Uttar Pradesh Electricity Regulatory Commission
Vidyut Niyamak Bhawan, Vibhuti Khand,
Gomti Nagar, Lucknow

No.UPERC/ Secy/D(G)/2025/180 Dated : May 07, 2025

Public Notice

Subject: Draft Uttar Pradesh Electricity Regulatory Commission (Captive and Renewable Energy Generating Plants) Regulations, 2024 for the control period from 01.04.2024 to 31.03.2029.

The public hearing in this matter of draft UPERC (Captive and Renewable Energy Generating Plants) Regulations, 2024 is scheduled to be held on June 03, 2025, at 11:00 hrs in the office of the Commission. All stakeholders are required to submit their written comments by May 30, 2025 through hard copy to the Secretary, Uttar Pradesh Electricity Regulatory Commission, Vidyut Niyamak Bhawan, Vibhuti Khand, Gomti Nagar, Lucknow-226010 and email to secretary@uperc.org and manoj@uperc.org.

Secretary 07/05/25

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UTTAR PRADESH ELECTRICITY REGULATORY COMMISSION

Lucknow

Dated: ……2025

Draft

No.: UPERC/Secretary/CRE Regulations/2024: In exercise of powers conferred under section 181 read with section 9, 61, 86(1)(a), 86(1)(b) and 86(1)(e) of the Electricity Act, 2003, and all other powers enabling in this behalf, the Uttar Pradesh Electricity Regulatory Commission hereby makes the following Regulations:

1. Short title and commencement

I. These Regulations shall be called the UPERC (Captive and Renewable Energy Generating Plants) Regulations, 2024 (hereinafter referred to as CRE Regulations, 2024).

II. These Regulations shall be applicable from the date of the notification to 31.03.2029 unless extended by the Commission.

Provided that tariffs and provisions relating to tariff as contained in Schedule-I shall be applicable from 01.04.2024 to 31.03.2029

III. In case of any conflict in the interpretation of these Regulations, the English version of the Regulations shall prevail over the Hindi version of the Regulations.

2. Scope of Regulation and extent of application

These Regulations shall apply to :

I. All Captive Generating Plants (Non-RE) having an installed capacity of 1 MW or above.

II. All Captive Generating Plants (RE) and Renewable Energy Generating Plants having an installed capacity of 100 kW and above, which is the minimum capacity specified for the purposes of granting open access in the UPERC (Terms and Conditions for Open Access) Regulations, 2019 as amended from time to time.

3. Definitions

I. In these Regulations, unless the context otherwise requires:

a) **"Act"** means the Electricity Act, 2003 (36 of 2003), including amendments thereto;

b) **"Auxiliary Energy Consumption"** means the quantum of energy consumed by auxiliary equipment of the generating plant and transformer losses within the generating station, and shall be expressed as a percentage of the sum of gross energy generated at the generator terminals of all the units of the generating station;

c) **"Banking of power"** is the process under which a Generating Plant supplies power to the grid with the intent of exercising its eligibility to draw back this power from the grid for its own/captive use as per the terms and conditions provided in these Regulations;

d) **"Biomass power project"** using plant and machinery based on Rankine cycle technology and using biomass as fuel sources.

e) **"CEA"** means the Central Electricity Authority;

f) **"COD" or "Date of Commercial Operation"** shall mean the date on which the generating plant is synchronized with the grid system and has demonstrated the generation capacity as per Regulation 13 of these Regulations.

g) **"CERC"** means the Central Electricity Regulatory Commission;

h) **"Commission"** means the Uttar Pradesh Electricity Regulatory Commission;

i) **"Contracted Capacity"** means the capacity in MW as agreed to be supplied by the Generating company to a Distribution Licensee under the Power Purchase Agreement;

j) **"Control Period"** means the period from 01.04.2024 to 31.03.2029 during which the provisions of these Regulations shall remain valid unless extended by the Commission;

k) **"Existing Generating Station/Plant"** means a generating station, which has achieved COD prior to 01.04.2024;

l) **"Financial Year/Year"** means a period commencing on 1st April of a calendar year and ending on 31st March of the subsequent calendar year;

m) **"Gross Calorific Value" or "GCV"** in relation to a fuel used in a generating station means the heat produced in kcal by complete combustion of one

kilogram of solid fuel or one litre of liquid fuel or one standard cubic meter of gaseous fuel, as the case may be;

n) **"Gross Station Heat Rate" or "SHR"** means the heat energy input in kcal required to generate one kWh of electrical energy at generator terminals of a thermal generating station;

o) **"Installed Capacity" or "IC"** means the summation of the name plate capacities of all the Units of the generating station or the capacity of the generating station (reckoned at the generator terminals). In the case of Solar PV power projects and Floating solar projects, installed capacity shall be the sum of name plate capacities (Nominal AC power) of the inverters of the project;

p) **"Inter-connection Point"** the interconnection point shall be as per UPERC (Grant of Connectivity to intra-State Transmission System) Regulations 2010 and its amendment from time to time;

q) **"MNRE"** means the Ministry of New and Renewable Energy, Government of India;

r) **"Municipal solid waste" or "MSW"** means and includes commercial and residential wastes generated in a municipal or notified area in either solid or semi-solid form and excludes industrial hazardous wastes but includes treated bio-medical wastes;

s) **"New Generating Plant/Station"** means a generating station which achieves COD on or after 01.04.2024;

t) **"Non fossil fuel-based co-generation"** means the process in which more than one form of energy (such as steam and electricity) are produced in a sequential manner by use of biomass.

u) **"Operation and Maintenance expenses" or "O&M expenses"** means the expenditure incurred on operation and maintenance of the project or part thereof, and includes the expenditure on manpower, repairs, spares, consumables, insurance and other overheads;

v) **"Ownership"** in relation to a Generating Station or power plant setup by a company or any other body corporate shall mean the equity share capital with voting rights. In other cases, ownership shall mean proprietary interest and

control over the Generating Station or power plant;

w) **"Plant Load Factor"** shall mean the total sent out energy corresponding to generation during the period expressed as a percentage of sent out energy corresponding to contracted capacity in that period.

$$\mathbf{PLF} = \frac{\mathbf{ES} \times \mathbf{1000}}{\mathbf{CC\ x\ (100 - Aux\%)} \times \mathbf{8760}}$$

Where,
ES: Energy sold in MU during the year,
CC: Contracted capacity in MW
Aux: Normative Auxiliary consumption in %

x) **"Power Purchase Agreement" or "PPA"** means an agreement between a Generating Company and a Distribution Licensee for supply of power on the terms and conditions specified therein and with the provisions that the tariff for sale of power shall be as determined or as adopted (as the case may be) by the Commission from time to time;

y) **"Project"** means a generating station and the evacuation system up to inter-connection point and in case of a small hydro generating station includes all components of generating facility such as dam, intake water conductor system, power generating station and generating units of the scheme, as apportioned to power generation;

z) **"Renewable Energy"** means the grid quality electricity generated from Renewable Energy sources;

aa) **"Renewable Energy Power Plants"** means the power plants generating grid quality electricity from Renewable Energy Sources;

bb) **"Renewable Energy Sources"** (hereinafter called 'RE sources') means and includes sources of renewable energy such as hydro, wind, and solar, including its integration with combined cycle, biomass, biofuel cogeneration, urban or municipal waste, and such other sources as recognized or approved by the Central Government;

cc) **"RLDC"** means the Regional Load Despatch Centre established under sub-section (1) of section 27 of the Act;

dd) **"SLDC"** means State Load Despatch Centre established in Uttar Pradesh under sub-section (1) of section 31 of the Act;

ee) **"Small hydro project"** means a hydropower project with an installed capacity up to and including 25 MW or as defined by the Government of India, from time to time at a single location;

ff) **"UPEGC"** means the State Grid Code specified by the Commission, under clause (h) of subsection (1) of section 86 of the Act;

gg) **"UPERC Open Access Regulations"** means the Uttar Pradesh Electricity Regulatory Commission (Terms and Conditions for Open Access) Regulations, 2019 as amended from time to time;

hh) **"Wheeling"** means the operation whereby the distribution system and associated facilities of a transmission licensee or distribution licensee, as the case may be, are used by another person for the conveyance of electricity on payment of charges to be determined under the Act, Regulations or orders of the Commission;

II. Words, terms and expressions defined in the Act, or Rules as specified by the Central Electricity Authority (hereinafter referred to as "Authority"), as amended from time to time and used in the Open Access Regulations, 2019 shall have and carry the same meaning as defined and assigned in the said Act and / or Rules/ and or Regulations as specified by Authority. All other expressions used herein but not specifically defined in the Act, Rules or Regulations (as specified above in this para) but defined under any other law passed by a competent legislature and applicable to the electricity industry in the State of Uttar Pradesh shall have the meaning assigned to them in such law. Subject to the above, expressions used herein but not specifically defined in the Act or any other law passed by a competent legislature shall have the meaning as is generally assigned in the electricity industry**.**

4. Clean Development Mechanism

For Generating Plants commissioned on or after 01.04.2009, where the Generating Plant/Company has adopted Clean Development Mechanism (CDM), the proceeds of carbon credit from approved CDM project shall be shared in the following manner, namely:

a) 100% of gross proceeds on account of CDM shall be retained by the project developer during the first year of commercial operation of the Generating plants.

b) During the second year of commercial operation, the share of the procurer shall be 10%, which shall progressively increase by 10% every year till it reaches 50%, where after the proceeds shall be shared in equal proportion, by the Generating Company and the procurer.

c) In the event of discontinuation of the CDM project or changes in the carbon credit mechanism, the share of proceeds shall be subject to further order of the Commission

5. The Generating Plant shall adhere to the following:

I. The technical standards for construction of electrical plants, electric lines and connectivity with the grid as specified by the CEA;

II. Safety requirements for construction, operation and maintenance of electrical plants and electric lines as specified by the CEA;

III. UPERC (Grant of Connectivity to intra-State Transmission System) Regulations, 2010 and its amendment from time to time or subsequent re-enactment thereof;

IV. Uttar Pradesh Electricity Grid Code 2007 ("UPEGC") and its amendment from time to time or subsequent re-enactment thereof;

V. The terms and conditions for installation of meters for supply of electricity as specified by the CEA and / or the State Transmission Utility ("STU").

VI. To co-ordinate with SLDC for scheduling and despatch of electricity.

Provided, the generating plant shall be under obligation to comply with the directions issued to it by SLDC and shall pay fees and charges payable to SLDC as specified by the Commission from time to time.

VII. Ensure compliance with all Rules and Regulations or general and specific directions of the Commission for the generating companies.

VIII. Ensure that the Distribution Licensee has submitted Power Purchase Agreement (PPA) before the Commission for its approval.

IX. The provisions of Central Electricity Regulatory Commission (Deviation Settlement Mechanism and Related Matters) Regulations, 2024 (hereinafter referred to as 'DSM') shall apply to these Generating Plants also, unless provided otherwise in some other Regulations of the Commission.

X. To establish, operate, and maintain a dedicated transmission line shall be the responsibility of the generating plant in terms of existing regulatory framework, technical standards, guidelines, and procedure issued under the provisions of the Act.

XI. To abide by the emission standards set by the Union/State Government. The Generating Plant shall obtain all the required environmental and pollution clearances from the Central / State pollution control authorities and submit copies of Clearance Certificates to the Distribution Licensee/Procurer.

XII. Relevant provisions of these Regulations shall also apply to the Generating Plant having no connectivity with the grid.

XIII. In addition to ensuring compliances as specified in clause I to XII of Regulation 5 above, a Captive Generating Plant must also ensure compliance of following:

a) A power plant shall qualify as a 'Captive Generating Plant', under Section 9 read with Section 2(8) of the Act and Rule 3 of the Electricity Rules, 2005, as amended from time to time.

b) UPERC (Verification of Generating Plants and Captive Consumers) Regulations, 2022.

c) Annual Energy Audit of each Captive Generating Plant shall be compulsory under relevant provisions of Energy Conservation Act, 2001, as amended from time to time.

XIV. The Commission may on its discretion refer any technical matter relating to Generation to Central Electricity Authority for examination.

Provided that the Commission may also appoint a separate independent auditor, under the supervision of the Commission, who would undertake technical and financial audit of the generating station at any time.

6. Tariff for Supply of Electricity to Distribution Licensee

I. The Generic Tariff for procurement of power by distribution licensee from existing captive Generating Plants (non-RE), existing Renewable energy based generating plants viz Bagasse based Generation, Biomass (Rice Husk based) Generation, Municipal Solid Waste based Generation and Small Hydroelectric Generation, shall be as given in Schedule-I to these Regulations, which would be applicable from 01.04.2024.

II. For power procurement by Distribution Licensee from new Captive Generating Plants or new Renewable Energy based plants, provision of UPERC (Modalities of Tariff Determination) Regulations, 2023, shall apply.

III. Procurement of power by Distribution Licensee from Rooftop solar PV plants shall be governed by UPERC (Rooftop Solar PV Grid Interactive System Gross / Net Metering) Regulations, 2019 amendments/ reenactments thereof.

IV. The tariff for supply of electricity from the Generating Plant, having more than one unit commissioned in different years, shall be based on weighted average of the tariff of contracted capacities of the units commissioned in different years.

V. In the earlier control period, if any discount in the tariff has been agreed to between the procurer and the supplier, the same shall not be binding on the supplier during the term of these Regulations.

VI. For Bagasse and Biomass based power plants or Renewable Energy Power plants, the tariff for supply of electricity during the period of synchronization and the COD of the unit shall be equal to the variable cost.

VII. For recovery of full capacity charges for Biomass & Bagasse based plants, the PLF shall be 50%. Annual Fixed charges (AFC) for Bagasse and Biomass based plants, are provided in Schedule-I of these Regulations.

Provided that the recovery of capacity (fixed) charges below the level of targeted PLF shall be on a pro rata basis. At zero PLF, no capacity charges shall be payable. The PLF of Biomass & Bagasse based plants shall be computed on the energy sold to the Distribution Licensee or energy scheduled by SLDC, whichever is lower.

Provided further that the payment of capacity charges shall be on a monthly basis in proportion to the contracted capacity.

VIII. For Renewable Energy based on new technologies, other than mentioned above in clause I of this Regulation and as recognized by the Uttar Pradesh New and

Renewable Energy Development Agency for pilot project demonstration upto 5 MW capacity, applicable tariff shall be the Average Power Purchase Cost (APPC) of the Distribution Licensee for Renewable Energy as approved by the Commission for last Financial Year or the rate agreed between the parties in the PPA, whichever is lower.

Provided that such RE source-based Generating Plants may approach the Commission in case of non-agreement with the tariff as specified above and the Commission may determine the tariff for such projects after Prudence Check.

7. Approval of Power Purchase Agreement

I. The Distribution Licensee shall make an application for approval of Power Purchase Agreement (hereafter referred to as PPA) entered into with the Generating Plant in such form and in such manner as prescribed in these Regulations, and UPERC (Conduct of Business) Regulations, 2019 as amended from time to time or if provided through any order of the Commission.

Provided that the Distribution Licensee shall approach the Commission within one (1) month of signing the PPA with the Generating Plant.

II. The Distribution Licensee shall furnish data of energy received from different Captive & RE generating plant in the format annexed at Annexure-I for each completed financial year by 30th June of next financial year.

8. Purchase of Electricity by Generating Plant

III. Any person, who establishes, maintains, and operates a Generating Plant, may also purchase electricity through Open Access or from Distribution Licensee of their area, to meet its electricity requirement.

Provided that such purchase of electricity, from a Distribution Licensee of the area in which the plant is located, shall be charged under HV-2 category of the rate schedule of tariff.

Provided further that in case of purchase of power through Open Access, charges shall be payable as applicable under UPERC (Terms and Conditions for Open Access) Regulations, 2019 and amendments thereto:

Provided that demand charges for such supply shall be charged for 15 days if the supply is taken for up to 15 days and shall be charged for the month if the supply is taken for more than 15 days.

9. Grid Discipline

I. The Generating Plant shall abide by the grid discipline and shall not be entitled for any compensation in the event of grid failure or any interruptions or damage to the plant or its associated sub-stations or transmission line on account of any happening in the grid.

II. The provisions of Deviation Settlement Mechanism (DSM) shall be implemented for all Generating Plant, except for Small Hydro Projects (SHP) and Municipal Solid Waste (MSW) plants, and the Generating Plants shall be subject to Day ahead scheduling:

Provided that for SHP and MSW plants actual energy shall be considered as scheduled energy and hence no banking facility will be available to such plants.

Provided that Deviation Settlement Mechanism (DSM) for Solar and Wind based plants shall be as per UPERC (Forecasting, Scheduling, Deviation Settlement, and Related matters of Solar and Wind Generation Sources) Regulations, 2018 as amended from time to time.

Provided that Deviation Settlement for Biomass & Bagasse based plants shall be accounted for and settled in accordance with the provisions of the CERC (Deviation Settlement Mechanism and Related Matters) Regulations, 2024, as amended from time to time, on DSM charges as specified by CERC. The accounting for this purpose shall be done by SLDC.

10. Procedure for declaration of COD

I. Renewable Energy Power Plant selling power to Distribution Licensee:

The COD/ part COD shall be declared by the RE Power Developer as stipulated in the approved PPA.

II. Solar PV based Generating Plant selling power to others than Distribution Licensee:

The COD/ part-COD shall be declared by the Solar Power Developer (SPD) after following the procedure as stipulated herein.

i) At the time of synchronization and commissioning of the project, while registering the project with UPSLDC, the SPD should clearly indicate the

stage/phase/unit wise capacity proposed to be established. The total capacities of such stages/phases/units shall be equal to the total capacity for which connectivity agreement has been signed as per UPERC (Grant of Connectivity to intra-state Transmission system) Regulations 2010 and its amendment thereto.

ii) The SPD would be required to give a notice of not less than 7 days to UPSLDC/STU/SPC and the beneficiaries of the solar power generation station for conducting trial run.

iii) UPSLDC shall allow commencement of trial run from the requested date or in case of any system constraints, not later than 7 days from the proposed date of trial run. The trial run shall commence from the date and time as decided and informed by UPSLDC to SPD/SPC/STU and its beneficiaries.

iv) The trial run of the solar power project or part of the project (stage/phase/unit) shall be performed for a minimum capacity of 10% of the project (the first minimum being 5 MW). The SPD will get 4 attempts, including retrials, if any, for the failed trial run, for each part-COD/COD.

v) After completion of a trial run, if any beneficiary has any objection regarding the trial run, he shall convey it in writing to UPSLDC within 2 days of completion of such trial, and UPSLDC shall decide such objection within 5 days of receipt as to whether the trial run has been successfully completed or repeat trial run is required.

vi) Each successive trial run shall be demonstrated for cumulative capacity including the capacity for which part COD has already been declared.

vii) A trial run will be considered as successful if the SPD demonstrates maintenance of peak generation, corresponding to the capacity for which the COD/Part COD is sought, over one time block of 15 minutes for at least any three days within a continuous period of two weeks.

viii) If the output is below the desired peak, the SPD shall corroborate the performance level with the temperature and solar irradiation recorded at the site during the day and plant design parameters to establish that the peak has been achieved and, in such case, also the trial run will be considered as

successful. In such a case COD/part-COD may be declared subject to the condition that the same shall be demonstrated immediately when sufficient solar irradiation is available within one year from the date of such part COD/COD. For this purpose, SPD will be required to submit data regarding its actual generation demonstrating peak capacity based on which UPSLDC will certify that actual generation as per part COD/COD has been achieved and inform concerned stakeholders. A fresh trial run will not be required for this purpose.

ix) If such a generating station is not able to demonstrate the rated capacity when sufficient solar radiation is available within one year of such part-COD/COD, the SPD shall derate the capacity as per actual maximum capacity achieved and certified by SLDC.

x) After completion of a successful trial run for part-COD/COD, SLDC shall issue a certificate to that effect to the SPD with a copy to STU/SPC and other beneficiaries within 3 days.

xi) On receipt of the certificate of successful trial run from SLDC, the SPD may issue a declaration regarding the COD for part-COD/COD duly signed by its authorized signatory not below the rank of CMD or CEO or MD.

xii) The Bank Guarantee for an amount equal to applicable charges shall be payable as per Open Access Regulations/tariff Orders for the eventuality that SPD fails to meet the Captive generating plant status.

xiii) The Banking facility and signing of Wheeling and Banking Agreement (WBA) with distribution licensee will be allowed only for the full capacity of the LTOA at the stage of part-COD. Further, it is clarified that multiple WBA for a single LTOA will not be allowed and SPD can approach distribution licensee for maximum 2 times/instances for signing of WBA for the entire project capacity.

11. Open Access

I. The Captive Generating Plant, seeking 'Open Access' through the State and / or Inter State Transmission Systems and / or distribution system for carrying the electricity to the destination of use, shall pay the transmission charges, wheeling charges, and such other charges for use of such facilities as determined by the

Appropriate Commission.

II. A Captive Generating Plant shall not be liable to pay cross subsidy surcharge but shall be liable to pay the transmission and / or wheeling charges and any other applicable charges as per the UPERC (Terms and Conditions for Open Access) Regulations, 2019 and amendments thereto and losses for carrying the generated electricity from its plant to the destination for its own use or for the use of its user as defined by the Act or the rules made thereunder:

Provided that in case of supply of power to a consumer or to a person other than its Captive users, such consumer or person shall pay cross subsidy surcharge and other applicable charges as per the UPERC (Terms and Conditions for Open Access) Regulations, 2019 and amendments thereto; over and above transmission and wheeling charges as determined by the Commission.

Provided further that no cross-subsidy surcharge shall be payable if the energy is supplied to a distribution licensee.

III. For solar projects set up for sale of power to Distribution Licensee, third party or captive use, incentives available as per Uttar Pradesh Solar Energy Policy 2022 during the control period for standalone power projects with capacity above 5 MW are provided below:

S. No.	Facility	Incentives for Private Solar Project Developer
1.	Wheeling and transmission charges (Intra State)	100% exemption (on sale of power to Distribution Licensee)*, 50% exemption (captive use and third-party sale)
2.	Wheeling, transmission charges (Inter State sale) and cross subsidy surcharge.	100% exemption on Intrastate transmission system as well as cross subsidy surcharge.

*(*for government owned distribution licensee, the term distribution licensee may be construed as UPPCL on a holistic basis*)

Provided that these exemptions, both for intrastate and interstate sale of power shall be valid during the applicability of the Uttar Pradesh Solar Energy Policy 2022 as amended from time to time.

12. Banking of Energy

I. The Captive Generating Plants, both existing and new, which fulfil the criteria provided in UPERC (Verification of Generating Plants and Captive Consumers) Regulations, 2022 may be allowed to bank energy, for captive/own use during the application of control period of these Regulations subject to the following conditions:

i) For availing the banking facility, the Captive Generating Plants (except for SHP and MSW plants) shall install Energy Meters as specified in Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 as amended from time to time.

ii) For availing Banking facility, Captive Generating Plant will have to enter into Wheeling and Banking Agreement with the Distribution Licensee. However, the Commission has decided to withdraw the banking facility for Captive Generating Plant (non-RE) while providing a window of one year to existing Captive Generating Plants (non-RE) to adapt to the change.

iii) Banking of energy for Captive Generating Plants shall be allowed only for captive consumption within the State as per the following:

S. No.	Category of Captive Generating Plant	Quantum of Banking	Applicability
1	Bagasse	Banking of energy subject to a maximum ceiling of 49% of the energy injected during the quarter.	From the date of notification to the end of the control period of these Regulations
2	Municipal Solid Waste (MSW)	Banking of Energy not allowed	Not Applicable
3	Renewable Energy other than Bagasse and MSW	Banking of Energy subject to a maximum ceiling of 25% of the energy injected during the month or 30% of the total monthly consumption of electricity from the distribution licensee by the captive consumers, whichever is higher.	From the date of notification to the end of the control period of these Regulations

4	Existing Non-RE (COD on or before 31.03.2024)	Banking of energy subject to a maximum ceiling of 25% of the energy injected during the month.	Only for one year from the end of the month in which the Regulations are notified.
5	New Non-RE (COD after 31.03.2024)	Banking of Energy not allowed	Not Applicable

iv) 100% banking of energy in MW terms shall be allowed on 15-minute time block basis.

v) The unutilized energy injected, beyond the aforesaid specified monthly/ Quarterly ceilings shall stand lapsed, and no compensation whatsoever shall be claimed/ paid for such lapsed energy.

vi) The withdrawal of banked energy shall be adjusted on 'First in First out' basis.

vii) The Banking as well as withdrawal of banked energy shall be subject to Day-ahead scheduling.

viii) Energy banked in the off-peak hours shall be allowed to be withdrawn only in off-peak hours. Energy banked in peak hours shall be allowed to be withdrawn both in peak and off-peak hours. Peak hours shall mean the Peak hours as defined in the prevailing Tariff Order of the Commission or through any other Order of the Commission. Off Peak hours shall mean all hours other than Peak Hours.

ix) The energy drawn by Captive Generating Plants as ascertained by energy meter readings, which is not against the banked energy, shall be considered as power purchased by the plant. Such energy drawn from the Distribution Licensee shall be billed at HV-2 category of rate schedule of retail tariff specified by the Commission from time to time.

x) The demand posed by the Captive generating Plants in kVA while purchasing power from Distribution Licensee combined with demand due to withdrawal of banked energy by the Captive Plants shall be considered as the total demand (maximum demand) posed by the Captive generating Plants and the same shall not exceed the contracted demand of the Captive generating

Plants with the Distribution Licensee.

xi) Provided that the demand charges payable by the Captive generating Plants to the Distribution Licensee shall be as per HV-2 category of retail tariff specified by the Commission from time to time.

xii) Provided also that if the maximum demand exceeds the contracted demand, charges for such excess demand shall be levied as per the methodology specified in the prevailing Tariff Order of the Commission.

xiii) For bagasse based Captive Generating Plants, the energy banked during a particular quarter shall be allowed to be withdrawn up to two subsequent quarters i.e. energy banked in Q^{th} quarter shall be allowed to be withdrawn up to the end of $(Q+2)^{th}$ quarter failing which the unutilized energy at the end of $(Q+2)^{th}$ quarter shall not be allowed to be carried forward and shall stand lapsed for which no compensation whatsoever shall be claimed/ paid however, the Captive generating plant shall be entitled to get Renewable Energy Certificates for such lapsed banked energy. Computation of banked energy to be carried forward at the end of the quarter shall be as per the following: -

$B_GCF^n = B_GE^n - W_GE^n - B_GC^n$,

$TB_GCF^n = B_GBF^{n-1} + B_GCF^n$,

Banked Energy of $(n-2)^{th}$ quarter in B_GBF^{n-1}, left unutilized at the end of n^{th} quarter shall lapse.

Where,

B_GCF^n = Banked energy available to be carried forward at the end of the n^{th} Quarter on which the quarterly ceiling specified in Regulation a(iii) is to be applied.

B_GBF^{n-1}= Banked energy brought forward from the $(n-1)^{th}$ Quarter.

B_GE^n = Sum of energy scheduled for banking in all the 15-minute time blocks of the n^{th} Quarter (96 x no. of days).

W_GE^n = Sum of energy scheduled for withdrawal in all the 15-minute time blocks of the n^{th} Quarter (96 x no. of days).

B_GC^n = Banking charges in energy terms levied in the n^{th} Quarter.

TB_GCF^n = Total Banked Energy available to be carried forward at the end of the n^{th} Quarter

xiv) For Captive Generating Plants not covered under xi) above, the energy banked during a month shall be allowed to be carried forward to the subsequent month subject to the monthly ceiling specified in Regulation a(iii) above and any surplus banked energy shall stand lapsed for which no compensation whatsoever shall be claimed/ paid however, the RE Captive generating plant shall be entitled to get Renewable Energy Certificates for such lapsed banked energy. Computation of banked energy to be carried forward at the end of the month shall be as per the following: -

$BCF^n = BBF^{n-1} + BE^n - WE^n - BC^n$, where

BCF^n = Banked energy available to be carried forward at the end of the n^{th} Month on which the monthly ceiling specified in Regulation a(iii) is to be applied.

BBF^{n-1}= Banked energy brought forward from the $(n-1)^{th}$ Month.

BE^n = Sum of energy scheduled for banking in all the 15-minute time blocks of the n^{th} month (96 x no. of days).

WE^n = Sum of energy scheduled for withdrawal in all the 15-minute time blocks of the n^{th} month (96 x no. of days).

BC^n = Banking charges in energy terms levied in the n^{th} month.

xv) Banking charges shall be levied on energy banked in each 15-minute time block, determined at consumption end i.e. after accounting for losses. Banking charges, in energy terms shall be 8% for Wind, Solar and Hybrid RE comprising Wind and Solar energy and 12% for all other Captive Generating Plants and shall be levied at the time of withdrawal.

xvi) Settlement of wheeled energy at consumer end shall be in the following order of priority:

a) Captive Generation after deduction of losses.

b) Banked Energy

c) Open Access Power through Exchange / Bi-lateral transactions

d) Discom power

xvii) The treatment for the banked energy, remaining balance as on the date of the notification of these Regulations, shall be done as per the provisions of the UPERC (Captive and Renewable Energy Generating Plants) Regulations, 2019;

Provided that the remaining balance banked energy as on the date of the notification of these Regulations may be utilized by 30th September 2025, failing which such unutilized banked energy shall stand lapsed, and no compensation whatsoever shall be claimed/ paid for such lapsed banked energy, and the Renewable Energy generating station shall be entitled to get Renewable Energy Certificates to the extent of the lapsed banked energy.

13. Evacuation of Power

I. The Captive Generating Plants and Renewable Energy based Generating Plants shall supply power to the Distribution Licensee of its area through a 11 kV or higher voltage line terminating at the nearest 33 kV/132 kV sub-station as per the voltage and capacity as given below:

a) Contracted capacity up to 3 MW on 11 kV.
b) Contracted capacity above 3 MW and up to 20 MW on 33 kV.
c) Contracted capacity above 20 MW on 132 kV.

II. The Distribution Licensee or State Transmission Utility shall ensure that the generating plant is allowed to be connected to the nearest substation as per UPERC Connectivity Regulations, 2010 in order to reduce length of line subject to technical feasibility:

Provided that in case of existing plants, the connectivity shall be the same as existing on the date of these Regulations coming into effect:

III. The Generating Plants (except for MSW plant) shall be responsible for construction of the evacuation system for connecting its plant with the substation of the Distribution Licensee or STU / any Transmission Licensee, as per the scheme approved by the Commission in PPA, on its own. or through any other agency engaged for that purpose. The cost of laying the dedicated transmission line to the sub-station, the required bays, associated terminal equipment and synchronization equipment shall be borne by the Generating Plant (except MSW plant) and such works shall be undertaken under approval and supervision of the Distribution Licensee / STU or any Transmission Licensee of the area in which the plant is located.

IV. In case the Generating Company chooses to get the dedicated transmission line constructed by other than STU/Transmission Licensee/ Distribution Licensee, the supervision charges shall be payable to Distribution Licensee, or STU or any Transmission Licensee, as the case may be, in accordance with the Supply Code as specified by the Commission and amended from time to time.

14. Maintenance of Dedicated Transmission lines and Equipment

I. The Generating Plants (except for MSW plant) shall be responsible for the maintenance of terminal equipment at the generating plant end and the dedicated transmission lines. However, Distribution Licensees or STU, as the case may be, shall carry out maintenance of the dedicated transmission line, if so desired by the Generating Plants (except for MSW plant) on mutually agreed charges.

II. The Distribution Licensee or the Transmission Licensee or the STU, as the case may be, shall be responsible for maintenance of the terminal equipment(s) at the sub-station of the concerned Licensee. The operation and maintenance cost shall be considered as pass through by the Commission while determining the wheeling and transmission charges of the concerned Licensee or STU, as the case may be.

III. In case of MSW Plants, total cost on maintenance of substation and transmission line including bay etc. shall be borne by Distribution Licensee or STU or any other Transmission Licensee, as the case may be, and the cost incurred shall be allowed in tariff of the STU or any Transmission Licensee or Distribution Licensee as the case may be.

15. Metering Arrangement

The Generating Plants (except for SHP and MSW plant) shall provide energy meters as specified in Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 as amended from time to time at the point of injection and point of drawl and shall comply with all metering requirements as notified by the STU and / or CEA:

Provided that the point of injection and point of drawl for recording and billing purposes shall be the substation of the Distribution Licensee / STU:

Provided also that metering at generator terminal shall be as per the guidelines/Regulations issued by the CEA:

Provided further that while calculating the energy billed for, the meter reading in

MWH taken at substation shall be multiplied by a factor as follows to compensate the transmission losses (the line losses to be taken as percentage per km/MW):

Multiplying Factor = 100 / (100 - 0.001 x L x CC)

L = Length of dedicated transmission line in km
CC = Contracted Capacity in MW
Loss factor = 0.001/km/MW

16. Energy Accounting and Billing

I. SLDC shall do energy accounting and billing and the same shall be communicated to the utilities interacting with the grid as per the scheme framed by SLDC in pursuance of the provisions of the UPERC Regulations.

Provided that in case sale is to the Distribution Licensee without involving the transmission network of the area, Joint Meter Reading (JMR) shall be done. The energy accounting and billing shall be done by the Generating Plants in association with the concerned Distribution Licensee.

II. Provided further that over or under recovery of charges on account of Provisional tariff, as provided through 69/SM/2024 (Suo-motu) Order of the Commission dated 07.05.2024 shall be subject to retrospective adjustment based on tariff as specified by the Commission under these Regulations. The generating plant, on the basis of such final tariff, shall calculate the amount of under or over recovery of charges and bill such amount to be recovered or paid by it from or to the Distribution Licensee, for the period the Provisional tariff remained effective along with simple interest calculated at rate equal to Bank Rate as on 1st April of the relevant year in which such under/over recovery was made.

17. Inherent Power of the Commission

I. Nothing in these Regulations shall be deemed to limit or otherwise affect the inherent powers of the Commission to make such orders as may be necessary to meet ends of justice.

II. Nothing in these Regulations shall bar the Commission from adopting in conformity with the provisions of the Act, a procedure, which is at variance with any of the provisions of this Regulation, if the Commission, in view of the special circumstances of a matter or class of matters, deems it necessary or expedient for dealing with such a matter or class of matters.

III. Nothing in these Regulations shall, expressly or impliedly, bar the Commission dealing with any matter or exercising any power under the Act for which no Regulation has been framed, the Commission may deal with such matters in a manner it deems fit.

18. Power to Amend

The Commission may, at any time add, vary, alter, modify, or amend any provision of these Regulations.

19. Power to Remove Difficulties

If any difficulty arises in giving effect to the provision of these regulations, the Commission may, by general or specific order, make such provisions not inconsistent with the provisions of the Act, as may appear to be necessary for removing the difficulty.

20. Power to Relax

The Commission, for reasons to be recorded in writing, may relax the provisions of these Regulations on its own motion or on an application made before it by any interested party.

21. Repeal and Savings

I. Save as otherwise provided in these Regulations, the Uttar Pradesh Electricity Regulatory Commission (Captive and Renewable Energy Generating Plants) Regulations, 2019, and respective amendments shall stand repealed from the date these Regulations become effective.

II. Notwithstanding such repeal, anything done or purported to have been done under the repealed Regulations shall be deemed to have been done or purported to have been done under these Regulations.

By Order of the Commission

(_____)

Secretary

Schedule I: Tariff for Sale of Power

1. Captive Generating Plants (non-RE)

1.1. The fixed & variable costs for the existing plants of unit size up to 100 MW has been determined as shown below:

Table 1: Fixed Cost (Rs/kWh)

Year of Commissioning	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
Prior to FY 2005-06	0.69	0.71	0.73	0.76	0.78
FY 2010-11	0.81	0.83	0.86	0.88	0.90
FY 2014-15	1.18	1.20	0.88	0.90	0.92

Table 2: Variable Cost

Financial Year	Variable Cost (Rs/kWh)
FY 2024-25	2.26
FY 2025-26	2.33
FY 2026-27	2.41
FY 2027-28	2.50
FY 2028-29	2.58

Table 3: Total Tariff (Rs/kWh)

Year of Commissioning	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
Prior to FY 2005-06	2.94	3.04	3.15	3.25	3.37
FY 2010-11	3.07	3.17	3.27	3.38	3.49
FY 2014-15	3.44	3.53	3.29	3.40	3.50

1.2. The Commission directs distribution licensee to procure power from Captive Generating Plants (non-RE) commissioned on or after 1st April 2024, through a process of competitive bidding under Section 63 of the Act.

1.3. The tariff of the Captive Generating Plants has been determined at 85% PLF. For ex-bus scheduled energy corresponding to incremental annual PLF over and above 85%, incentive @ 50 paisa per unit shall be payable.

2. Bagasse based Generation & Cogeneration Plants

2.1. The fixed & variable costs, total tariff and Annual Fixed cost for the existing plants commissioned prior to/ during FY 2005-06 to FY 2008-09 shall be as shown below:

Table 4: Fixed Cost (Rs/kWh)

Year of Commissioning	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
FY 2005-06 or earlier	1.31	1.17	1.20	1.24	1.28
FY 2006-07	1.32	1.36	1.22	1.25	1.30
FY 2007-08	1.35	1.38	1.23	1.27	1.31
FY 2008-09	1.36	1.39	1.43	1.47	1.32

Table 5: Variable Cost

Financial Year	Variable Cost (Rs/kWh)
FY 2024-25	3.02
FY 2025-26	3.11
FY 2026-27	3.21
FY 2027-28	3.30
FY 2028-29	3.40

Table 6: Total Tariff (Rs/kWh)

Year of Commissioning	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
FY 2005-06 or earlier	4.33	4.28	4.41	4.55	4.69
FY 2006-07	4.35	4.47	4.42	4.56	4.69
FY 2007-08	4.37	4.49	4.44	4.57	4.71
FY 2008-09	4.38	4.51	4.64	4.77	4.72

Table 7: Annual Fixed cost of Bagasse based Projects (Rs. lakhs per MW)

Year of Commissioning	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
FY 2005-06 or earlier	52.39	46.73	48.24	49.83	51.50
FY 2006-07	53.08	54.52	48.71	50.29	51.95
FY 2007-08	53.97	55.42	49.41	51.01	52.68
FY 2008-09	54.40	55.84	57.36	58.95	52.86

2.2. The fixed & variable costs, total tariff and Annual Fixed cost for the existing plants commissioned during FY 2009-10 to FY 2013-14 shall be as shown below:

Table 8: Fixed Cost (Rs/kWh)

Year of Commissioning	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
FY 2009-10	1.45	1.49	1.53	1.57	1.62
FY 2010-11	1.45	1.49	1.53	1.57	1.61
FY 2011-12	1.45	1.49	1.53	1.57	1.61
FY 2012-13	1.45	1.49	1.53	1.57	1.61
FY 2013-14	1.45	1.48	1.51	1.54	1.57

Table 9: Variable Cost

Financial Year	Variable Cost (Rs/kWh)
FY 2024-25	2.86
FY 2025-26	2.94
FY 2026-27	3.03
FY 2027-28	3.12
FY 2028-29	3.21

Table 10: Total Tariff (Rs/kWh)

Year of Commissioning	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
FY 2009-10	4.30	4.43	4.56	4.69	4.83
FY 2010-11	4.30	4.43	4.56	4.69	4.8
FY 2011-12	4.31	4.43	4.56	4.69	4.83
FY 2012-13	4.31	4.43	4.56	4.69	4.82
FY 2013-14	4.31	4.42	4.54	4.66	4.79

Table 11: Annual Fixed cost of Bagasse based Existing Projects (Rs lakhs/MW)

Year of Commissioning	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
FY 2009-10	57.96	59.54	61.19	62.93	64.76
FY 2010-11	58.03	59.58	61.20	62.90	64.68
FY 2011-12	58.10	59.61	61.19	62.85	64.60
FY 2012-13	58.17	59.64	61.19	62.81	64.51
FY 2013-14	58.24	59.38	60.56	61.79	63.07

2.3. The fixed & variable costs, total tariff and Annual Fixed cost for the existing plants commissioned during FY 2014-15 to FY 2018-19 shall be as shown below:

Table 12: Fixed Cost (Rs/kWh)

Year of Commissioning	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
FY 2014-15	2.01	1.98	1.59	1.63	1.67

FY 2015-16	2.11	2.07	2.03	1.63	1.67
FY 2016-17	2.22	2.18	2.14	2.09	1.68
FY 2017-18	2.32	2.27	2.23	2.19	2.14
FY 2018-19	2.43	2.38	2.34	2.29	2.25

Table 13: Variable Cost

Financial Year	Variable Cost (Rs/kWh)
FY 2024-25	2.86
FY 2025-26	2.94
FY 2026-27	3.03
FY 2027-28	3.12
FY 2028-29	3.21

Table 14: Total Tariff (Rs/kWh)

Year of Commissioning	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
FY 2014-15	4.87	4.92	4.62	4.75	4.88
FY 2015-16	4.97	5.01	5.06	4.75	4.89
FY 2016-17	5.07	5.11	5.16	5.21	4.89
FY 2017-18	5.18	5.21	5.26	5.31	5.36
FY 2018-19	5.29	5.33	5.37	5.41	5.46

Table 15: Annual Fixed cost of Bagasse based Existing Projects (Rs lakhs/MW)

Year of Commissioning	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
FY 2014-15	80.73	79.22	63.64	65.19	66.81
FY 2015-16	84.70	83.07	81.51	65.46	67.04
FY 2016-17	88.84	87.09	85.41	83.81	67.27
FY 2017-18	92.98	91.12	89.32	87.60	85.94
FY 2018-19	97.52	95.54	93.63	91.78	90.00

2.4. The Commission directs distribution licensee to procure power from Bagasse based generation and co-generation plants commissioned on or after 1st April 2019, through a process of competitive bidding under Section 63 of the Act.

2.5. The tariff of the Bagasse based Generating Plants has been determined at 50% PLF. For ex-bus scheduled energy corresponding to incremental annual PLF over and above 50%, incentive @ 50 paisa per unit shall be payable.

3. Biomass (rice husk based) Generation Plants

3.1. The fixed & variable costs and total tariff for the existing 3. Biomass (rice husk based) plants for control period of these Regulations shall be as shown below:

Table 16: Fixed Cost (Rs/kWh)

Year of Commissioning	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
FY 2008-09	1.72	1.78	1.85	1.92	1.85
FY 2013-14	1.74	1.80	1.86	1.93	2.00

Table 17: Variable Cost

Financial Year	Variable Cost (Rs/kWh)
FY 2019-20	6.05
FY 2020-21	6.26
FY 2021-22	6.47
FY 2022-23	6.70
FY 2023-24	6.93

Table 18: Total Tariff (Rs/kWh)

Year of Commissioning	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
FY 2008-09	7.77	8.04	8.32	8.61	8.78
FY 2013-14	7.79	8.06	8.34	8.63	8.93

Table 19: Annual Fixed cost of Biomass Existing (rice husk based) Projects (Rs lakhs/MW)

Year of Commissioning	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
FY 2008-09	108.39	112.34	116.48	120.82	116.99
FY 2013-14	109.64	113.44	117.42	121.60	125.98

3.2. The Commission directs distribution licensee to procure power from Biomass (rice husk) based projects commissioned on or after 1st April 2019, through a process of competitive bidding under Section 63 of the Act.

3.3. The tariff of the Biomass (rice husk) based Generating Plants has been determined at 80% PLF. For ex-bus scheduled energy corresponding to incremental annual PLF over and above 80%, incentive @ 50 paisa per unit shall be payable.

4. Municipal Solid Waste based Generation Plants

4.1. The effective tariff for the Municipal Solid Waste based Generating Plants shall be as given below:

Table 20: Total Tariff (Rs/kWh)

Year of Commissioning	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
FY 2017-18	7.56	7.68	7.82	7.96	8.11

4.2. The tariff of the Municipal Solid Waste based Generating Plants has been determined at 75% PLF. For ex-bus scheduled energy corresponding to incremental annual PLF over and above 75%, incentive @ 50 paisa per unit shall be payable.

4.3. The Commission shall determine project specific tariff for projects commissioned on or after 1st April 2024 on a case-to-case basis.

5. Small Hydro based Generation Plants

5.1. The effective tariff for Small Hydro Power Plants commissioned during FY 2006-07 shall be as given below:

Table 21: Total Tariff (Rs/kWh)

Year of Commissioning	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
FY 2006-07	1.71	1.75	1.80	1.85	1.91

5.2. The tariff of the Small Hydro Power Plants has been determined at 35% CUF. For ex-bus scheduled energy corresponding to incremental annual CUF over and above 35%, incentive @ 50 paisa per unit shall be payable.

5.3. The Commission directs distribution licensee to procure power from Small Hydro Power Plants commissioned on or after 1st April 2024, through a process of competitive bidding under Section 63 of the Act.

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Annexure - I

	Financial Year 2024-25									
Sl. No.	**Name of the Generating Plant**	**Type of Generating Plant**	**Location**	**Installed Capacity (MW)**	**Contracted Capacity (MW)**	**Energy Sales (MU)**	**Banked Energy (MU)**	**PPA/ SPPA dated**	**PLF/ CUF (%)**	**Remarks**
1.	……	Bagasse								
2.	……	Biomass								
3	…….	Fossil fuel/Coal								
4	……	Solar PV	…..							
5	……	MSW								
6	……..	SHP								
7	……..	…….								

Explanatory Memorandum

on

Draft

Uttar Pradesh Electricity Regulatory Commission (Captive and Renewable Energy Generating Plants) Regulations, 2024

May 07, 2025

1. INTRODUCTION

1.1. **Background:**

1.1.1. The Electricity Act, 2003 (hereafter referred as "the Act") envisage provisions for Captive generations and promotions of Renewable sources of energy generation and consumption. Further, Section 86(1)(e) of the Act specifically provides for promotion of cogeneration 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 distribution licensee. The Government of India has also pronounced the National Electricity Policy, Tariff Policy etc. which also envisage generation and consumption of energy from the Renewable Energy Sources including the Solar energy in the country.

As per Section 86(1)(a) of the Electricity Act, 2003 the State Electricity Regulatory Commissions (SERCs or Commissions) have been assigned the function of determining the tariff for generation, supply, transmission and wheeling of electricity, wholesale, bulk or retail within the State.

1.1.2. The Section 61 of the Electricity Act 2003 requires the Appropriate Commission to be guided by below mentioned principles while specifying the Terms and Conditions for determination of tariff:

> *"61. The Appropriate Commission shall, subject to the provisions of this Act, specify the terms and conditions for the determination of tariff, and in doing so, shall be guided by the following, namely: -*
>
> *a) The principles and methodologies specified by the Central Commission for determination of the tariff applicable to generating companies and transmission licensees.*
>
> *b) The generation, transmission, distribution, and supply of electricity are conducted on commercial principles.*
>
> *c) The factors which would encourage competition, efficiency, economical use of the resources, good performance and optimum investments.*
>
> *d) Safeguarding of consumers' interest and at the same time, recovery of the cost of electricity in a reasonable manner.*
>
> *e) The principles rewarding efficiency in performance.*
>
> *f) Multi Year tariff principles.*
>
> *g) That the tariff progressively reflects the cost of supply of electricity and also reduces cross-subsidies in the manner specified by the Appropriate Commission.*

h) The promotion of co-generation and generation of electricity from renewable sources of energy.

i) The National Electricity Policy and tariff policy"

1.1.3 The National Electricity Policy and Tariff Policy have been notified by the Ministry of Power, Government of India, which provide the guidelines for determination of the revenue requirement and tariff. The National Electricity Policy also provides certain guidelines with regard to performance norms and the need to provide incentives and disincentives, as reproduced below:

> *"5.8.5 All efforts will have to be made to improve the efficiency of operations in all the segments of the industry. Suitable performance norms of operations together with incentives and disincentives will need to be evolved along with appropriate arrangement for sharing the gains of efficient operations with the consumers. This will ensure protection of consumers' interests on the one hand and provide motivation for improving the efficiency of operations on the other".*

1.1.4 Further, Tariff Policy also advocates competition in the electricity sector. As competition will lead to significant benefits to the consumers through reduction in capital cost and efficiency of operation. The objectives of Tariff Policy are to:

(a) Ensure availability of electricity to consumers at reasonable and competitive rates.

(b) Ensure financial viability of the sector and attract investments.

(c) Promote transparency, consistency, and predictability in regulatory approaches across jurisdictions and minimise perceptions of regulatory risks.

(d) Promote competition, efficiency in operations and improvement in quality of supply.

(e) Promote generation of electricity from Renewable sources.

(f) Promote Hydroelectric Power generation including Pumped Storage Projects (PSP) to provide adequate peaking reserves, reliable grid operation and integration of variable renewable energy sources.

(g) Evolve a dynamic and robust electricity infrastructure for better consumer services.

(h) Facilitate supply of adequate and uninterrupted power to all categories of consumers.

(i) Ensure creation of adequate capacity including reserves in generation, transmission, and distribution in advance, for reliability of supply of electricity to consumers.

Conspectus of UPERC (Captive and Renewable Generating Plants) Regulations, 2024

1. As per provisions of the Act and the Tariff Policy, the Commission notified the Uttar Pradesh Electricity Regulatory Commission (Captive and Renewable Energy Generating Plants) Regulations 2019 for the 5-year Control Period from 01.04.2019 to 31.03.2024 vide Notification No. UPERC/Secy./CRE Regulations/2019/271 dated 25.07.2019. These Regulations were applicable from 01.04.2019 to 31.03.2024 to captive generation and renewable sources of generation and co-generation on specific Terms and Conditions for Supply of Power including Tariff for sale of power from Captive Generating Plants, Co-generation Plants, Renewable Sources of Energy to a Distribution Licensee.

2. The Commission vide its Suo-Moto Order dated 07.05.2024 in 69/SM/2024, while continuing the provisions of CRE Regulation, 2019, extended the Tariff for FY 2023-24 under UPERC (Captive and Renewable Generating Plants) Regulation, 2019 to be applicable w.e.f. 01.04.2024 on provisional basis till UPERC (Captive and Renewable Generating Plants) Regulation, 2024 was notified. The relevant extract of the Order dated 07.05.2024 is reproduced below:

   "…it is directed that the tariff for FY 2023-24 for all existing projects covered under the (Captive and Renewable Generating Plants) Regulations, 2019 shall be applicable w.e.f. 01.04.2024 for billing payment purpose on provisional basis till UPERC (Captive and Renewable Generating Plants) Regulations, 2024 is notified."

3. The state of Uttar Pradesh is transiting through renewable energy space keeping pace with the Govt. of India's objective in facilitating renewable power from existing sources and new RE technologies. The Govt. of U.P. has brought out Solar Energy Policy 2022 focusing on promoting various types of solar projects, including utility-scale, ultra-mega solar parks, solar PV rooftop installations, and distributed solar systems. In these Regulations, the Commission has extended the exemption limit of interstate and intrastate wheeling/transmission charges and cross subsidy surcharge in line with the U.P. Solar Energy Policy 2022 for solar power projects.

4. The provision for banking of energy was provided in CRE Regulations 2019 for RE (Captive and Co generation) and Captive Non-RE generating plants. The provisions for RE plants were the same for all types (Solar, Wind, Bagasse etc.) of RE plants. The Commission is of the opinion that the banking requirements for different types of RE plants cannot be the same but dependent upon source of generation, banking requirement of the plant, seasonality, and use of such banked energy by the distribution licensee.

5. With regards to banking for Captive RE selling power to third parties, there have been

lot of disputes not only before the Commission, but also few cases have reached the Tribunal level. The Commission has considered the aforesaid issues of these Plants and aligned banking provisions with experience/insight gained during the past.

6. The Commission in these Regulations has distinguished in the banking provisions for Bagasse based Generation and Co-Generation Plants (i.e., selling power to Distribution Licensee) and other Renewable Energy source-based Generating plants/ Captive RE (i.e., selling power to other than Distribution Licensee). While the banking for bagasse-based Captive/Co-gen plants has been provided for 49% of the energy injected in a quarter but has been allowed to cumulate the banked power during two consecutive quarters and withdraw the same during the subsequent quarters subject to restriction of carryforward up to $(Q+2)^{th}$ quarter in view of the seasonal nature of these captive generating plants.

7. Govt. of India has notified Electricity (Promoting Renewable Energy Through Green Energy Open Access) Rules, 2022, and subsequent amendments in January 2023 and June 2023. The Ministry of Power (MOP) issued a letter on June 2, 2023, related to the Green Energy Open Access Rules, 2022. The letter specifically addressed the need for State Electricity Regulatory Commissions (SERCs) to align their Open Access Regulations with the notified rules, including any amendments. In this regard, the Commission has notified first amendment to its Open Access Regulations 2024 vide notification dated 16.12.2024.

8. The Commission in the Present Regulation has not only aligned the banking provisions with the Electricity (Promoting Renewable Energy through Green Energy Open Access) Rule 2022, but made them more practical and implementable, balancing the interest of Distribution Licensees on one side and captive (RE)/Cogen plants on the other. For Captive RE (other than Bagasse and MSW) generating plant, Commission has provided banking of energy subject to a maximum ceiling of 25% of the energy injected during the month or 30% of the total monthly consumption of electricity from the Distribution Licensee by the captive consumers whichever is higher. The stipulation ensures banking of at least 30% of consumption in line with the above Rules. However, unlike the provisions in the Rules which make the entire banked energy in a banking cycle (read month) lapse at the end of the banking cycle, Commission has provided a rollover for a month to the captive RE generating plant (other than Bagasse and MSW) to consume the banked energy making the provisions more practical and implementable. The surplus energy left unutilized beyond the period has been made to lapse, however Generating Plant will be entitled to get REC certificates against such lapsed energy as per Rules.

9. The Commission has also now provided that generating plants would get 100% banking during 15-minute time block, which was not clear in earlier Regulation, thus increasing

the quantum of banking and usage in off peak hours during the day. The interpretation makes the banking provision more workable. To provide greater flexibility power banked during peak hours has been permitted to be utilized in off peak hours as it does not hurt the licensee. However, as earlier, power banked during off peak hours is prohibited to be utilized in peak hours. To protect the interest of the Distribution Licensee and to compensate it for this enhanced flexibility, the banking charges have been incurred from 6% to 8% for solar, wind and hybrid RE plants.

10. The Commission, since very inception, had been liberal in banking provisions for the captive (Non-RE) Generating Plants. However, since these plants are self-sufficient to plan their outages and energy generation and also have utilized banking facility to a miniscule extent, during the previous control period (FY 2019 - FY2024) against their contracted capacity, Banking facility for Captive (Non-RE) plants has been withdrawn in these regulations.

11. The Commission, for further clarity and ease of implementation, has formulated banking provisions through mathematical expression in these regulations. The Baking provisions would be applicable from the date of notifications of these regulations. However, during the transition phase, up to 30th September 2025, remaining balance banked energy as on the date of notification, may be utilized by 30th September 2025.

12. The Commission, in these Regulation has provided generic tariff for RE (Captive and Co-gen) and Captive Non-RE generating plants for the existing generating plants, applicable from 01.04.2024. The principles considered for determination of generic tariff have been based on CERC RE Regulations 2023 but aligned to the specific requirements, geography, energy portfolio and RPO obligation of the state. The Commission has also annexed (Annexure-A) list of plants supplying power to UPPCL covered under these Regulations. The Schedule-I has been updated for captive generating plants based on their commissioning date and having PPAs with the distribution licensees.

13. Bagasse, the fibrous residue left after sugarcane extraction, plays a vital role in India's renewable energy and sustainable material markets. As demand for biomass fuels and eco-friendly alternatives grows, so does the interest in bagasse pricing. The quality of bagasse, such as moisture content, fiber strength, and ash percentage, influences pricing.

14. Following approaches are mainly used for estimating Bagasse price:
    a) Alternate fuel GCV equivalent method.
    b) Based on market value of bagasse.
    c) Split off cost method.
    d) Preferential tariff-based calculation.

e) Production cost method.

f) Coal equivalent method.

a. Alternate fuels which can substitute bagasse.

Bagasse is used as fuel in the boiler. However, various other fuels such as Biomass, Firewood, coal, briquettes, rice husk etc. can also be used in boiler as a substitute of Bagasse. These fuels can be used along with bagasse and mixing ratio depends on the boiler design. The Commission has separately determined tariff for rice-susk based RE generation and hardly any other alternate fuel is used in the state.

b. Market Rate of Bagasse

The Bagasse is a freely traded as a goods in Market and is being used for various purposes other than power generation in a co-generation plant. Bagasse is used for production of paper & pulp, packaging, ethanol, Disposable bagasse containers and cutlery etc. Therefore, market rate of bagasse would be dependent upon demand for its alternate uses in the market, thus making this approach debatable.

c. Split off cost method.

The Price of Sugarcane and price of Sugar are controlled by Government. Other parameters like recovery, Fiber % of Cane, Java ratio etc. vary from area to area and depend on variety of cane, rain fall, soil quality, atmospheric condition (temperature & humidity) etc. It is complex to calculate uniform bagasse rate.

d. Costing based on market aligned tariff.

In this method tariff rate is considered as discovered in the recent competitive bidding and reverse calculation is carried out in order to derive the cost of the bagasse. However, there has not been any competitive bidding conducted in the state recently for procurement of Bagasse based power.

e. Production cost method

This method evaluated the production cost of bagasse such as cost of crushing. There may be the following two approaches to evaluate price of bagasse through this method.

i. Based on primary survey output, average cane to residue ratio of all surveyed plant comes out to be 27.4%. According to this approach, as bagasse is the fuel generated as well as consumed within cogeneration facility, hence, it doesn't contain cost factors such as loading, unloading, transportation, trader's margin etc. Therefore, price of bagasse should be 0.274 times the price of sugarcane. In case of Maharashtra, FRP of sugarcane is Rs. 2850 per ton at 10 % sugar recovery while during primary survey, average FRP of sugarcane for all surveyed plants comes out be Rs. 2621 per ton. The

difference in FRP is possibly due to the variation of sugar recovery rate. Based on primary survey data.

$$\text{Price of bagasse} = \text{Cane to bagasse ratio} \times \text{FRP of sugarcane in Maharashtra}$$

$$= 0.274 \times 2621$$

Hence, price of bagasse comes out to be ***Rs. 718 per ton***

ii. The production cost of sugar from sugarcane is 20%-30%. This method of evaluating bagasse price is successfully adopted by KERC. The price of bagasse by this approach can be evaluated as:

$$\text{Price of bagasse} = 0.274 \times (\text{FRP of sugarcane} + 20\% \times \text{FRP of sugarcane})$$

Hence, price of bagasse comes out to be ***Rs. 862 per ton***

Taking the average of these two approaches, estimated price of bagasse would be Rs. 790 per ton.

f. <u>Coal equivalent method.</u>

This method is adopted by several other state commissions to evaluate bagasse price by comparing GCV of coal with bagasse. In this method, equivalent heat value approach for landed cost of coal for thermal power stations at respective States is used. While comparing the GCV of coal and Bagasse to estimate the price of bagasse, the price of bagasse is calculated. The cost of the bagasse is calculated based on the following formula:

$$\text{Cost of bagasse (Rs./ton)} = \frac{\text{(Average derived fuel rate (Rs./kcal)} \times \text{GCV of bagasse(kcal/kg))}}{1000}$$

This approach is used by CERC for determination of bagasse price and in turn for computing variable charges for bagasse-based generation. The Commission has considered Coal equivalent method for determination of bagasse price and variable charges accordingly. Average of State Gen-co Coal price with due time correction factor and heat value have been considered for this purpose.

15. The Commission has also aligned the power procurement process with its "UPERC (Modalities of Tariff determination) Regulation 2023" dated 28.02.2023 which mandate that the Tariff for all power procurement under long term, medium term shall be discovered through competitive bidding route except for Waste to energy and hydro plants including pumped storage having PPA approved by the Commission. The Commission has also decided that tariff for environment friendly MSW plants may be decided on case-to-case basis. The Commission has also incorporated enabling provision for pilot projects using new technologies for RE power generation at mutual agreed or UPPCL APPC tariff (for Renewable energy) , whichever is lower, with liberty to approach the Commission, if required. To further promote RE in the state, the eligibility criteria for RE based Captive Generating Plant, the installed capacity limit has been reduced

from existing 1MW to 100kW in line with the UPERC (Terms and Conditions for Open Access) Regulations, 2019.

16. The Commission has prescribed a mechanism for declaration for part COD of a solar project keeping the view the difficulties faced by solar generators setting up plant in the state due to difficulties in land acquisitions and variations in solar irradiations.

17. By means of this Explanatory Memorandum, the Commission has summarised the key modifications in these Regulations from the CRE Regulations, 2019 along with rationale for the changes. The Commission has restricted and organised these Regulations in following sections:

- **Tariff Determination:** It details how tariffs are determined for both existing captive and renewable energy-based power plants, including provisions for generic tariffs for various renewable sources.
- **Power Purchase Agreements (PPAs):** The regulations address the approval process for PPAs between generating plants and distribution licensees.
- **Obligations of Generating Plants:** The regulations specify the obligations of captive and renewable energy generating plants, including technical standards, safety requirements, and grid discipline.
- **Sale of Power:** It outlines rules for the sale of surplus power by captive and renewable energy plants to distribution licensees or through open access.
- **Banking of Power:** Addresses rules concerning the banking of energy by Renewable Energy based Generating Power Plants.
- **Declaration of Commercial operation**

Key Provisions in the Draft Regulations:

18. Bagasse Pricing

The Commission has adopted the coal equivalence-based bagasse fuel pricing in these Regulations. However, as there was no competitive bidding conducted in the state recently for procurement of Bagasse based power, the Commission decides to rely on the coal data of the pit-head power plants of the UPRVUNL for computation of Bagasse price. The Commission, on the basis of coal prices of pit-head thermal power plants (i.e., Anpara A, B, D and Obra-B) for the past years has computed the average price of Bagasse as Rs. 1633 per tonne and escalated with the actual CAGR of 2.92% to arrive at the pricing of Rs. 1729 per tonne for the base financial year 2024-25. The escalation factor considered for this control period is 3%.

19. **Fuel Pricing for Captive (Non-RE):** The Commission has adopted the fuel pricing for captive generating plants (non-RE) based on primary and secondary fuel prices of the past 5 years for pit-head thermal power plant i.e., Anpara B and has computed the average price of primary and secondary fuel as Rs 2528.08/ MT and Rs 64739.06/ kL respectively. The escalation factor considered for this control period is 3.45% for both the primary and secondary fuel.

20. **Procedure for declaration of "Date of Commercial Operation":** has been specified separately for project which has PPA with the Distribution Licensee and which have been established/installed for sale of power to captive consumers other than Distribution Licensees. The need arises for the procedure to declare COD, accordingly, the procedure has been prescribed in terms of the Order dated 28.02.2024 in Petition No. 1847 of 2022 for the grid connected third party/captive consumer's Solar PV power project.

21. **The Power Evacuation** through transmission system shall be responsibility of the Captive Generating Plants i.e., non-RE and RE (except for MSW plant). Accordingly, the cost of laying the dedicated transmission line to the sub-station, that required bays, associated terminal equipment and synchronization equipment shall be borne by the Generating Plant.

22. In line with the Tariff Policy issued on 28.01.2016, regarding procurement of power for all Generating Plants commissioned on or after 01.04.2024, the Commission has decided to enable **power procurement by the distribution licensees** from all existing captive and renewable energy plant (except for MSW) through competitive bidding. However, the generating company owned or controlled by the State Government as an identified developer, tariff would be determined by the Commission under Section 62 of the Act, on case-to-case basis.

23. **Promotion of New Technologies in RE Generation**: To promote new RE based generating plants, the Commission has provided suitable provisions, to demonstrate pilot project and for such pilot project, tariff shall be the Average Power Purchase Cost (APPC) of Renewable Energy of the Distribution Licensee for the last Financial Year as approved by the Commission or rate agreed between the parties in the PPA, whichever is lower. However, such pilot project developer may approach the Commission, for determination of tariff, in case of any objection to such tariff.

24. **Banking of Power:** Some of the key features of banking of power proposed in draft Regulations are as follows:

i) Banking of energy for Captive Generating Plants shall be allowed only for captive consumption within the State as per the following:

S. No.	Category of Captive Generating Plant	Quantum of Banking	Applicability
1	Bagasse	Banking of energy subject to a maximum ceiling of 49% of the energy injected during the quarter.	From the date of notification to the end of ~~During~~ the control period of these Regulations
2	Municipal Solid Waste (MSW)	Banking of Energy not allowed	Not Applicable
3	Renewable Energy other than Bagasse and MSW	Banking of Energy subject to a maximum ceiling of 25% of the energy injected during the month or 30% of the total monthly consumption of electricity from the distribution licensee by the captive consumers, whichever is higher.	From the date of notification to the end of ~~During~~ the control period of these Regulations
4	Existing Non-RE (COD on or before 31.03.2024)	Banking of energy subject to a maximum ceiling of 25% of the energy injected during the month.	Only for one year from the end of the month in which the Regulations are notified.
5	New Non-RE (COD after 31.03.2024)	Banking of Energy not allowed	Not Applicable

ii) The Commission has decided to withdraw the banking facility for the Non-RE Captive Generating Plants while providing a window of one year to the Existing Non-RE power plants to adapt to the change.

The quantum of banking for RE captive generating plants have been revised in line with the Green Energy Open Access Rules notified by the MoP, Government of India and the state specific requirements particularly for the bagasse based CGPs.

iii) 100% banking of energy in MW terms shall be allowed on 15-minute time block basis. For renewable energy source, having intermittent generation depending on various geographical and climatic conditions, unless 100% banking is allowed in 15 minutes time block, the very raison-d'etre of banking is lost.

iv) Energy banked in the off-peak hours shall be allowed to be withdrawn only in off-peak hours. Energy banked in peak hours shall be allowed to be withdrawn both in peak and off-peak hours. Peak hours shall mean the Peak hours as defined in the prevailing Tariff Order of the Commission or through any other Order of the Commission. Off Peak hours shall mean all hours other than Peak Hours.

v) For bagasse based Captive Generating Plants, the energy banked during a particular quarter shall be allowed to be withdrawn up to two subsequent quarters i.e. energy banked in Qth quarter shall be allowed to be withdrawn up to the end of (Q+2)th quarter failing which the unutilized energy at the end of (Q+2)th quarter shall not be allowed to be carried forward and shall stand lapsed for which no compensation whatsoever shall be claimed/ paid however, the Captive generating plant shall be entitled to get Renewable Energy Certificates for such lapsed banked energy. Computation of banked energy to be carried forward at the end of the quarter shall be as per the following:-

$$\mathbf{B_GCF^n = B_GE^n - W_GE^n - B_GC^n,}$$

$$\mathbf{TB_GCF^n = B_GBF^{n-1} + B_GCF^n,}$$

Banked Energy of $(n-2)^{th}$ quarter in B_GBF^{n-1}, left unutilized at the end of n^{th} quarter shall lapse.

Where,

B_GCF^n = Banked energy available to be carried forward at the end of the n^{th} Quarter on which the quarterly ceiling specified in Regulation a(iii) is to be applied.

B_GBF^{n-1}= Banked energy brought forward from the $(n-1)^{th}$ Quarter.

B_GE^n = Sum of energy scheduled for banking in all the 15-minute time blocks of the n^{th} Quarter (96 x no. of days).

W_GE^n = Sum of energy scheduled for withdrawal in all the 15-minute time blocks

of the n^{th} Quarter (96 x no. of days).

B_GC^n = Banking charges in energy terms levied in the n^{th} Quarter.

TB_GCF^n = Total Banked Energy available to be carried forward at the end of the n^{th} Quarter

vi) The banking carryover provision for the bagasse based CGPs, peculiar to the state of Uttar Pradesh, has been kept unchanged keeping in view of the seasonality of the industry.

vii) For Captive Generating Plants not covered under xi) above, the energy banked during a month shall be allowed to be carried forward to the subsequent month subject to the monthly ceiling specified in Regulation a(iii) above and any surplus banked energy shall stand lapsed for which no compensation whatsoever shall be claimed/ paid however, the RE Captive generating plant shall be entitled to get Renewable Energy Certificates for such lapsed banked energy. Computation of banked energy to be carried forward at the end of the month shall be as per the following: -

$$\mathbf{BCF^n = BBF^{n-1} + BE^n - WE^n - BC^n,}$$

Where,

BCF^n = Banked energy available to be carried forward at the end of the n^{th} Month on which the monthly ceiling specified in clause 18(iii) is to be applied.

BBF^{n-1}= Banked energy brought forward from the $(n-1)^{th}$ Month.

BE^n = Sum of energy scheduled for banking in all the 15-minute time blocks of the n^{th} month (96 x no. of days).

WE^n = Sum of energy scheduled for withdrawal in all the 15-minute time blocks of the n^{th} month (96 x no. of days).

BC^n = Banking charges in energy terms levied in the n^{th} month.

viii) Banking charges shall be levied on energy banked in each 15-minute time block, determined at consumption end i.e. after accounting for losses. Banking charges, in energy terms shall be 8% for Wind, Solar and Hybrid RE comprising Wind and Solar energy and 12% for all other Captive Generating Plants and shall be levied at the time of withdrawal.

Banking charges have been revised in line with the Green Energy Open Access Rules notified by the MoP, Government of India.

ix) Settlement of wheeled energy at consumer end shall be in the following order of priority:

a) Captive Generation after deduction of losses.

b) Banked Energy

c) Open Access Power through Exchange / Bi-lateral transactions

d) Discom power

This clarification has been provided to avoid any ambiguity in the settlement process.

x) The treatment for the banked energy, remaining balance as on the date of the notification of these Regulations, shall be done as per the provisions of the UPERC (Captive and Renewable Energy Generating Plants) Regulations, 2019;

Provided that the remaining balance banked energy as on the date of the notification of these Regulations may be utilized by 30th September 2025, failing which such unutilized banked energy shall stand lapsed, and no compensation whatsoever shall be claimed/ paid for such lapsed banked energy.

2. Tables of financial and operational parameters for different generating stations for the control period 2024-29

Table- A: Captive Power Plants (Non-RE)				
Particulars	**Principle**	**Projects prior to 2005**	**Projects 2009-14**	**Projects 2014-19**
Capital Cost (Rs. Lakhs/MW)		350	450	520
Capital Cost Escalation	Simple Escalation annually	-	3%	3%
Debt-Equity Ratio (%)		70:30	70:30	70:30
Debt Repayment Period (years)		-	-	12
Interest on debt (%)		Debt repaid	Debt repaid	10.65%
ROE (%)		15%	15%	15%
Depreciation (%)		completed	7.00% (for 1st 10 years)	5.83% (for 1st 12 years)
O&M Expenditure	Rs Lakhs/MW	25.05	23.77	20.80
O&M Escalation (%)	Annual Escalation	5.25%	5.25%	5.25%
Coal Cost	Cost for months	0.5	0.5	0.5
Oil Cost	Cost for months	2	2	2
O&M Expenditure	Cost for months	1	1	1
Receivables	Cost for months	1.5	1.5	1.5
Spares for O&M	% of O&M cost	20%	20%	20%
Interest on WC (%)		11.90%	11.90%	11.90%
PLF (%)	For cost recovery	85%	85%	85%
Aux consumption (%)		9.5%	9.5%	9.5%
Cost of Coal (Rs/MT)		2528.08	2528.08	2528.08
Cost of oil (Rs/kl)		64739.06	64739.06	64739.06
Fuel escalation (%)	Annual Escalation	3.45	3.45	3.45
SHR (kCal/kWh)		2890	2890	2890
GCV - Coal (kCal/kg)		3657.37	3657.37	3657.37
GCV - Oil (kCal/kl)		9532.68	9532.68	9532.68
Specific oil consumption (ml/kWh)		0.75	0.75	0.75

Table- B: Bagasse based Cogeneration Generating Plants				
Particulars	**Principle**	**Projects 2005-09**	**Projects 2009-14**	**Projects 2014-19**
Fixed cost				
Capital Cost (Rs. Lakhs/MW)		350	400	461
Capital Cost Escalation (%)	Simple Escalation annually	3%	3%	3%
Debt-Equity Ratio (%)		70:30	70:30	70:30
Debt Repayment Period (years)		10	10	12
Interest on debt (%)		10.65%	10.65%	10.65%
ROE (%)	Pre-Tax	14%	14%	14%
Depreciation (%)		Debt repaid	Debt repaid	5.83% (for 1st 12 years)
O&M Expenditure	%/Rs Lakhs/MW	22.67	25.35	22.12
O&M Escalation (%)	Annual Escalation	5.25%	5.25%	5.25%
Working Capital computations				
Fuel Cost	Cost for months	4	4	4
O&M Expenditure	Cost for months	1	1	1
Receivables	Cost for months	1.5	1.5	1.5
Spares for O&M	% of O&M cost	15%	15%	15%
Interest on WC (%)		11.90%	11.90%	11.90%
Variable Cost				
PLF (%)	For cost recovery	50%	50%	50%
Aux consumption (%)		8.5%	8.5%	8.5%
Cost of fuel (Rs/MT)		1729	1729	1729
Fuel escalation (%)	Annual Escalation	3%	3%	3%
SHR (kcal/kWh)		3600	3400	3400
GCV – fuel (kcal/kg)		2250	2250	2250

Table- C: Biomass-based Generating Plants		
Particulars	**Principle**	**Projects 2009-14**
Fixed cost		
Capital Cost (Rs. Lakhs/MW)		413
Capital Cost Escalation (%)	Simple Escalation annually	3%
Debt-Equity Ratio (%)		70:30
Debt Repayment Period (years)		10
Interest on debt (%)		10.65%
ROE (%)	Pre-Tax	14%
Depreciation (%)		7.00% (for 1st 10 years)
O&M Expenditure	%/Rs Lakhs/MW	58.73
O&M Escalation (%)	Annual Escalation	5.25%
Fuel Cost	Cost for months	4
O&M Expenditure	Cost for months	1
Receivables	Cost for months	1.5
Spares for O&M	% of O&M cost	15%
Interest on WC (%)		11.90%
PLF (%)	For cost recovery	80%
Aux consumption (%)		10%
Cost of fuel (Rs/MT)		4149
Fuel escalation (%)	Annual Escalation	3.45%
SHR (kcal/kWh)		4200
GCV – fuel (kcal/kg)		3200

Table- D: Municipal Waste to Energy based Generating Plants		
Particulars	**Principle**	**Projects 2014-19**
Capital Cost (Rs. Lakhs/MW)		750
Capital Cost Escalation (%)	Simple Escalation annually	3%
Debt-Equity Ratio (%)		70:30
Debt Repayment Period (years)		12
Interest on debt (%)		10.65%
ROE (%)	Pre-Tax	14%
Depreciation (%)		5.83% (for 1st 12 years)
O&M Expenditure	%/Rs Lakhs/MW	55.99
O&M Escalation (%)	Annual Escalation	5.25%
Fuel Cost	Cost for months	4
O&M Expenditure	Cost for months	1
Receivables	Cost for months	1.5
Spares for O&M	% of O&M cost	15%
Interest on WC (%)		11.90%
PLF (%)	For cost recovery	75%
Aux consumption (%)		11.5%
Cost of fuel (Rs/MT)		2224
Fuel escalation (%)	Annual Escalation	3.45%
SHR (kcal/kWh)		4000
GCV – fuel (kcal/kg)		2250

Table- E: Small Hydroelectric Plants		
Particulars	**Principle**	**Projects (Commissioned in FY 2005-09)**
Capital Cost (Rs. Lakhs/MW)		450
Capital Cost Escalation (%)	Simple Escalation annually	3%
Debt-Equity Ratio (%)		70:30
Debt Repayment Period (years)		10
Interest on debt (%)		10.65%
ROE (%)	Pre-Tax	15%
Depreciation (%)		7.00% (for 1st 10 years)
O&M Expenditure	Rs Lakhs/MW	24.93
O&M Escalation (%)	Annual Escalation	5.25%
O&M Expenditure	Cost for months	1
Receivables	Cost for months	1.5
Spares for O&M	% of O&M cost	15%
Interest on WC (%)		11.90%
CUF (%)	For cost recovery	35%
Aux consumption (%)		1%

Annexure-A

1. Captive (Non-RE) Generating Plant

1.1. Hindalco Industries Ltd

1.2. Grasim Industries

1.3. Abhinav steel

2. Bagasse Based Captive Generating and others.

2.1. Akbarpur Chini Mills Ltd., (BCML), Akbarpur, Ambedkar Nagar

2.2. Balrampur Chini Mills Ltd., Gonda (Babhnan)

2.3. DCM Sriram Consolidated Ltd., Ajbapur, Lakhimpur

2.4. L.H. Sugar Factories Ltd., PILLIBHIT

2.5. Mankapur Chini Mills Ltd.,

2.6. Rauzagaon Chini Mills Ltd., (BCML), Rauzagaon, Dist- Faizabad

2.7. Triveni Engg. & Industries Ltd

2.8. Triveni Engg. & Industries Ltd., Khatauli, Muzaffarnagar

2.9. Kumbhi Sugar Mills Ltd.,

2.10. Gularia Chini Mills Ltd., Gularia, Golagokarannath, Lakhimpur Kheri

2.11. Wave Ind. & Engg. Ltd.,

2.12. Mawana Sugar Ltd., Meerut

2.13. Mawana Sugar Ltd., Naglamal

2.14. Mawana Sugar Ltd., Titawi

2.15. Simbholi Sugar Ltd., Hapur

2.16. Simbholi Sugar Ltd., Bahraich (Chilwaria)

2.17. Tikaula Sugar Ltd.,

2.18. Avadh Sugar Ltd., (Oudh) Sitapur Hargoan

2.19. Rana Sugar Miis Ltd. Rampur Karimganj

2.20. Rana Sugar Miis Ltd. Belwara Moradbad

2.21. Rana Sugar Miis Ltd. Bilari

2.22. Uttam Sugar Mills, Ltd. Barkatpur, Bijnor

2.23. Uttam Sugar Mills, Ltd. Shermau, Saharanpur

2.24. Uttam Sugar Mills, Ltd. Khaikheri, Muzaffarnagar

2.25. DCM Sriram Consolidated Ltd, Hariawan, Hardoi

2.26. DCM Sriram Consolidated Ltd, Loni, Hardoi

2.27. Continental Carbon India Ltd.

2.28. SBEC Bioenergy Ltd.

2.29. Bajaj Hindustan Ltd., Gangnaquli

2.30. Bajaj Hindustan Ltd., Barkhera

2.31. Bajaj Hindustan Ltd., Khambakhera

2.32. Bajaj Hindustan Ltd., Maqsoodapur

2.33. Bajaj Hindustan Ltd., Thanabhawn

2.34. Bajaj Hindustan Ltd., Bilai

2.35. Bajaj Hindustan Ltd., Paliaklan

2.36. Bajaj Hindustan Ltd., Kinauni

2.37. Bajaj Hindustan Ltd., Utraula

2.38. Bajaj Hindustan Ltd., Budhana

2.39. Bajaj Hindustan Ltd., Kundrakhi

2.40. Dhampur Sugar Mills Ltd., Sambhal, Asmoli, Dhampur

2.41. Dhampur Sugar Mills Ltd., Bijnor

2.42. Dhampur Sugar Mills Ltd., Rajpura, Sambhal

2.43. Parle Biscuits Pvt. Ltd. (Sugar Dn.),

2.44. DCM Sriram Industries Ltd.,

2.45. Yedu Sugars Ltd.,

2.46. Dhampur Sugar Mills Ltd., Ba

2.47. Dhampur Sugar Mills Ltd., Muzaffarnagar, Mansoorpur

2.48. Novel Sugar, Barkhera, Pilibhit (formerly known as M/s Bajaj Sugar Ltd.)

2.49. Kesar Enterprises Ltd., Baheri, Bareilly

2.50. New India Sugar Mills., (Awadh Sugar)

2.51. Upper Ganges Sugar & Industries Ltd.

2.52. Triveni Engg. & Industries Ltd., Chandanpur, Dist- Amroha

2.53. Triveni Engg. & Industries Ltd., Sabitgarh, Dist- Bulandsahar

2.54. SKIBIPL (Unit-Hi-Tech)

2.55. K.M. Sugar

2.56. Dalmia Chini Mills Ltd., Jawaharpur

2.57. Dalmia Chini Mills Ltd., Ramgarh

2.58. Dwarikesh Sugar Ind. Ltd., Dwarikesh Nagar, Nagina, Bijnor

2.59. Dwarikesh Sugar Ind. Ltd., Dwarikesh Puram, Afzalgarh, Dhampur, Bijnor

2.60. Dwarikesh Sugar Ind. Ltd., Dwarikesh Dham, Faridpur, Bareilly

2.61. Gobind Sugar Mills Ltd.

2.62. Superior Food Grain, Shamli

2.63. Kisan Sahkari Chini Mill Azamgarh

2.64. The Seksaria Biswan sugar

2.65. UP state sugar mill Mohiuddinpur Meerut

2.66. Dalmia Chini Mills Ltd., Nigohi

2.67. Tikaula Sugar Mills

2.68. DSCL Sugar mills Ltd

2.69. Oswal Overseas Limited

2.70. Ramala Sahakari Chinni Mills

2.71. UP State Sugar Mill, Pipraich

2.72. UP State Sugar Mill, Munderwa

2.73. Oswal Overseas Limited

2.74. BalramPur Chinni Mills Ltd, Mejapur

2.75. Govind Sugar Pvt Ltd

2.76. Daya Sugar Pvt Ltd

2.77. BalramPur Chinni Mills Ltd, Tulsipur

3. Biomass Generating Plant

3.1. Sukhbir Agro Energy Ltd.

3.2. India Glycols Ltd.

3.3. Gallant Ispat Limited

4. MSW Based Generating Plant

4.1. Accord Hydro (SWM) Barabanki

5. Small Hydro Generating Plant

5.1. Sitala Jal Vidyut Grah, Jhansi