect, there is no fuel cost associated with the running of the power plant. The Average Power (in MW) supplied to the Respondent in the months of January to March 2023 is also tabulated hereunder for ready reference –

Period	Average Power (in MW) supplied to HPPC
19.12.2022 to 31.01.2023	Nil
31.01.2023 to 03.03.2023	10.43
03.03.2023 to 03.04.2023	9.26

The Hon'ble Commission, vide its order dated 21.03.2022 in its Suo Moto Petition no. 52 of 2021, determined the fuel cost for renewable energy projects set up / to be set up in Haryana viz. Biomass, Paddy Stubble, Biogas, Biomass Gasifier and Bagasse /Non-bagasse (cogeneration) 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, 2021 (hereinafter referred to as 'RE Regulations, 2021'). In the said Order, after due consideration of all the factors, the cost of Bagasse has been specified as Rs. 2000/MT. The relevant extract of the order is reproduced hereunder -

“Cost of Bagasse (Rs./MT)

The Commission observes that M/s. NSML has proposed Rs. 3,280/MT as the cost of bagasse during crushing season, which includes the purchase cost of bagasse as Rs. 2,580/MT and the transportation cost in the vicinity of 75 kms works out to be around Rs.700/MT. However, there are views that there should not be any provision for fuel cost for bagasse-based co-generation plants as bagasse is a by-product of sugarcane crushing while manufacturing sugar and this cost is already included by the State Governments in sugar pricing. The Commission is of the considered view that fuel prices should be considered for bagasse-based cogeneration plant for the purpose of tariff determination. Accordingly, the Commission in its order dated 27.04.2021 on RE Regulations, 2021, has decided as under:-

“Further, as far as bagasse, used as fuel in the co-generation power projects of Sugar Mill is concerned, the fact remains that bagasse is available in the premises of the Sugar Mills and the capacity of the co-generation power plants ought to be designed considering the quantum of bagasse available depending on the cane crushing capacity (Tons Crushed Per Day) of the Sugar Mills. At times there could be some surplus bagasse available including in the absence of co-generation facility. In such an event bagasse may be sold off as a source of fiber for pulp production or other possible usage. In the present case the Commission is concerned with co-generation based on internally available bagasse in the premises of the Sugar Mills, hence some quantity sold in the market could be at a varying price which cannot form the basis of benchmarking the fuel cost in the present case. Resultantly, for arriving at the cost of bagasse for the FY 2021-22, the Commission has considered the base price at Rs. 695 / MT (FY 2013-14) and escalated the same by 5% per annum to arrive at Rs. 1027 / MT.”

However, the Commission in its draft order for the FY 2021-22 & FY 2022-23, has increased the cost of bagasse from Rs. 1027/MT to Rs. 2000/MT, based on the report of MDU, Rohtak dated October, 2021. MDU, Rohtak, as observed as under:-

*“.....Most of the bagasse generated in the sugar mills is consumed within the mills and not much bagasse is left after the end of the crushing season. Some quantity of bagasse is kept in reserve by the sugar mills for starting of next year’s operations and trial runnings. **However, excess of bagasse may be sold to outsiders at a rate prevailing in market for the quality of bagasse available; which was found to be Rs 2000 to 2300 per MT during the year 2020- 21.**”*

*The report of MDU, Rohtak has strengthened the decision of the Commission in the order dated 27.04.2021 that bagasse is available in the premises of the Sugar Mills and there is no transportation cost involved. Although, there are views that there should not be any provision for fuel cost for bagasse-based cogeneration plants as bagasse is a by-product of sugarcane crushing while manufacturing sugar and this cost is already included by the State Governments in sugar pricing, **the Commission has accepted the cost of bagasse as Rs. 2000/MT, based on the recommendations of M/s. MDU, Rohtak.**”*

(Emphasis Supplied)

In light of the foregoing, the fuel cost to be considered in the instant case shall not exceed Rs. 2000/ MT.

- 5.14 Fuel price escalation – The petitioner has claimed normative escalation @ 2.93% on fuel cost and the same is justified.
- 5.15 Station Heat Rate - The petitioner had earlier claimed the SHR as 5355 kCal/kWh as against the normative value of 3600 kCal/kWh. However, in the present amended petition, the same has been claimed as 4522 kCal/kWh. The basis of the computation is, however, without any substance. The petitioner has considered a Turbine specific steam consumption of 5.20 Kg/kWh and boiler steam to fuel ratio of 2.58:1. The said assumption is unsubstantiated. The petitioner has apparently made hypothetical calculations, which cannot be considered while determining project specific tariff, more so when the Plant is already operational. The value for SHR have been worked out by making a reverse calculation where GCV of 2250 has been multiplied with Fuel consumption factor of 2.01. This apparently has no basis. A higher onus is cast upon the generator when the value claimed is higher than the normative.
- 5.16 GCV of Fuel – The petitioner has considered normative value of Gross Calorific Value. The normative value may be considered in order to protect the interest of the consumers at large.

6. The petitioner’s rejoinder dated 03.11.2023: -

- 6.1 That the values had been altered in the amended petition, as the said values contained in the original petition did not reflect the correct position owing to lack of proper understanding/ appreciation qua the determinant values as well as mis-appreciation of the available data/records. Any inadvertent omission in including the relevant determinant factors/norms while approaching the Hon’ble Commission does not preclude the petitioner from rectifying the aforesaid inadvertent error/mistake and does not create any vested right in favour of the respondent as long as the claim of the petitioner is based on the factor/norms permitted by this Hon’ble Commission for determination of tariff. As such, upon reconsideration of the matter in the light of norms/values and parameters specified by this Hon’ble Commission, it became expedient to amend the petition and bring the actual/determinant values of the relevant parameters on record and in sync with public notice. A comparative tabulation of the changes incorporated in the amended petition viz-a-viz contents of original petition with a brief clarification providing justification for such deviance in the following terms:-

Sr No	Para No.	Contents of Initial Petition	Contents of Amended Petition	Clarification
1.	11(A) Capital Cost Annexure P-3	Capital Cost- 70.00 Crore without land but including GST on plant & machinery and Transmission line.	Capital Cost -100.76 Crore including land cost, Civil building roads, machinery foundation, plant and machinery, Erection and Commissioning, interest on term loan during construction	In the initial petition capital cost of Rs. 70.00 Crore was calculated as a whole but in the amended petition the actual capital cost Rs. 100.76 Crore incurred in terms of the definition mentioned in HERC Regulations. The difference occurred due to the land cost and interest on term loan during construction period. But cost of transmission line was excluded.

			but excluding pre-operative expenses and transmission line cost.	
2.	11(B) Residual Value @ 10 %	Not Considered	Residual value @ 10%	In the Initial Petition residual value of capital cost excluding land was not considered. In the amended petition Residual value has been considered in terms of the HERC Regulation for calculation of depreciation.
3.	11(C) Total Depreciation	Not Considered	Deprecation @ 6.23% on capital cost excluding land and residual value.	In the Initial Petition Deprecation on capital cost excluding land and residual value was not considered. In the amended petition Deprecation @ 6.23% has been considered. However, the rate of depreciation 6.23% is on higher side in terms of 5.38% the HERC Regulation for calculation of depreciation. The increase in rate of depreciation in comparison with normative due to shortage of equity funds.
4.	11(D) Equity eligible for return and working capital requirement	Not Considered	Considered as per HERC Regulation.	Since the initial petition land cost was considered in total capital cost and in the amended petition as per HERC Tariff determination land cost included. Accordingly, equity is considered for return. In the initial petition working capital requirement was not work out. Now in the amended petition the same has been included as per the HERC tariff determination.
5.	11 (E) CUF	Not Mentioned	CUF 53%	In the Initial Petition CUF was not mentioned but in the amended petition CUF has been calculated and mentioned as per as per HERC Regulation for Tariff determination.
6.	11(F) Operation and Maintenance	O&M cost was calculated on the basis per KW Hour.	O&M Cost has been calculated as per tariff determination with an escalation @ 2.93% per annum.	In the initial petition O&M Cost was calculated on the basis of per KW hour generation instead of mentioning the total cost of O&M. IN the amended petition the same has been calculated as per HERC tariff determination with an escalation of 2.93% P.A. However, the difference in per KW hour generation is negligible.
7.	11(H) Auxiliary Energy Consumption	Auxiliary energy consumption was calculated as per the projected load.	Auxiliary energy consumption @ 8.5% has been considered as per the HERC Regulation.	In the initial petition Auxiliary energy consumption was calculated on projected basis but in the amended petition the same has been calculated as per HERC Regulations.
8.	11 (I) Fuel Cost	Fuel cost considered @ Rs. 2.41/kg	Fuel cost considered @ Rs. 231/Quintal	In the initial petition, the bagasse cost was wrongly considered Rs. 241/Quintal as per PO of the Panipat Sugar mill. In the amended petition, the same has been calculated as per P.O. of Karnal Sugar Mill i.e. Rs. 231/quintal.
9.	11 (J) Fuel Price Escalation	Not Considered	Normative considered as per HERC Regulation.	In the initial petition fuel price escalation was not considered inadvertently now in the amended petition considered as per HERC tariff determination regulation.
10.	11 (K) Heat Rate	Heat Rate considered @ 2.38 kg/kwh.	Heat Rate considered @ 4522 kcal/kwh as per plant rated specification and	In the initial petition heat rate considered @ 2.38kg/kwh converted into Kcal comes to 5355 Kcal/kwh whereas in the amended petition the same has been calculated as per

			MOU with the Plant supplier.	the plant rated specification according to the MOU with plant supplier.
11.	11 (L) Gross Caloric Value	Specifically, not mentioned however in calculation of Heat Rate it was considered at 2250 Kcal/kg of bagasse.	Considered as per normative 2250 Kcal/kg HERC Regulation.	Value in both petitions is same but in the initial petition it was not specifically mentioned.
12.	11 (M) Working Capital	Not Considered	Considered as per HERC Regulation.	In the initial petition working capital requirement was not work out. Now in the amended petition the same has been included as per the HERC tariff determination.
13.	12 Levelized Tariff	Not Mentioned	Calculated to the tune of Rs. 9.19/KWh	In the initial petition levelized tariff calculations was not provide inadvertently however in the amended petition the same has been calculated as per the HERC Tariff calculation.

- 6.2 That HPPC has wrongly averred that purchase orders/invoices etc. have not been placed on record, as a matter of fact, the same are already on record as Annexure P-3B to P-3I. The DPR, audited balance sheet for FY 2022-23 and generation reports (Crushing Season 2022-23) and minutes of meeting dated 10.05.2022 are being annexed.
- 6.3 That requisite data and other supporting documents/materials in the form of DPR, Purchase Orders/invoices, balance sheet, generation reports etc. have been duly brought on record for due appraisal and consideration of this Hon'ble Commission in order to take a holistic view of the matter while determining tariff.
- 6.4 That a lumpsum figure of Rs. 70 Crores was claimed towards cost of Co-Gen Machinery including erection and commissioning and civil works (excluding land cost) and another Rs. 6.50 Crores (approx) was claimed towards costs of 132 KV Power Evacuation Line as the Capital Cost of the Project, however, upon reconsideration of the matter in the light of HERC RE Regulations as also the objections raised by the respondent herein, the petitioner revised the calculation of total Capital Costs in the light of permissible heads determined by this Hon'ble Commission and has accordingly claimed a total Capital Cost of Rs.100.88 Crores while excluding the pre-development expenses. It would be worthwhile to mention that there is no change in the cost of Co-Gen Machinery including erection and commissioning and civil works (earlier valued around Rs. 70 Crores) and the addition of over Rs.10.50 Crores is primarily on account of addition of land cost, interest on term loan and GST which was not taken into consideration while filing the original petition despite the same being a permissible parameters as per HERC RE Regulations. It is also clarified that though the Sugar Mill has total land area admeasuring 115.9 Acre including Sugar Plant area measuring

104.89 Acres and co-generation plant area measuring 11 Acres. The cost of evacuation Line has already been excluded from the capital cost in the amended petition.

- 6.5 That the entire land was purchased for Sugar Mill along with bagasse based co-generation based power plant. It is an accepted principle of ordinary business efficacy and commercial prudence that any input made by any stakeholder from his own pocket in the project pool would be duly accountable towards the project cost and the same cannot be ignored/excluded merely because the concerned stake holder had not made any immediate investment towards sourcing of such input component. On the said premise, it is also well accepted norms/principle of business efficacy that the value of the input has to be considered at the relevant time of its submission to the project pool and not on the basis of the value of its original acquisition. Needless to submit that the escalation of the land value has been claimed on the basis of Collector Rate for the year 2022 (as per valuation report prepared by the Tehsildar, Karnal) which is the lowest rate fixed by the Govt. for determining the value of any immovable property. It cannot be lost from the sight that the petitioner has not derived any benefit from the aforesaid land in question despite having made huge investment towards acquisition thereof nearly a decade ago. There is thus, no question of unjust enrichment rather the petitioner is entitled for escalation and interest on its capital investment made about a decade ago. Further, the value of land utilized for the purpose of installation of co-generation has been accounted for capital cost of the co-generation according to the HERC Re regulations. Merely, capitalization of land does not generate any benefit until unless any fruitful utilization is done. So, in this case also the installation of co-generation plant at the available land is a fruitful utilization. Every investment made attracts a benefit/ escalation, so the value including hike in the investment of land only on the part utilized for co-generation plant has been considered on the collector rate certified by the Tehsildar. As such, the petitioner is entitled to claim benefit of the enhanced value existing at the time of its utilization for the Co-Gen based Power Plant in the year 2022.
- 6.6 That according to regulation 11 under Chapter-3 of HERC RE Regulations, the interest on Term loan during construction period is reckonable as the part of capital cost. Accordingly, the interest on Term loan during the construction period has been included in the total capital cost.
- 6.7 That some of the essential utilities/arrangements have been provided combined for both of the plants i.e. sugar mill as well as co-generation viz rain water harvesting, Departmental Head Residences and workers quarters, the capital cost of such common essential utilities/arrangements has been accounted for the co-generation plant on the pro-rata basis.

- 6.8 That there is nothing on record to suggest lest prove that the costs towards machinery, civil work for foundation of plant and machinery and building structure and erection & commissioning already annexed with the petition are not as per actual costs or that the claim is not based on prudence.
- 6.9 That the copy of audited balance sheet for FY 2022-23 in proof of claim of higher rate of depreciation is attached herewith for reference. The depreciable value of Rs.40.78 Million/MW has been rightly arrived at considering 90%o of the capital cost.
- 6.10 That the respondent has wrongly observed interest on loan at the rate of 10.10%. Actually, the petitioner Mill had obtained two loans i.e. from State Govt. of Haryana and HARCO Bank, therefore there are different interest rate on both loans. The requisite documents i.e. sanction order of loans are already attached as part of Annexure P-3J at page no. 600-605 already on record. The interest of 9.85 per annum is based on average interest rate of both loans.
- 6.11 That the petitioner has already taken normative value of CUF as per norms and the Generational reports have been brought on record. The same should be permitted normative value as the generation report of the plant which is still at nascent stage are not reflective of the actual values which would be available once the plant starts functioning to its optimum capacity.
- 6.12 That the petitioner inadvertently mentioned the Operation and Maintenance cost as per MW Hour instead of total Operation and Maintenance costs. Total repairs and maintenance cost of Rs. 6.56 crore (Rs. 4.25 crore maintenance cost specified by the original equipment manufacturer and Rs. 2.31 crore operational cost) include wages of the manpower deployed for operation and Maintenance.
- 6.13 That the petitioner has already submitted sufficient material to substantiate its claim fuel cost, PLF and O&M costs and has thus rightly calculated the interest on working capital in respect of bagasse based co-generation project as per norms of HERC RE Regulations. The requisite documents are already on record.
- 6.14 That the petitioner has rightly claimed fuel cost of Rs. 2,310/- per MT on the basis of market value. The respondent referred a suo moto petition order passed by this Hon'ble Commission whereby the Hon'ble Commission accepted the cost of bagasse of Rs. 2000/MT during the year of 2020-21 but it is pertinent to mention herein that as per HERC RE Regulations, the bagasse price shall be escalated at the rate of 2.93% per annum for determination of the tariff. The rates of Rs. 2310/MT are on the minimum level however it may vary upto 4000/MT being in the NCR region as fossil fuel are banned in NCR region for boiler. So, maximum boilers installed in NCR region in every factory switch towards biomass fuel as per direction of Hon'ble NGT. The petitioner has claimed minimum price of the biomass product at the rates prevalent in market.

- 6.15 That the petitioner has installed latest Technology Boiler and Turbine equipment in the plant, however, as per the Station Heat Rate specified by the Manufacturer of the aforesaid equipment in its brochure itself specifies heat rate of 4522KCal/Kwh for power generation. The requisite documents for justification and turbine specification is already on record.

Proceedings in the Case

7. The case was initially heard on 22.02.2023, wherein the Commission directed the petitioner to ensure that the public notice issued by them is in conformity with the petition. Thereafter, in an effort to speedily conclude the tariff determination proceedings, the case was heard on 29.03.2023, 26.04.2023, 27.04.2023, 07.06.2023, 19.07.2023, 20.07.2023, 08.09.2023, 08.11.2023, 06.12.2023 and finally on 24.01.2024. In view of the indifference and lackadaisical attitude of the petitioner due to reasons best known to them, leading to unnecessary delay, the Managing Director/MD-in charge, was directed to be present in person, in various hearings. Upon hearing the parties on 06.12.2023, the Commission sought the following information/documents, within one week, in order to prudently conduct the exercise of tariff determination: -
- a) Area of land used in power generation project along with its actual purchase cost.
 - b) Capital cost claimed should not include any common cost shared with sugar mill. Any such cost should be prudently bifurcated. Regarding this an affidavit shall be filed that the capital cost is exclusively for the power project. Further, legible copies of bills in respect of capital cost admissible for power generation project along with their payment proofs should be provided.
 - c) Actual monthly data in respect of PLF, quantum of bagasse consumed, cost of purchase of bagasse including source of purchase, from 19.12.2022 to till date.
 - d) Documents in support of deteriorated heat rate of 4522 kCal/kWh claimed in the petition, as against the regulatory norm of 3600 kCal/kWh. In the petition, 4522 kCal has been calculated from Turbine Specific Steam Consumption 5.20 kg/kWh and Boiler Steam to Fuel Ratio 2.58:1. ($5.20/2.58= 2.01$ kg, 2250 kCal/kg* $2.01 = 4522$). Further the original equipment manufacturer (OEM) guaranteed turbine and boiler performance be provided.
 - e) Test report of actual GCV of the bagasse used in the power plant. It has been taken as provided in the regulations i.e. 2250 kCal/kg.
8. In response, the petitioner provided the requisite information/documents, under an affidavit dated 20.01.2024 i.e. late by approximately one month. However, considering

its significant impact on tariff determination, the Commission has taken the same on record.

The petitioner has submitted as under: -

- 8.1 Area of land used in power generation project along with its actual purchase cost.
Reply: Area of Land used in Power Generation Project is 88 Kanal. The actual purchase cost of this land is Rs.19,20,00,000/-.
- 8.2 Capital cost claimed should not include any common cost shared with sugar mill. Any such cost should be prudently bifurcated. Regarding this an affidavit shall be filed that the capital cost is exclusively for the power project. Further, legible copies of bills in respect of capital cost admissible for power generation project along with their payment proofs should be provided.
Reply: Capital cost claimed by the petitioner does not include any common cost shared with Sugar Mill.
- 8.3 Actual monthly data in respect of PLF, quantum of bagasse consumed, cost of purchase of bagasse including source of purchase, from 19.12.2022 to till date.
Reply: The power plant achieved CoD on 01.02.2023 and the requisite information is submitted accordingly.
- 8.4 Documents in support of deteriorated heat rate of 4522 kCal/kWh claimed in the petition, as against the regulatory norm of 3600 kCal/kWh. In the petition, 4522 kCal has been calculated from Turbine Specific Steam Consumption 5.20 kg/kWh and Boiler Steam to Fuel Ratio 2.58:1. ($5.20/2.58 = 2.01$ kg, $2250 \text{ kCal/kg} * 2.01 = 4522$). Further the original equipment manufacturer (OEM) guaranteed turbine and boiler performance be provided.
Reply: Enclosed
- 8.5 Test report of actual GCV of the bagasse used in the power plant. It has been taken as provided in the regulations i.e. 2250 kCal/kg.
Reply: Enclosed
9. **HPPC's additional submissions on the additional information/documents filed by the petitioner:-**
- 9.1 That the land cost is already factored in the cost of sugar mill. Therefore, the same ought not to be considered in the capital cost of the power plant. Further, the petitioner was directed by the Hon'ble Commission, in its order dated 06.12.2023, to provide information regarding the area of land used in power generation project along with its actual cost. However, the petitioner has failed to respond to the same and has again submitted the value of land on the basis of collector rate of the year 2022. The details of cost towards machinery foundations, plant and machinery and erection and commissioning may be considered after prudence check.
- 9.2 That the power generation data, filed by the petitioner, could not be verified.

- 9.3 That the petitioner has not submitted any invoice evidencing the purchase of bagasse. Rather, the copies of invoices in respect of sale of bagasse by the Karnal Cooperative Sugar Mill, are attached. The exorbitant fuel bills raised by the Government owned sugar mills, inter-se, both falling under the aegis of Haryana State Federation of Co-operative Sugar Mills Limited, is uncalled for and unjustified as the same has a direct bearing on fixation of market price of bagasse and disturbs the market dynamics. The inter-se transaction between the government sugar mills has to be made considering the said cost of bagasse provided in the HERC RE Regulations, 2021.
- 9.4 That the Commission, vide letter dated 08.09.2023, while granting 'Must Run' status to the petitioner, had imposed a condition that the power plant shall run on the bagasse internally generated and there shall not be any purchase of bagasse from elsewhere. As such, there was no question of fuel cost on account of procurement of bagasse, particularly from, cooperative sugar mills, inter-se, for generation of power.
- 9.5 The petitioner had claimed SHR of 4522 kCal/kWh as against the normative value of 3600 kCal/kWh, which is guaranteed by OEM, subject to use of bagasse having 50% moisture. Thus, the SHR of 4522 kCal/kWh has been guaranteed assuming worst fuel condition. Whereas, it is highly unreasonable to presume that the bagasse to be used in plant shall have 50% moisture, more so, when there is no time lag for procurement of fuel for Sugar Mills. Thus, the Commission may consider the normative value of 3600 kCal/kWh, as provided in the HERC RE Regulations, 2021, for the purpose of tariff determination.
- 9.6 That the respondent is not privy to sampling conducted by the petitioner to justify GCV of 2250 kcal/kg or 2623 kcal/kg, vide its test reports dated 12.12.2023 and 04.01.2024, respectively. The testing has been done in their absence.

Commission's Analysis and Order

10. The Commission heard the arguments of the parties at length as well as perused the written submissions placed on record by them. The Commission has carefully examined the Regulations occupying the field; first Proviso to Regulation 6(2) of HERC RE Regulations, 2021 provides that the financial and operational norms as specified in these Regulations, shall be ceiling norms while determining the project specific tariff. The broad guidelines of the relevant regulations are as under: -
- "40. Capital Cost.** - *The normative capital cost for the non-fossil fuel based cogeneration projects shall be Rs. 4.925 Crores/MW during the control period, under these Regulations.*
- 41. Plant Load Factor. –**
- (1) *For the purpose of determining fixed charge, the plant load factor for non-fossil fuel based cogeneration projects shall be computed on the basis of plant*

availability for number of operating days considering operations during crushing season and off-season.

- (2) The number of operating days shall be 150 days (crushing) + 60 days (off-season) = 210 days operating days and the Plant Load Factor shall be 53%.
- (3) Plant Load Factor for biomass based co-generation using fuel other than bagasse shall be 80%.

42. Auxiliary Energy Consumption. – The auxiliary energy consumption shall be 8.5% for the purpose of tariff determination.

43. Station Heat Rate. – Station Heat Rate of 3600 kCal / kWh for power generation component shall be considered for computation of tariff for non-fossil fuel based Cogeneration projects.

44. Calorific Value. – The Gross Calorific Value for Bagasse shall be considered as 2250 kCal/kg. Further, the Gross Calorific Value for Non Fossil Fuel based Cogeneration (other than Bagasse) shall be considered as 3100 kCal/kg.

45. Fuel Cost. –

- (1) The price of Bagasse shall be Rs. 1027/ MT and shall be escalated at the rate of 2.93% per annum for determination of levelled tariff for the entire useful life of the project.
- (2) The price of other Non Fossil Fuel shall be Rs. 3000/ MT and shall be escalated at the rate of 2.93% per annum for determination of levelized tariff for the entire useful life of the project.

46. Operation and Maintenance Expenses. –

- (1) Normative O&M expenses during first year of the Control Period shall be Rs. 0.24 Crore / MW.
- (2) The normative O&M expenses allowed at the commencement of the Control Period i.e. the FY 2021-22 under these Regulations shall be escalated at the rate of 2.93% per annum.”

The Commission shall now proceed to examine and decide each component relevant for determination of tariff in the present case:-

a) **Capital cost:**

The petitioner has claimed a total capital cost of Rs. 100.76 crores, the breakup of which is as under –

Sr. No.	Particulars	Original value (in Rs.)	Revised value (in Rs.)
1.	Land	Nil	19,20,00,000
2.	Civil buildings and roads	63,50,00,000	13,44,20,979
3.	Machinery foundations		6,40,15,000
4.	Plant and machinery		43,38,20,000

5.	Erection and Commissioning		5,80,00,435
6.	Interest on term loan	Nil	12,54,03,000
7.	Pre-development expenses	Nil	Not included
8.	132 KV Power transmission line	6,50,00,000	Nil
Total Capital Cost		70,00,00,000	100,76,59,414

The respondent viz. HPPC has primarily raised objections on the inclusion of cost of land and interest on term loan, as part of capital cost. HPPC has averred that the petitioner has not acquired any land for setting up of power plant. The land was acquired way back at the time of the setting up of the sugar mill. The installation of a power plant was envisaged only because the land was already available for the same. Further, the petitioner has claimed the cost of land based on the collector rate list for the year 2022, instead of actual cost of land. HPPC has further averred that interest on term loan has been wrongly included in the capital cost, as the same is separately considered as a cost component.

In order to address the concerns of the HPPC, the Commission, vide its interim order dated 06.12.2023, sought the details of area of land used in power generation project along with its actual purchase cost. The Commission also sought an affidavit from the petitioner that the capital cost claimed does not include any common cost shared with sugar mill and is exclusively for the power project. In reply to the direction of the Commission, the petitioner filed an affidavit dated 20.01.2024, reiterating that the capital cost incurred exclusively for the power project, as per bills, is Rs. 100.76 crore. The petitioner additionally submitted that the actual cost of 88 kanal (11 acres) land used in the power generation project is Rs. 19.20 crore.

The Commission has carefully examined the submissions of the parties herein. HPPC has averred that the land was already available with the petitioner for setting up of a power plant and the cost incurred in acquisition of land way back in 1970s has already been factored in the cost of sugar mill. The Commission has considered the above averments of the respondent Nigam. Even if the cost of land including the land parcel on which the co-generation plant has been constructed appeared in the Balance Sheet of the sugar mill, no benefit in term of depreciation/amortization would have accrued from it as it would continue to be reported at the historical cost i.e. the original cost of acquisition. Consequently, the Commission had sought specific information regarding the actual cost of land and the actual capital cost incurred on the power plant under affidavit. However, the Commission has noted with great dismay that the petitioner has submitted wrong information under affidavit dated 20.01.2024 that the actual cost of land is Rs. 19.20 crore, which is included in the total capital

cost of Rs. 100.76 crore. The petitioner has further submitted that 88 kanal land has been used for 18 MW power plant. Whereas, the petitioner in its petition has claimed that power plant of the petitioner is installed on land measuring 31 Kanal 12 Marla situated at Meerut Road District Karnal. Further, the similarly situated power plant i.e. M/s. Panipat Cooperative Sugar Mills has claimed that 31 kanal, 12 marla land has been used for its 28 MW power plant and its actual cost is Rs. 1.88 crore.

In view of the above, the Commission is of the considered view that the petitioner has deliberated evaded its specific query and tried to mislead the Commission regarding the land cost. Hence, the cost of same shall be taken as 'Nil', for the purpose of tariff determination.

Regarding the balance capital cost excluding land cost and interest on term loan, the Commission observes that the capital cost claimed by the petitioner in its affidavit at Rs. 69.02 crore includes pro-rata cost of essential utilities/arrangements which are combined for sugar mill as well as co-generation power plant viz. rain water harvesting, departmental head residences and worker's quarters, which should not have been allocated to co-generation power plant. However, considering the capital cost claimed is within the benchmark capital cost as per HERC RE Regulations, 2021, the Commission tends to agree with the capital cost claimed by the petitioner in its affidavit at Rs. 69.02 crore i.e. Rs. 100.76 crore minus Rs. 19.20 crore minus Rs. 12.54 crore.

The Commission has also examined the claim of the petitioner toward interest on term loan as part of capital cost. The petitioner has claimed that is had borrowed Rs. 85 crore from the Haryana State Cooperative Apex Bank Ltd., at interest rate of 10.10% p.a, vide sanction letter dated 23.12.2019. Out of which, loan amount of Rs. 63.05 crore has been used for power plant, which has been disbursed on various dates between 07.07.2020 to 01.03.2022. The petitioner has given the statement of monthly payment of interest on this loan used for power plant. In the month of July, 2020, the interest paid has been calculated at Rs. 14.90 lacs on the disbursed loan of Rs. 10.13 crore on 07.07.2020, which at the interest rate of 10.10% p.a. is not justifiable by any stretch of means. Further, the PPA between HPPC and the petitioner herein was signed on 07.11.2022 and as per clause 10.4 of the signed PPA, the petitioner was required to declare CoD of its plant within two years thereafter. Admittedly, the power plant has started supplying power to the respondent w.e.f. 01.02.2023; therefore, the CoD can be

assumed to have been achieved on 01.02.2023. Accordingly, interest on term loan during preconstruction period from 07.11.2022 to 01.02.2023 i.e. 86 days is admissible. The petitioner has itself proposed the debt equity ratio as 80.95:19.05. Accordingly, 80.95% of the capital cost of Rs. 69.02 crore certified by the petitioner i.e. Rs. 55.87 crore can be safely presumed as term loan eligible for interest during preconstruction period. Therefore, Rs. 1.33 crore is approved as interest incurred during construction period, for the purpose of present tariff determination exercise.

The Commission observe that the benchmark capital cost as per HERC RE Regulations, 2021 is Rs. 4.925 crore/MW. A comparative analysis of the benchmark capital cost considered by other regulators is as under: -

Regulator	Capital cost Rs. Crore/MW	Order dated
Central Electricity Regulatory Commission	4.92	07.11.2022
Karnataka Electricity Regulatory Commission	4.70	15.11.2021
Andhra Pradesh Electricity Regulatory Commission	4.35	20.10.2018
Tamil Nadu Electricity Regulatory Commission	4.67	28.12.2023

Accordingly, the Commission approves the total capital cost at Rs. 70.35 crore, for the purpose of tariff determination, which comes out to Rs. 3.91 crore/MW for 18 MW co-generation power plant, as against the ceiling norm specified in the HERC RE Regulations, 2021 as Rs. 4.925 crore/MW.

b) **Plant Load Factor (PLF):**

Regulation 41 of the HERC RE Regulations, 2021, provides norms for the PLF of bagasse based co-generation power plant, as under:-

“41. Plant Load Factor. –

- (4) *For the purpose of determining fixed charge, the plant load factor for non-fossil fuel based cogeneration projects shall be computed on the basis of plant availability for number of operating days considering operations during crushing season and off-season.*
- (5) *The number of operating days shall be 150 days (crushing) + 60 days (off-season) = 210 days operating days and the Plant Load Factor shall be 53%.*
- (6) *Plant Load Factor for biomass based co-generation using fuel other than bagasse shall be 80%.*

The Commission observes that the petitioner, in its petition, has claimed PLF on the basis of norms specified in the regulations i.e. 53%. Accordingly, the Commission approves the same.

c) **Station Heat Rate (SHR):**

Regulation 41 of the HERC RE Regulations, 2021, provides norms for the SHR of bagasse based co-generation power plant, as under:-

“43. Station Heat Rate. –Station Heat Rate of 3600 kCal / kWh for power generation component shall be considered for computation of tariff for non-fossil fuel based Cogeneration projects. “

The Commission noted the prayer of the petitioner that station heat rate of 3600 kCal/kWh may be considered for computation of tariff for non fossil fuel based co-generation project, although actual heat rate guaranteed by original equipment manufacturer (OEM) is 4522 kCal/kWh. Although, the petitioner in its calculation of tariff, has considered SHR at 4522 kCal/kWh, while arriving at the levelized rate of 9.19/kWh.

The petitioner, in its additional submissions, has averred that actual station heat rate remained at 6478 Kcal/kWh. Per-contra, HPPC has argued that the SHR of 4522 kCal/kWh has been guaranteed assuming worst fuel condition i.e. bagasse having 50% moisture. Whereas, it is highly unreasonable to presume that the bagasse to be used in plant shall have 50% moisture, more so, when there is no time lag for procurement of fuel for Sugar Mills.

The Commission has taken note of first proviso to regulation 6(2) of HERC RE Regulations, 2021, which provides that the financial and operational norms as specified in these Regulations, shall be ceiling norms while determining the project specific tariff.

The Commission has referred to the SHR for bagasse based co-generation projects, approved by various other regulators and observes that the SHR adopted by them all hovers around 3600 kcal/kWh and the GCV as 2250 kcal/kg yielding a specific fuel consumption of 1.60 kg/kWh. Hence, 2.01 kg/kWh claimed by the petitioner fails prudence check.

In view of the above, the Commission approves SHR at 3600 kCal/kWh on the basis of norms specified in the regulations. The petitioner may to take appropriate steps to enforce the guarantee given by the OEM.

d) **Auxiliary consumption:**

Regulation 42 of the HERC RE Regulations, 2021, provides norms for the Auxiliary consumption of bagasse based co-generation power plant, as under:-

“42. Auxiliary Energy Consumption. – *The auxiliary energy consumption factor shall be 8.5% for the purpose of tariff determination.”*

The Commission observes that the petitioner has claimed Auxiliary consumption on the basis of norms specified in the regulations i.e. 8.5%. Accordingly, the Commission approves the same.

e) **Gross Calorific Value (GCV) of Fuel:**

Regulation 44 of the HERC RE Regulations, 2021, provides norms for the GCV of fuel i.e. bagasse used in the co-generation power plant, as under:-

“44. Calorific Value. – *The Gross Calorific Value for Bagasse shall be considered as 2250 kCal/kg. Further, the Gross Calorific Value for Non Fossil Fuel based Cogeneration (other than Bagasse) shall be considered as 3100 kCal/kg.”*

The petitioner has filed test report of fuel showing GCV of 2250 kcal/kg, in line with the norms specified in the HERC RE Regulations, in vogue. Per-contra, the respondent (HPPC) has averred that the testing was done in its absence and it is not privy to sampling conducted by the petitioner to justify GCV of 2250 kcal/kg or 2623 kcal/kg, vide its test reports dated 12.12.2023 and 04.01.2024.

At the outset, the Commission observes that the petitioner herein has filed copy of a test report dated 12.12.2023, conducted by M/s. Haryana Test House, Panipat, in support of their claim of GCV of the bagasse as 2250 Kcal/kg. However, the petitioner has also filed a test report dated 04.01.2024, conducted by the same test house i.e. M/s. Haryana Test House, Panipat, showing the GCV of bagasse as 2623 Kcal/kg. The huge variation in the GCV of bagasse used in the power plant, by the same test house, is atrocious.

With the above observations, depicting the contumacious conduct of the petitioner herein, the Commission approves the GCV of fuel as 2250 kCal/kg in line with the HERC RE Regulations, in vogue.

f) **Fuel cost:**

Regulation 45 of the HERC RE Regulations, 2021, provides norms for the fuel cost of bagasse used in the co-generation power plant, as under:-

“45. Fuel Cost. –

(1) *The price of Bagasse shall be Rs. 1027/ MT and shall be escalated at the rate of 2.93% per annum for determination of levellised tariff for the entire useful life of the project.”*

Subsequently, the Commission in its suo-moto order dated 21.03.2022, has determined of fuel cost of biomass/bagasse based RE Projects, for the FY 2021-22 and FY 2022-23, as Rs. 2,000/MT, based on the recommendations of M/s. MDU, Rohtak, with the escalation factor of 2.93% per annum for the subsequent year.

The petitioner has averred that the sugar mill falls under the jurisdiction of NCR Delhi. Therefore, the rate of bagasse is Rs. approximate Rs. 400 and Rs. 350 per quintal during season and off-seasons, respectively. Notwithstanding the same, the petitioner has prayed that cost of bagasse may be considered @ Rs.231 per quintal for the financial year 2022-23, with escalation @ 2.93% per annum in the subsequent years, for the purpose of tariff determination.

Per-contra, HPPC has vehemently argued that the petitioner has not submitted any invoice evidencing the purchase of bagasse. Rather, the copies of invoices in respect of sale of bagasse by the Karnal Cooperative Sugar Mill, are attached. The exorbitant fuel bills raised by the Government owned sugar mills, inter-se, both falling under the aegis of Haryana State Federation of Co-operative Sugar Mills Limited, is uncalled for and unjustified as the same has a direct bearing on fixation of market price of bagasse and disturbs the market dynamics. The inter-se transaction between the government sugar mills has to be made considering the said cost of bagasse provided in the HERC RE Regulations, 2021. Further, the majority of fuel is a by-product of the Sugar Mill and therefore, has no associated cost.

The Commission has also observed that while granting 'Must Run' status to the petitioner power plant, vide its letter dated 08.09.2023, a condition was imposed that the power plant shall run on the bagasse internally generated and there shall not be any purchase of bagasse from elsewhere. Citing this letter, HPPC has argued that there ought not to be any procurement of fuel and associated fuel cost.

The Commission tends to agree with the arguments advanced by HPPC that the power plant of petitioner herein should consume the bagasse internally generated thereby avoid cost of procurement from outside including transportation. However, as the bagasse has emerged as a commercial fuel with the emergence of its multiple use, the market value of the same as an opportunity cost cannot be denied to the petitioner. Accordingly, the Commission approves the fuel cost of Rs. 2,000/MT, in line with the fuel cost determined by the Commission in its order dated 21.03.2022, for the FY 2022-23. Going forward the same has been escalated at 2.93% per annum.

g) **Operation and Maintenance (O&M) Expenses:**

The Commission observes that the petitioner has claimed O&M expenses in line with the norms specified in HERC RE Regulations, 2021 for the FY 2021-22 at Rs. 2.40 million/MW with escalation factor of 2.93% per annum for the subsequent years, although actual O&M expenses incurred by the petitioner is at Rs. 3.64 millions/MW (Rs. 6.56 crore p.a.). The petitioner has started supplying power to HPPC since 01.02.2023. Therefore, the first year of the tariff period shall be FY 2022-23. Accordingly, as per the norms specified in the regulations, O&M expenses for the FY 2022-23, comes to Rs. 2.47 millions/MW

In view of the above, the Commission approves O&M expenses of Rs. 2.47 millions/ MW for the FY 2022-23. Thereafter, the same shall be escalated @ 2.93% per annum, as per the relevant provisions of HERC RE Regulations, 2021.

h) **Debt Equity Ratio:**

Regarding capital structure, regulation 12 of the HERC RE Regulations, 2021, provides as under:-

(1) *For generic tariff to be determined based on suo motu petition, the debt equity ratio shall be 70: 30.*

(2) *For Project specific tariff, if the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan.*

Provided that where equity actually deployed is less than 30% of the capital cost, the actual equity shall be considered for determination of tariff. Provided further that the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment.

The Commission observe that the petitioner has borrowed term loan amounting to Rs. 63.05 crore from HARCO Bank and State Government, repayable in 8 years. Further, the petitioner has proposed the debt equity ratio as 80.95:19.05, which is better than the norms specified in the HERC RE Regulations, 2021 i.e. 70:30. The proviso to the ibid regulation 12 provides that where equity actually deployed is less than 30% of the capital cost, the actual equity shall be considered for determination of tariff.

Accordingly, the Commission shall consider 19.05% of the approved capital cost as equity eligible for RoE and balance i.e. 80.95% shall be considered as loan eligible for interest, repayable in 8 yearly installments, for the purpose of tariff determination.

Having approved as above, the Commission observes that the petitioner herein is a 'co-operative society'. Hence, given the assured RoE @ 14% and pass through of corporate tax/MAT, it would be better placed to leverage more funds as equity capital from its members rather than borrow from banks/lending institutions at a premium over MCLR.

i) **Interest rate on Term Loan & Working Capital:**

The Commission has examined the relevant provisions of HERC RE Regulations, 2021 which provides that the interest rate shall be considered as the 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%.

The Commission observes that average of SBI MCLR (one-year tenor) of SBI during the last six months prior to the date of commercial operation i.e. 19.12.2022 (15.06.2022 to 15.12.2022) is 7.80%. Consequently, as per HERC RE Regulations, 2021, the rate of interest on term loan & working capital, comes out at 9.8% p.a. (i.e. Average SBI MCLR (one-year tenor) plus a margin of up to 200 basis points i.e. 2%), as against the rate of interest claimed by the petitioner at 9.84% p.a. in respect of term loan and 11% p.a. in respect of working capital, in respect of term loan and working capital loans availed from State Government, HARCO Bank and The Panipat Central cooperative Bank Ltd., Panipat.

However, the Commission observes that the Regulation 6.2 of HERC RE Regulations, 2021 provides that the financial and operational norms specified in these Regulations shall be ceiling norms, while determining the project specific tariff. Accordingly, for the purpose of tariff determination, the rate of interest on term loan & working capital shall be pegged at 9.80%.

j) **Other factors:**

Other factors relevant for determination of tariff shall be as per the norms specified in the HERC RE Regulations, 2021. Regulation No. 13 ,14 & 15 of the HERC RE Regulations, 2021, provides as under:-

13. Loan and Finance Charges. –

- (1) *For the purpose of determination of tariff, loan tenure of 13 years shall be considered.*
- (2) (a) *The loans arrived at in the manner indicated above shall be considered as gross normative loan for calculation for interest on loan. The normative loan outstanding as on 1st April of every year shall be worked out by deducting the*

cumulative repayment up to March 31st of the previous year from the gross normative loan.

(b) For the purpose of computation of tariff, the normative interest rate shall be considered as the 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%.

(c) Notwithstanding any moratorium period availed by the generating company, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the annual depreciation allowed.

14. Depreciation. –

- (1) *The value base for the purpose of depreciation shall be the Capital Cost of the asset admitted by the Commission. The salvage value of the asset shall be considered as 10%.*

Provided that, no depreciation shall be allowed to the extent of grant or capital subsidy received for the project. Provided further that land is not a depreciable asset, and hence, its cost shall be excluded while computing 90% of the original cost of asset eligible for depreciation.

- (2) *Depreciation per annum shall be based on 'Differential Depreciation Approach' over loan tenure and period beyond loan tenure over useful life computed on 'Straight Line Method'. The depreciation rate for the first 13 years of the Tariff Period shall be 5.38% per annum charged on the capital cost and the remaining depreciation (i.e. 90% of the capital cost as reduced by the depreciation charged in first 13 years) shall be spread over the remaining useful life of the project from 14th year onwards.*

- (3) *Depreciation shall be chargeable from the first year of commercial operation.*

Provided that in case of commercial operation of the asset for part of the year, depreciation shall be charged on pro rata basis.

In the present petitioner, the petitioner has borrowed term loans, which are repayable in 8 years. Accordingly, the tenor of term loan has been considered as per the actual i.e. 8 years, as submitted by the petitioner.

Further, the HERC RE Regulations, 2021 provides that depreciation per annum shall be based on 'Differential Depreciation Approach' over loan tenure and period beyond loan tenure over useful life computed on 'Straight Line Method'. **Accordingly, the Commission shall depreciation for first 8 years equivalent to the repayment**

amount of term loan and the balance eligible depreciation shall be charged in the balance 12 years.

15. Return on Equity. –

- (1) *The value base for the equity shall lower of the two either 30% of the capital cost or actual equity (in case of project specific tariff determination) as determined under Regulation.*
- (2) *The normative Return on Equity shall be as under:-*
 - a) *14% per annum calculated on normative Equity Capital.*
 - b) *MAT/Corporate Tax applicable shall be considered as pass through.*

Provided that the applicable MAT / Corporate Tax shall be separately invoiced as per the actual paid at the rate as declared by the Income Tax Department. The Generator shall raise the bill for reimbursement of MAT / Corporate Tax applicable on Return on Equity in 12 equal installments which shall be payable by the beneficiaries.”

Based on the parameters discussed in the foregoing paras, the Commission determines the tariff for 20 years useful life of the project, appended to the present order (Annexure – A). The tariff payable shall be the levelized tariff of Rs. 6.35/kWh, applicable during the entire useful life of the project, which is less than the cap of Rs. 6.67/kWh agreed upon between the parties.

In terms of the above Order, the present petition as well as IAs, are disposed of.

This Order is signed, dated and issued by the Haryana Electricity Regulatory Commission on 27.05.2024.

Date: 27.05.2024
Place: Panchkula

(Mukesh Garg)
Member

(Naresh Sardana)
Member

(Nand Lal Sharma)
Chairman

THE KARNAL COOPERATIVE SUGAR MILLS LTD., KARNAL											ANNEUXRE - A		
Tariff determination for Bagasse based Cogeneration													
Year	Generati on (Ex-bus) for 1 MW	Fuel Cost	O&M Expen ses	Deprec iation	Interes t on Term Loan	Interest on Working Capital	Retur n on Equity	Total Fixed Cost	Fixe d cost	Tariff	Discou nt factor	Disco unte d Tariff	Level ised Tariff
	(Million Units)	(Rs/ kWh)	(Rs/Millions)						(Rs/ kWh)	(Rs/k Wh)		(Rs/k Wh)	(Rs/k Wh)
1	4.25	3.50	2.47	3.95	2.91	0.97	1.04	11.34	2.67	6.17	1.00	6.17	6.35
2	4.25	3.60	2.54	3.95	2.52	0.99	1.04	11.05	2.60	6.20	0.91	5.63	6.35
3	4.25	3.71	2.62	3.95	2.13	1.01	1.04	10.75	2.53	6.24	0.82	5.14	6.35
4	4.25	3.81	2.69	3.95	1.74	1.03	1.04	10.46	2.46	6.28	0.75	4.70	6.35
5	4.25	3.93	2.77	3.95	1.36	1.05	1.04	10.17	2.39	6.32	0.68	4.30	6.35
6	4.25	4.04	2.85	3.95	0.97	1.07	1.04	9.89	2.33	6.37	0.62	3.93	6.35
7	4.25	4.16	2.94	3.95	0.58	1.09	1.04	9.61	2.26	6.42	0.56	3.60	6.35
8	4.25	4.28	3.02	3.95	0.19	1.11	1.04	9.33	2.20	6.48	0.51	3.30	6.35
9	4.25	4.41	3.11	0.29	0.00	1.08	1.04	5.53	1.30	5.71	0.46	2.64	6.35
10	4.25	4.54	3.20	0.29	0.00	1.11	1.04	5.65	1.33	5.87	0.42	2.46	6.35
11	4.25	4.67	3.30	0.29	0.00	1.14	1.04	5.78	1.36	6.03	0.38	2.30	6.35
12	4.25	4.80	3.39	0.29	0.00	1.17	1.04	5.91	1.39	6.20	0.35	2.15	6.35
13	4.25	4.95	3.49	0.29	0.00	1.21	1.04	6.04	1.42	6.37	0.31	2.00	6.35
14	4.25	5.09	3.60	0.29	0.00	1.24	1.04	6.18	1.45	6.54	0.29	1.87	6.35
15	4.25	5.24	3.70	0.29	0.00	1.28	1.04	6.32	1.49	6.73	0.26	1.75	6.35
16	4.25	5.39	3.81	0.29	0.00	1.32	1.04	6.46	1.52	6.91	0.24	1.63	6.35
17	4.25	5.55	3.92	0.29	0.00	1.35	1.04	6.61	1.56	7.11	0.21	1.52	6.35
18	4.25	5.71	4.04	0.29	0.00	1.39	1.04	6.77	1.59	7.31	0.19	1.42	6.35
19	4.25	5.88	4.15	0.29	0.00	1.43	1.04	6.92	1.63	7.51	0.18	1.33	6.35
20	4.25	6.05	4.28	0.29	0.00	1.47	1.04	7.09	1.67	7.72	0.16	1.24	6.35