



## **Uttar Pradesh Electricity Regulatory Commission**

NOTIFICATION No.: UPERC/Secy/Generation Regulations, 2014/1620  
Lucknow, Dated: 16.12.2014

In exercise of powers conferred under Section 181 read with Section 61 of the Electricity Act, 2003, and all other powers enabling in this behalf, the Uttar Pradesh Electricity Regulatory Commission hereby makes the following regulations, namely:

### **CHAPTER 1**

#### **GENERAL**

##### **1. Short title and commencement :**

- (1) These regulations may be called the Uttar Pradesh Electricity Regulatory Commission (Terms and Conditions of Generation Tariff) Regulations, 2014.
- (2) These regulations shall be reckoned to have come into force with effect from 01.04.2014 and unless reviewed earlier or extended by the Commission, shall remain in force for 5 years, up to 31.03.2019.
- (3) Words and expressions used in these regulations and not defined herein but defined in the Act shall have the meaning assigned to them under the Act.

##### **2. Scope and extent of application:**

- (1) These regulations shall apply in all cases where tariff for a generating station or a unit thereof required to be determined by the Commission under Section 62 of the Act read with Section 86 thereof.
- (2) These regulations shall not apply for determination of tariff in case of the following:
  - (a) Generating station whose tariff has been discovered through tariff based competitive bidding in accordance with the guidelines issued by the Central Government and adopted by the Commission under Section 63 of the Act;



- (b) Generating station based on renewable sources of energy whose tariff is determined in accordance with the UPERC (Captive and Non-Conventional Energy Generating Plants) Regulations, 2009 as amended from time to time or any subsequent enactment;
- (3) The generating company may adopt Clean Development Mechanism, for generating stations approved and commissioned on or after 1.4.2014, and the proceeds of carbon credit from approved CDM project shall be shared in the following manner, namely
- (a) 100% of the gross proceeds on account of CDM to be retained by the project developer in the first year after the date of commercial operation of the generating station;
  - (b) In the second year, the share of the beneficiaries shall be 10% which shall be progressively increased by 10% every year till it reaches 50%, where after the proceeds shall be shared in equal proportion, by the generating company and the beneficiaries.
- (4) In case of any conflict between provisions of these regulations and a power purchase agreement signed between a generating company and distribution licensee(s)/beneficiary (ies), the provisions of these regulations shall prevail.
- Provided that in case of projects where parameters have been agreed to in the Power Purchase Agreement or determined through an earlier Regulation prior to 1.4.2014, for any hardship due to discrepancy/inconsistency with parameters given in these Regulations, the Commission may be approached and parameters in such cases may be determined by the Commission at the time of tariff determination of respective generating station.
- (5) Availability Based Tariff (ABT) in the State of Uttar Pradesh shall be implemented as per Orders passed by Uttar Pradesh Electricity Regulatory Commission read with orders of Central Electricity Regulatory Commission.
- (6) Yearly energy audits for each generating unit defined for a generating station shall be compulsory under Section 61(c) of the Act read with schedule of the Energy Conservation Act 2001, clause 5.9 of the National Electricity Policy and Clause 8(b) of Power Policy 2003 of GoUP. The energy audit result shall be declared in Form-1 and in the manner provided under the Energy Conservation (the form and manner for submission of report on the status of energy consumption by the designated consumers) Rules, 2007.
- (7) The generating company shall submit performance report to the Commission under Section 10(3) (a) of the Act in the format given in Appendix I to these regulations.



(8) The generating plant, under Section 10(3)(b) of the Act, shall co-ordinate with the State Transmission Utility for transmission of electricity generated by it according to the provisions made in the Grid Code.

(9) The generating company shall abide by obligations cast on it by order of the Central/State Government issued from time to time in respect to promotion of the Renewable Energy Sources.

(10) The Generating Plant/Company shall abide by the provisions of the Act, Rules, Codes, Regulations, Orders and Directions of the appropriate Authority/Commission issued from time to time regarding generation and evacuation of electricity.

### **3. Norms to be ceiling norms:**

The norms specified under these regulations are the ceiling norms and this shall not preclude the generating company and distribution licensee or any other person, as the case may be, from agreeing to improved norms of operation. In case the improved norms are agreed to, such norms shall be applicable for determination of tariff.

### **4. Tariff determination:**

(1) Tariff in respect of a generating station under these regulations shall be determined stage-wise, unit-wise or for the whole generating station, as the case may be. However on completion of projects the tariff may be decided for the whole station.

(2) For the purpose of tariff, the capital cost of the project shall be broken up into stages and by distinct units (in case part of units are functional) forming part of the generating station. Where the stage-wise, unit-wise, breakup of the capital cost is not available and in case of on-going projects, the common facilities shall be apportioned on the basis of the installed capacity of the units. In relation to multi-purpose hydroelectric generating stations, with irrigation, flood control and power components, the capital cost chargeable to the power component of the generating station shall only be considered for determination of tariff. 'Project' as said above shall include a generating station.

### **5. Application for determination of tariff :**

(1) The generating company shall make an application for fixation of tariff in respect of the completed units of the generating station in such forms and such manners as prescribed in this regulation and Uttar Pradesh Electricity Regulatory Commission (Conduct of Business) Regulations 2004 as amended from time to time.



Provided that the applications for determination of tariff shall be filed covering the period for which the terms and conditions of tariff shall remain in force.

(2) In case of the existing generating station, the generating company shall make an application for determination of tariff as per Appendix II to these regulations.

(3) In case of a generating station declared under commercial operation on or after the date of commencement of this regulation, an application for fixation of tariff shall be made as per Appendix II to these regulations, for determination of provisional tariff within 180 days of the anticipated date of commercial operation based on the capital expenditure actually incurred up to the date of making of the application or a date prior to making of the application, duly audited and certified by the statutory auditors, and the provisional tariff shall be charged from the date of commercial operation of the respective unit of the generating station.

A generating company shall make a fresh application as per Appendix II to these regulations, for determination of final tariff based on actual capital expenditure incurred up to the date of commercial operation of the generating station, duly audited and certified by the statutory auditors.

Provided further that over or under recovery of charges by the generating company on account of provisional tariff shall be subject to retrospective adjustment on the basis of final tariff determined by the Commission. The generating company, 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 beneficiary (ies), for the period the provisional tariff remained effective, within six months of determination of final tariff, along with simple interest calculated at rate equal to Bank Rate as on 1st April of the relevant year.

(4) Where application for determination of tariff of an existing or a new project has been filed before the Commission in accordance with clauses (2) and (3) of this regulation, the Commission may consider in its discretion to grant provisional tariff up to 95% of the annual fixed cost of the project claimed in the application subject to adjustment as per proviso to clause (3) of this regulation after the final tariff order has been issued.

Provided that recovery of capacity charge and energy charge, as the case may be, in respect of the existing or new project for which provisional tariff has been granted shall be made in accordance with the relevant provisions of these regulations.

## **6. Truing up of Capital Expenditure and Tariff :**

(1) The Commission shall carry out truing up exercise along with the tariff petition filed for the next tariff period, with respect to the capital expenditure



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including additional capital expenditure incurred up to 31.3.2019, as admitted by the Commission after prudence check at the time of truing up.

(2) The generating company shall make an application, as per Appendix II to these regulations, for carrying out truing up exercise in respect of the generating station or any of its units or block of units thereof by 31.10.2019.

(3) The generating company shall submit for the purpose of truing up, details of capital expenditure and additional capital expenditure incurred duly audited and certified by the auditors.

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

(4) The Commission shall also carry out truing up of tariff of generating stations based on the performance of following controllable parameters:

- (a) Gross Station Heat Rate;
- (b) Secondary Fuel Oil Consumption;
- (c) Auxiliary Energy Consumption; and
- (d) Re-financing of Loan.

(5) The Commission shall carry out truing up of tariff of generating stations based on the performance of following uncontrollable parameters:

- (a) Force Majeure;
- (b) Change in Law; and
- (c) Primary Fuel Cost

(6) The financial gains by a generating company on account of controllable parameters shall be shared between generating company and the beneficiaries. The financial gains computed as per following formulae in case of generating station on account of operational parameters contained in Clause (4) (a) to (c) above shall be shared in the ratio of 80:20 between generating company and the beneficiaries:

$$\text{Net Gain} = (\text{ECR}_N - \text{ECR}_A) \times \text{Scheduled Generation}$$

Where,

$\text{ECR}_N$  – Normative Energy Charge Rate computed on the basis of norms specified/approved for Gross Station Heat Rate, Auxiliary Consumption and Secondary Fuel Oil Consumption.



ECR<sub>A</sub> – Actual Energy Charge Rate computed on the basis of actual Gross Station Heat Rate, Auxiliary Consumption and Secondary Fuel Oil Consumption for the month.

Provided that in case of financial gains on account of parameters contained in Clause (4)(d) above shall be shared in accordance with Clause (i) (e) of Regulation 25 & Regulation 44 of these regulations.

(7) The financial gains and losses by a generating company on account of uncontrollable parameters shall be passed on to beneficiaries of the generating company.

(8) Where after the truing up the tariff recovered exceeds the tariff approved by, the Commission under these regulations the generating company shall refund to the beneficiaries, the excess amount so recovered along with simple interest at the rate equal to the Bank Rate prevailing as on 1st April of the respective Year.

(9) Where after the truing up the tariff recovered is less than the tariff approved by the Commission under these regulations the generating company shall recover from the beneficiaries, the under-recovered amount along with simple interest at the rate equal to the Bank Rate, prevailing as on 1st April of the respective Year.

(10) The amount under-recovered or over-recovered, along with simple interest at the rate equal to the Bank Rate as on 1st April of the respective Year, shall be recovered or refunded by the, generating company, in six equal monthly installments starting within three months from the date of the tariff order issued by the Commission after the truing up exercise.

## **7. Date of Commercial Operation:**

The date of commercial operation of a generating station or unit or block thereof shall be determined as under:

(1) Date of commercial operation in case of a generating unit or block of the thermal generating station shall mean the date declared by the generating company after demonstrating the maximum continuous rating (MCR) or the installed capacity (IC) through a successful trial run after notice to the beneficiaries, if any, and in case of the generating station as a whole, the date of commercial operation of the last generating unit or block of the generating station:

Provided that

(i) Where the beneficiaries have been tied up for purchasing power from the generating station, the trial run shall commence after seven days' notice by the generating company to the beneficiaries and scheduling shall commence from 0000 hr after completion of the trial run;



(ii) The generating company shall certify to the effect that the generating station meets the key provisions of the technical standards of Central Electricity Authority (Technical Standards for Construction of Electrical plants and electric lines) Regulations, 2010 and the Grid Code;

(iii) The certificate shall be signed by CMD/CEO/MD of the company subsequent to its approval by the Board of Directors and a copy of the certificate shall be submitted to the SLDC before declaration of COD.

(2) Date of commercial operation in relation to a generating unit of hydro generating station including pumped storage hydro generating station shall mean the date declared by the generating company from 0000 hour after the scheduling process in accordance with the Grid Code is fully implemented, and in relation to the generating station as a whole, the date declared by the generating company after demonstrating peaking capability corresponding to installed capacity of the generating station through a successful trial run:

Provided that

(i) Where beneficiaries have been tied up for purchasing power from generating station, scheduling process for a generating unit of the generating station or demonstration of peaking capability corresponding to installed capacity of the generating station through a successful trial run shall commence after seven days' notice by the generating company to the beneficiaries and scheduling shall commence from 0000 hr after completion of trial run;

(ii) The generating company shall certify to the effect that the generating station meets key provisions of the technical standards of Central Electricity Authority (Technical Standards for Construction of Electrical plants and electric lines) Regulations, 2010 and the Grid code;

(iii) The certificate shall be signed by CMD/CEO/MD of the company subsequent to its approval by the Board of Directors and a copy of the certificate shall be submitted to the SLDC before declaration of COD.

(iv) In case a hydro generating station with pondage or storage is not able to demonstrate peaking capability corresponding to the installed capacity for the reasons of insufficient reservoir or pond level, the date of commercial operation of the last unit of the generating station shall be considered as the date of commercial operation of the generating station as a whole, and it will be mandatory for such hydro generating station to demonstrate peaking capability equivalent to installed capacity of the generating unit or the generating station as and when such reservoir/pond level is achieved;

(v) If a run-of-river hydro generating station or a generating unit thereof is declared under commercial operation during lean inflows period when the water inflow is insufficient for such demonstration of peaking capability, it shall be



mandatory for such hydro generating station or generating unit to demonstrate peaking capability equivalent to installed capacity as and when sufficient water inflow is available.

(3) Trial Run in relation to generating station or unit thereof shall mean the successful running of the generating station or unit thereof at maximum continuous rating or installed capacity for continuous period of 72 hours in case of a thermal generating station or unit thereof and 12 hours in case of a hydro generating station or unit thereof:

Provided that where beneficiaries have been tied up for purchasing power from the generating station, the trial run shall commence after giving seven days' notice by the generating company.

## **8. Core Business :**

For the purpose of these regulations, core business means the regulated activities of generation of electricity and does not include any other business or activity, like consultancy, of the generating company.

## **9. Tax on Income :**

(1) Tax on the income streams of the generating company from its core business, shall be computed as an expense and shall be permitted to be recovered from beneficiaries. Any income stream other than the core business shall not constitute a pass through component in tariff and tax on such other income shall be payable by the generating company.

Provided that the generating station-wise profit before tax of the generating company, as estimated for a year in advance, shall constitute the basis for distribution of the corporate tax liability to all the generating stations.

Provided also that the benefits of tax-holiday as applicable in accordance with the provisions of the Income-Tax Act, 1961 shall be passed on to the beneficiaries.

Provided further that income-tax allocated to the thermal generating station shall be recovered in the same proportion as annual fixed charges, the income-tax allocated to the hydro generating station shall be recovered in the same proportion as annual capacity charges.

(2) Notwithstanding anything contained in sub-regulation (1), total income tax payable to generating company, in any year, shall not be higher than the amount of:

(a) Return on Equity allowed in that year X Minimum Alternative Tax (%), if company is paying such tax in any relevant year; or



(b) Return on Equity allowed in that year X Corporate Tax (%), if company is paying such tax in any relevant year.

However any income tax incidental due to payment of income tax in any preceding year shall be paid by the beneficiaries in subsequent year in addition to income tax at (a) & (b) above.

(3) Any under-recoveries or over-recoveries of tax on income shall be adjusted every year on the basis of income-tax assessment under the Income-Tax Act, 1961, as certified by the statutory auditors.

#### **10. Tax Escrow Account :**

There shall be an account, in a scheduled bank called Tax Escrow Account to be maintained by the licensee or any person, hereinafter referred to as beneficiary, who has purchased the capacity from a generating station. Such licensee shall maintain in this account a deposit equivalent to two months tax liability as informed to them by the generating company prior to commencement of the Year.

The generating company shall be authorized to withdraw the amount for settling the tax liability on presentation to the Escrow holder, a certificate from companies Statutory Auditor, that such amounts are immediately due to be paid to the tax authorities. Such generating companies shall pay back any refund received from tax authority to such Tax Escrow Account.

#### **11. Extra Rupee Liability:**

Extra rupee liability towards interest payment and loan repayment corresponding to the normative foreign debt or actual foreign debt, as the case may be, in the relevant year shall be permissible provided it directly arises out of Foreign Exchange Rate Variation and is not attributable to the generating company or its suppliers or contractors. Every generating company shall recover Foreign Exchange Rate Variation on a year to year basis as income or expense in the period in which it arises and Foreign Exchange Rate Variation shall be adjusted on a year to year basis.

#### **12. Recovery of Income-tax and foreign exchange rate variation:**

Recovery of Income-tax and Foreign Exchange Rate Variation shall be done directly by the generating company from the beneficiaries without making any application before the Commission.

Provided that in case of any objections by the beneficiaries to the amounts claimed on account of income-tax or Foreign Exchange Rate Variation, the generating company may make an appropriate application before the Commission for its decision.



### **13. Deviation from norms:**

(1) Tariff for sale of electricity by a generating company may also be determined in deviation of the norms specified in these regulations subject to the conditions that:

- (a) The levelised tariff of electricity over the useful life of the project, calculated on the basis of the norms in deviation does not exceed the per unit tariff calculated on the basis of the norms specified in these regulations and upon submission of complete workings with assumptions to be provided by the generator at the time of filing of the application; and
- (b) Any such deviation shall come into effect only after approval by the Commission.

**Explanation:** For the purpose of calculating the levelised tariff referred to in sub clause (a) of clause (1), the discounting factor shall be as notified by the CERC from time to time.

### **14. Power to Remove Difficulties:**

If any difficulty arises in giving effect to these regulations, the Commission may, of its own motion or otherwise, by an order and after giving a reasonable opportunity to those likely to be affected by such order, make such provisions, not inconsistent with these regulations, as may appear to be necessary for removing the difficulty.

### **15. Power to Relax:**

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



## CHAPTER 2

### Thermal Power Generating Stations

#### 16. Definitions:

Unless the context otherwise requires, for the purpose of this chapter,

(1) **'Act'** means the Electricity Act, 2003 as amended from time to time. The UP Electricity Reforms Act- 1999, so far not being inconsistent with the Act-2003, shall apply;

(2) **'Additional Capitalization'** means the capital expenditure incurred, or projected to be incurred after the date of commercial operation of the project and admitted by the Commission after prudence check, in accordance with provisions of Regulation 22 of these regulations;

(3) **'Auditor'** means an auditor appointed by a generating company in accordance with the provisions of sections 224, 233B and 619 of the Companies Act, 1956 (1 of 1956)], as amended from time to time or Chapter X of the Companies Act, 2013 (18 of 2013) or any other law for the time being in force;

(4) **'Authority'** means Central Electricity Authority referred to in Section 70 of the Act;

(5) **'Auxiliary Energy Consumption'** or 'AUX' in relation to a period in case of a generating station means the quantum of energy consumed by auxiliary equipment of the generating station, such as the equipment being used for the purpose of operating plant and machinery including switchyard of the generating station and the transformer losses within the generating station, expressed as a percentage of the sum of gross energy generated at the generator terminals of all the units of the generating station:

Provided that auxiliary energy consumption shall not include energy consumed for supply of power to housing colony and other facilities at the generating station and the power consumed for construction works at the generating station;

(6) **'Availability'** in relation to a thermal generating station for any period means the average of the daily average declared capacities (DCs) for all the days during that period expressed as a percentage of the installed capacity of the generating station minus normative auxiliary consumption in MW, and shall be computed in accordance with the following formula:



$$\text{Availability (\%)} = \frac{10000 \times \sum_{i=1}^N DC_i}{\{ N \times IC \times (100 - AUX_n) \}} \%$$

Where,

IC = Installed Capacity of the generating station in MW,

DC<sub>i</sub> = Average declared capacity for the i<sup>th</sup> day of the period in MW,

N = Number of days during the period, and

AUX<sub>n</sub> = Normative Auxiliary Energy Consumption as a percentage of gross generation;

(7) **'Bank Rate'** means the base rate of interest as specified by the State Bank of India from time to time or any replacement thereof for the time being in effect plus 350 basis points;

(8) **'Beneficiary'** in relation to a generating station covered under clauses (a) and (b) of sub-section 1 of Section 86 of the Act, means a distribution licensee who is purchasing electricity generated at such generating station through a Power Purchase Agreement either directly or through a trading licensee on payment of fixed charges and by scheduling in accordance with the Grid Code:

Provided that where the distribution licensee is procuring power through a trading licensee, the arrangement should be secured through back to back power purchase agreement and power sale agreement:

(9) **'Block'** in relation to a combined cycle thermal generating station includes combustion turbine – generator(s), associated waste heat recovery boiler(s), connected steam turbine – generator and auxiliaries;

(10) **'Change in law'** means occurrence of any of the following events:

(a) the enactment, bringing into effect, adoption, promulgation, amendment, modification or repeal of any law; or

(b) change in interpretation of any law by a competent court, Tribunal or Indian Governmental Instrumentality which is the final authority under law for such interpretation;

(c) change by any competent statutory authority, in any consent, approval or license available or obtained for the project; or

(d) coming into force or change in any bilateral or multilateral agreement/treaty between the Government of India and any other Sovereign Government having implication for the generating station regulated under these regulations.



- (11) **'Commission'** means the Uttar Pradesh Electricity Regulatory Commission referred to in Section 82 of the Act;
- (12) **'Cutoff Date'** means the date of first financial year closing after two years of the date of commercial operation of whole or part of the project, and in case the whole or part of the project is declared under commercial operation in the last quarter of a year, the cutoff date shall be 31st March of the year closing after three years of the year of commercial operation;
- (13) **'Date of Commercial Operation'** or 'COD' shall have the same meaning as defined in Regulation 7 of these regulations;
- (14) **'Day'** means a calendar day consisting of 24 hours period starting at 0000 hour;
- (15) **'Declared Capacity'** or 'DC' means the capability of the generating station to deliver ex-bus electricity in MW declared by such generating station in relation to any period of the day or whole of the day, duly taking into account the availability of fuel;
- (16) **'Existing Project'** means a project declared under commercial operation from a date prior to 1.4.2014;
- (17) **'Expenditure incurred'** means the fund, whether the equity or debt or both, actually deployed and paid in cash or cash equivalent, for creation or acquisition of a useful asset and does not include commitments or liabilities for which no payment has been released;
- (18) **'Extended Life'** means the life of a generating station or unit thereof beyond the period of useful life, as may be determined by the Commission on case to case basis;
- (19) **'Force Majeure'** for the purpose of these regulations means the event or circumstance or combination of events or circumstances including those stated below which partly or fully prevents the generating company to complete the project within the time specified in the Investment Approval, and only if such events or circumstances are not within the control the generating company and could not have been avoided, had the generating company taken reasonable care or complied with prudent utility practices:
- (a) Act of God including lightning, drought, fire and explosion, earthquake, volcanic eruption, landslide, flood, cyclone, typhoon, tornado, geological surprises, or exceptionally adverse weather conditions which are in excess of the statistical measures for the last hundred years; or



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- (b) Any act of war, invasion, armed conflict or act of foreign enemy, blockade, embargo, revolution, riot, insurrection, terrorist or military action; or
- (c) Industry wide strikes and labour disturbances having a nationwide impact in India;
- (20) **‘Generating Station’** means any station for generating electricity, including any building and plant with step-up transformer, switch-gear, switch yard, cables or other appurtenant equipment, if any, used for that purpose and the site thereof; a site intended to be used for a generating station, and any building used for housing the operating staff of a generating station but does not in any case include any sub-station;
- (21) **‘Generating Unit’** in relation to a thermal generating station (other than combined cycle thermal generating station) means steam generator, turbine-generator and auxiliaries, or in relation to a combined cycle thermal generating station, means turbine generator and auxiliaries;
- (22) **‘Grid Code’** means the UP Electricity Grid Code 2007 as amended from time to time or subsequent re-enactment thereof;
- (23) **‘Gross Calorific Value’** or ‘GCV’ in relation to a thermal power generating station means the heat produced in kCal by complete combustion of one kilogram of solid fuel or one litre of liquid fuel as the case may be;
- (24) **‘Gross Station Heat Rate’** or ‘GSHR’ means the heat energy input in kCal required to generate one kWh of electrical energy at generator terminals;
- (25) **‘Infirm Power’** means electricity generated for injection into the grid prior to commercial operation of the unit of a generating station;
- (26) **‘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) as approved by the Commission from time to time;
- (27) **‘Implementation Agreement’** means the agreement, contract or memorandum of understanding, or any such covenant, entered into between transmission licensee and generating station for the execution of project in coordinated manner;
- (28) **‘Investment Approval’** means approval by the Board of the generating company or any other competent authority conveying administrative sanction for the project including funding of the project and the timeline for the implementation of the project.



Provided that the date of Investment Approval shall reckon from the date of the resolution/minutes of the Board/approval by competent authority.

(29) **'Kilowatt-Hour'** or 'kWh' means a unit of electrical energy, measured in one kilowatt or one thousand watts of power produced or consumed over a period of one hour;

(30) **'Maximum Continuous Rating'** or 'MCR' in relation to a unit of the thermal power generating station means the maximum continuous output at the generator terminals, guaranteed by the manufacturer at rated parameters, and in relation to a unit or block of a combined cycle thermal power generating station means the maximum continuous output at the generator terminals, guaranteed by the manufacturer with water/steam injection (if applicable) and corrected to 50 Hz grid frequency and specified site conditions;

(31) **'New Project'** means the project achieving COD or anticipated to be achieving COD on or after 1.4.2014;

(32) **'Operation and Maintenance Expenses'** or 'O&M Expenses' means the expenditure incurred on operation and maintenance of the generating station, including part thereof, and includes the expenditure on manpower, repairs, spares, consumables, insurance and overheads;

(33) **'Original Project Cost'** means the capital expenditure incurred by the generating company within the original scope of the project up to the cut-off date as admitted by the Commission;

(34) **'Plant Load Factor'** or 'PLF' for a given period, means the total sent out energy corresponding to scheduled generation during the period, expressed as a percentage of sent out energy corresponding to installed capacity in that period and shall be computed in accordance with the following formula:

**N**

$$\text{PLF}(\%) = 10000 \times \sum_{i=1}^N \text{SG}_i / \{ N \times \text{IC} \times (100 - \text{AUX}_n) \} \%$$

**i=1**

where,

IC = Installed Capacity of the generating station in MW,

SG<sub>i</sub>= Scheduled Generation in MW for the <sup>i</sup><sup>th</sup> time block of the period,

N = Number of time blocks during the period, and

AUX<sub>n</sub>= Normative Auxiliary Energy Consumption as a percentage of gross generation;



(35) **'Project'** means a generating station and in case of a thermal generating station does not include mining if it is a pit head project and dedicated captive coal mine;

(36) **'Prudence Check'** means scrutiny of reasonableness of capital expenditure incurred, financing plan, use of efficient technology, cost and time over-run and such other factors as may be considered appropriate by the Commission for determination of tariff. While carrying out the Prudence Check, the Commission shall look into whether the generating company has been careful in its judgments and decisions for executing the project or has been careful and vigilant in executing the project;

(37) **'Scheduled Commercial Operation Date or SCOD'** shall mean the date(s) of commercial operation of a generating station or generating unit or block thereof as indicated in the Investment Approval or as agreed in power purchase agreement whichever is earlier;

(38) **'Scheduled Generation'** or 'SG' at any time or for any period or time block means schedule of generation in MW ex-bus given by the State Load Despatch Centre;

(39) **'Start Date or Zero Date'** means the date indicated in the Investment Approval for commencement of implementation of the project and where no date has been indicated, the date of investment approval shall be deemed to be Start Date or Zero Date;

(40) **'Thermal Generating Station'** means a generating station or a unit thereof that generates electricity using fossil fuels such as coal, gas, liquid fuel or combination of these as its primary source of energy;

(41) **'Trial Run'** or **'Trial Operation'** in relation to a generating station shall have the same meaning as specified in Regulation 7 of these regulations;

(42) **'Unit'** in relation to a thermal power generating station means steam generator, turbine-generator and auxiliaries, or in relation to a combined cycle thermal power generating station, means turbine-generator and auxiliaries;

(43) **'Useful life'** in relation to a unit of a coal/lignite based generating station from the COD shall be for 25 years

(44) **'Year'** means a financial year starting from 1st April of a year to 31st March of the next year.



## **17. Components of Tariff:**

(1) Tariff for sale of electricity from a thermal power generating station shall comprise of two parts, namely, the recovery of annual capacity (fixed) charges and energy (variable) charges.

(2) The annual capacity (fixed) charges shall consist of:

- (a) Interest on loan capital;
- (b) Depreciation;
- (c) Return on equity;
- (d) Operation and maintenance expenses including insurance; and
- (e) Interest on working capital:

Provided that special allowance in lieu of R&M where opted in accordance to Regulation 22(5) and/or separate compensation allowance in accordance to Regulation 25(iv)(d), wherever applicable shall be recovered separately and shall not be considered for computation of working capital.

(3) The energy (variable) charges shall be derived on the basis of landed fuel cost (LFC) of a generating station and shall constitute the following cost:

- (a) Landed fuel cost of primary fuel; and
- (b) Cost of secondary fuel oil consumption:

Provided that any refund of taxes and duties along with any amount received on account of penalties from fuel supplier shall have to be adjusted in fuel cost.

(4) For the purpose of determination of tariff the landed fuel cost of primary and secondary fuel shall be based on actual weighted average cost of primary fuel and secondary fuel of the three preceding months, and in the absence of landed costs for the three preceding months, latest procurement price of primary fuel and secondary fuel for the generating station, before the start of the tariff period for existing stations and immediately preceding three months in case of new generating stations shall be taken into account.

## **18. Norms of Operation:**

(i) **Target Availability(NAPAF) for recovery of full Capacity (Fixed) charges**

- (a) All thermal power generating stations, except those covered under clause (b) below - 85%

Provided that in view of shortage of coal and uncertainty of assured coal supply on sustained basis experienced by the generating stations, the



target availability for recovery of fixed charges may be reduced to 83% based on the submissions made by the generating station and approval of the Commission.

(b)

S. No.	Power Station	2014-19
(i)	Obra-A	70
(ii)	Obra-B	80
(iii)	Panki TPS	70
(iv)	Harduaganj TPS	65
(v)	Parichha	75

Figures in %

**Note -1**

Recovery of capacity (fixed) charges below the level of target availability shall be on *pro rata* basis. At zero availability, no capacity charges shall be payable.

**Note-2**

In case of non-availability of unit(s) due to Renovation and Modernization or deletion of capacity or deration of capacity, the effective capacity left after discounting capacity of such unit(s), shall be considered for the purpose of calculation of plant availability.

**Note-3**

In case of thermal backing instruction, the capacity(fixed) charges shall be payable on the basis of availability.

**(ii) Target Plant Load Factor for Incentive**

(a) All thermal power generating stations, except those covered under clause (b)below - 85%

(b)

S. No.	Power Station	2014-19
(i)	Obra-A	65
(ii)	Obra-B	75
(iii)	Panki TPS	65
(iv)	Harduaganj TPS	60
(v)	Parichha	70

Figures in %



**(iii) Gross Station Heat Rate**

(a) In case of coal-based thermal power generating station achieving COD before 1.4.2014, and coal-based thermal power generating stations other than those covered under clause (b) below:

<b>Upto 50 MW Sets</b>	<b>200/210/250/300/330/ 350 MW Sets</b>	<b>500 MW and above Sets</b>
2890 kCal/kWh	2475kCal/kWh	2410 kCal/kWh

**Note 1**

In respect of 500 MW and above units where the boiler feed pumps are electrically operated, the gross station heat rate shall be 40kCal/kWh lower than that indicated above.

**Note 2**

For the generating stations having combination of 200/210/250/300/330/350 MW sets and 500 MW and above sets, the normative gross station heat rate shall be the weighted average gross station heat rate of the combinations.

(b)

S.No.	Power Station	2014-19
(i)	Obra-A	2890
(ii)	Obra-B	2755
(iii)	Panki TPS	2980
(iv)	Harduaganj TPS	3150
(v)	Parichha	2980

(Figures in kCal/Kwh)

(c) In case of new coal-based thermal power generating station achieving COD on or after 1.4.2014

Gross Station Heat Rate = 1.045 X Design Heat Rate (kCal/kWh)

Where the Design Heat Rate of a generating unit means the unit heat rate guaranteed by the supplier at conditions of 100% MCR, zero percent make up, design coal and design cooling water temperature/back pressure.

Provided that the design heat rate shall not exceed the following maximum design unit heat rates depending upon the pressure and temperature ratings of the units:



<b>Pressure Rating (Kg/cm<sup>2</sup>)</b>	<b>150</b>	<b>170</b>	<b>170</b>	<b>247</b>
SHT/RHT (°C)	535/535	537/537	537/565	565/593
Type of BFP	Electrical Driven	Turbine Driven	Turbine Driven	Turbine Driven
Max Turbine Heat Rate (kCal/kWh)	1955	1950	1935	1850
Min. Boiler Efficiency				
Sub-Bituminous Indian Coal	0.86	0.86	0.86	0.86
Bituminous Imported Coal	0.89	0.89	0.89	0.89
<b>Max Design Unit Heat Rate (kCal/kWh)</b>				
Sub bituminous Indian Coal	2273	2267	2250	2151
Bituminous Imported Coal	2197	2191	2174	2078

Provided further that in case pressure and temperature parameters of a unit are different from above ratings, the maximum design unit heat rate of the nearest class shall be taken;

Provided also that where unit heat rate has not been guaranteed but turbine cycle heat rate and boiler efficiency are guaranteed separately by the same supplier or different suppliers, the unit design heat rate shall be arrived at by using guaranteed turbine cycle heat rate and boiler efficiency;

Provided also that where the boiler efficiency is below 86% for Sub-bituminous Indian coal and 89% for bituminous imported coal, the same shall be considered as 86% and 89% respectively for Sub-bituminous Indian coal and bituminous imported coal for computation of station heat rate;

Provided also that maximum turbine cycle heat rate shall be adjusted for type of dry cooling system;

Provided also that if one or more generating units were declared under commercial operation prior to 1.4.2014, the heat rate norms for those generating units as well as generating units declared under commercial operation on or after 1.4.2014 shall be lower of the heat rate norms arrived at by above methodology and the norms as per the Regulation 18(iii) (a).



**Note**

In respect of generating units where the boiler feed pumps are electrically operated, the maximum design unit heat rate shall be 40 kCal/kWh lower than the maximum design unit heat rate specified above with turbine driven BFP.

**(iv) Secondary fuel oil consumption**

(a) Coal-based generating stations except those covered under sub-clause (b) below:

Generating stations upto 100 MW - 1 ml/kWh

Other generating stations - 0.75 ml/kWh

(b)

S. No.	Power Station	2014-19
(i)	Obra-A	3.2
(ii)	Obra-B	2.1
(iii)	Panki TPS	2.1
(iv)	Harduaganj TPS	3.7
(v)	Parichha	2.6

Figures in ml/kWh

**(v) Auxiliary Energy Consumption**

(a) Coal-based generating stations except those covered under sub-clause (b) below:

		With Natural Draft cooling tower or without cooling tower
(i)	Upto 100 MW series	
	Steam driven boiler feed pumps	9.5%
	Electrically driven boiler feed pumps	10.0%
(ii)	200/300/330/350 MW series	
	Steam driven boiler feed pumps	6.0%
	Electrically driven boiler feed pumps	8.5%
(iii)	500 MW and above	
	Steam driven boiler feed pumps	5.25%
	Electrically driven boiler feed pumps	7.75%



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Provided further that for thermal generating stations with induced draft cooling towers, the norms shall be further increased by 0.5%:

Provided further that for thermal generating stations upto 50 MW on CFBC technology, the norms shall be further increased by 1%:

Provided also that Additional Auxiliary Energy Consumption as follows may be allowed for plants with Dry Cooling Systems:

Type of Dry Cooling System	(% of gross generation )
Direct cooling air cooled condensers with mechanical draft fans	1%
Indirect cooling system employing jet condensers with pressure recovery turbine and natural draft tower	0.5%

(b)

S. No.	Power Station	2014-19
(i)	Obra-A	10.0
(ii)	Obra-B	9.7
(iii)	Panki TPS	9.8
(iv)	Harduaganj TPS	10.5
(v)	Parichha	10.7

(Figures in %)

### **19. Capital Cost:**

(1) Subject to prudence check by the Commission, the actual expenditure incurred on completion of the project shall form the basis for determination of final tariff for new and existing projects.

(2) The final tariff for a new project shall be determined based on the admitted capital cost which shall include:

- (a) the expenditure actually incurred up to the date of commercial operation of the project;
- (b) Interest during construction and financing charges, on the loans (i) being equal to 70% of the funds deployed, in the event of the actual equity in excess of 30% of the funds deployed, by treating the excess equity as normative loan, or (ii) being equal to the actual amount of loan in the event of the actual equity less than 30% of the funds deployed;



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- (c) Increase in cost in contract packages as approved by the Commission
- (d) Interest during construction and incidental expenditure during construction as computed in accordance with Regulation 20 of these regulations;
- (e) Capitalised initial spares subject to ceiling norms of 4% (as a percentage of the Plant and Machinery cost) for coal/lignite based generating stations upto cut-off date (excluding IDC, IEDC, Land Cost and cost of civil works);

Provided where the benchmark norms for initial spares have been published as part of the benchmark norms for capital cost by the Central Electricity Regulatory Commission and are adopted by the Commission for prudence check, such norms shall apply to the exclusion of the norms specified above:

Provided where the generating station has any transmission equipment forming part of the generation project, the ceiling norms for initial spares for such equipment shall be as per the ceiling norms specified by the Commission for transmission system from time to time.

- (f) Expenditure on account of additional capitalization and de-capitalisation determined in accordance with Regulation 22 of these regulations; and
- (g) Adjustment of revenue due to sale of infirm power in excess of fuel cost prior to the COD as specified under Regulation 23 of these regulations.

Provided that for all MoU route projects who are under PPA, the agreed ceiling capital cost between the generating company and the beneficiary shall be brought to the Commission for approval and the approved cost shall be a part of PPA. The actual capital cost, if it is equal to the approved ceiling capital cost, shall form the basis for prudence check and determination of tariff by the Commission. If the actual cost is lower, then the lower cost would be taken and if it is higher, then the additional cost would first be verified and agreed between the generating company and the beneficiary then shall be taken up by the Commission for consideration and approval.

(3) The final tariff for an existing project shall be determined based on the admitted capital cost which shall include:

- (a) the capital cost admitted by the Commission prior to 1.4.2014 duly tried up by excluding liability, if any, as on 1.4.2014;



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- (b) additional capitalization and de-capitalization for the respective year of tariff as determined in accordance with Regulation 22; and
- (c) expenditure on account of renovation and modernization as admitted by this Commission in accordance with Regulation 22.

(4) The capital cost w.r.t. a thermal generating station incurred on account of the Perform, Achieve and Trade (PAT) scheme of Government of India will be considered by the Commission on case to case basis and shall include:

- (a) Cost of plan proposed by developer in conformity with norms of PAT Scheme; and
- (b) The expected benefits accrued on account of PAT Scheme.

Provided that if the generator gets any revenue from sale of Energy Efficiency Certificates for operating above the bench mark fixed under the PAT scheme, the benefit may be shared in the ratio of 50:50 between the generator and the beneficiary.

Provided further that in case of the under achievement of the bench mark fixed by PAT, the generator shall solely bear the burden arising out of purchase of Energy Efficiency Certificates for compliance with the targets set under the PAT.

(5) The following shall be excluded or removed from the capital cost of the existing and new projects:

- (a) The assets forming part of the project, but not in use;
- (b) Decapitalisation of Asset;
- (c) The proportionate cost of land which is being used for generating power from generating station based on renewable energy:

Provided that any grant received from the Central or State Government or any statutory body or authority for the execution of the project which does not carry any liability of repayment shall be excluded from the Capital Cost for the purpose of computation of interest on loan, return on equity and depreciation.

(6) Prudence Check of Capital Expenditure: The following principles shall be adopted for prudence check of capital cost of the existing or new projects:

- (a) In case of the thermal generating station, prudence check of capital cost may be carried out taking into consideration the benchmark norms specified/to be specified by the Central Electricity Regulatory Commission from time to time:
- (b) Provided that in cases where benchmark norms have not been specified, prudence check may include scrutiny of the capital



expenditure, financing plan, interest during construction, incidental expenditure during construction for its reasonableness, use of efficient technology, cost over-run and time over-run, competitive bidding for procurement and such other matters as may be considered appropriate by the Commission for determination of tariff:

- (c) Provided further that in cases where benchmark norms have been specified, the generating company shall submit the reasons for exceeding the capital cost from benchmark norms to the satisfaction of the Commission for allowing cost above benchmark norms.
- (d) The Commission may issue new guidelines or adopt the guidelines prescribed by the Central Electricity Regulatory Commission for vetting of capital cost of projects by an independent agency or an expert and in that event the capital cost as vetted by such agency or expert may be considered by the Commission while determining the tariff for the generating station.
- (e) The Commission may issue new guidelines or adopt the guidelines prescribed by the Central Electricity Regulatory Commission for scrutiny and approval of commissioning schedule of the projects which shall be considered for prudence check.
- (f) Where the power purchase agreement entered into between the generating company and the beneficiaries provides for ceiling of actual capital expenditure, the Commission shall take into consideration such ceiling for determination of tariff for prudence check of capital cost.

## **20. Interest during Construction (IDC), Incidental Expenditure during Construction (IEDC):**

### **(a) Interest During Construction :**

(1) Interest during construction shall be computed corresponding to the loan from the date of infusion of debt fund, and after taking into account the prudent phasing of funds upto SCOD.

(2) In case of additional costs on account of IDC due to delay in achieving the SCOD, the generating company shall be required to furnish detailed justifications with supporting documents for such delay including prudent phasing of funds:

Provided that if the delay is not attributable to the generating company and is due to uncontrollable factors as specified in Regulation 21 of these regulations, IDC may be allowed after due prudence check:



Provided further that only IDC on actual loan may be allowed beyond the SCOD, to the extent the delay is found beyond the control of generating company after due prudence and taking into account prudent phasing of funds.

**(b) Incidental Expenditure During Construction :**

(1) Incidental expenditure during construction shall be computed from the zero date and after taking into account pre-operative expenses upto SCOD:

Provided that any revenue earned during construction period up to SCOD on account of interest on deposits or advances, or any other receipts may be taken into account for reduction in incidental expenditure during construction.

(2) In case of additional costs on account of IEDC due to delay in achieving the SCOD, the generating company shall be required to furnish detailed justification with supporting documents for such delay including the details of incidental expenditure during the period of delay and liquidated damages recovered or recoverable corresponding to the delay:

Provided that if the delay is not attributable to the generating company and is due to uncontrollable factors as specified in Regulation 21 of these regulations, IEDC may be allowed after due prudence check:

Provided further that where the delay is attributable to an agency or contractor or supplier engaged by the generating company the liquidated damages recovered from such agency or contractor or supplier shall be taken into account for computation of capital cost.

**21. Controllable and Uncontrollable factors :**

The following shall be considered as controllable and uncontrollable factors leading to cost escalation impacting Contract Prices, IDC and IEDC of the project:

- (1) The "controllable factors" shall include but shall not be limited to the following:
  - (a) Variations in capital expenditure on account of time and/or cost overruns on account of land acquisition issues;
  - (b) Efficiency in the implementation of the project not involving approved change in scope of such project, change in statutory levies or force majeure events; and
  - (c) Delay in execution of the project on account of contractor, supplier or agency of the generating company.



(2) The “uncontrollable factors” shall include but shall not be limited to the following:

- (a) Force Majeure events.; and
- (b) Change in law.

Provided that no additional impact of time overrun or cost over-run shall be allowed on account of non-commissioning of the generating system or associated transmission system by SCOD, as the same should be recovered through Implementation Agreement between the generating company and the transmission licensee:

Provided further that if the generating station is not commissioned on the SCOD of the associated transmission system, the generating company shall bear the IDC or transmission charges if the transmission system is declared under commercial operation;

Provided also that if the transmission system is not commissioned on SCOD of the generating station, the transmission licensee shall arrange the evacuation from the generating station at its own arrangement and cost till the associated transmission system is commissioned.

## **22. Additional capitalization:**

(1) The following capital expenditure in respect of a new project or an existing project within the original scope of work actually incurred after the date of commercial operation and up to the cutoff date may be admitted by the Commission, subject to prudence check:

- (i) Deferred liabilities;
- (ii) Works deferred for execution;
- (iii) Procurement of initial capital spares in the original scope of work, subject to ceiling specified in Regulation 19;
- (iv) Liabilities to meet award of arbitration or for compliance of the order or decree of a court; and
- (v) On account of change in law.

Provided that original scope of work along with estimates of expenditure shall be submitted along with the application for provisional tariff.

Provided further that a list of the deferred liabilities and works deferred for execution shall be submitted along with the application for final tariff after the date of commercial operation of the generating station.



(2) Subject to the provisions of clause (3) of this regulation, the capital expenditure of the following nature for new or existing projects actually incurred after the cutoff date may be admitted by the Commission, subject to prudence check:

- (i) Liabilities to meet award of arbitration or for compliance of the order or decree of a court;
- (ii) On account of change in law;
- (iii) Any expenses to be incurred on account of need for higher security and safety of the plant as advised or directed by appropriate Government Agencies of statutory authorities responsible for national security/internal security;
- (iv) Deferred works relating to ash pond or ash handling system in the original scope of work.
- (v) Deferred liabilities relating to works/services within the original scope of work;
- (vi) Any additional works/services which have become necessary for efficient and successful operation of the generating station, but not included in the original project cost. The claim shall be substantiated with the technical justification duly supported by the documentary evidence like test results carried out by an independent agency in case of deterioration of assets, report of an independent agency in case of damage caused by natural calamities, obsolescence of technology, up-gradation of capacity for the technical reason such as increase in fault level; and
- (vii) Any capital expenditure found justified after prudence check necessitated on account of modifications required or done in fuel receiving system arising due to non-materialization of coal supply corresponding to full coal linkage in respect of thermal generating station as result of circumstances not within the control of the generating station:

(3) Any expenditure on minor items/assets like normal tools and tackles, personal computers, furniture, air-conditioners, voltage stabilizers, refrigerators, fans, coolers, TV, washing machines, heat-convectors, carpets, mattresses etc. brought after the cutoff date shall not be considered for additional capitalisation for determination of tariff. The said items are illustrated and may include any other similar items:



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Provided further that any capital expenditure other than that of the nature specified above in (2) (i) to (iv) in case of coal/lignite based station shall be met out of compensation allowance:

Provided also that if any expenditure has been claimed under Renovation and Modernisation (R&M), repairs and maintenance under (O&M) expenses and Compensation Allowance, same expenditure cannot be claimed under this regulation.

(4) In case of de-capitalisation of assets of a generating company the original cost of such asset as on the date of de-capitalisation shall be deducted from the value of gross fixed asset and corresponding loan as well as equity shall be deducted from outstanding loan and the equity respectively in the year such de-capitalisation takes place, duly taking into consideration the year in which it was capitalised.

(5) Renovation and Modernization (R&M)

(i)

(a) The generating company, for meeting the expenditure on renovation and modernization(R&M) for the purpose of extension of life beyond the useful life of the generating station or a unit thereof, shall make an application before the Commission for approval of the proposal with a Detailed Project Report giving complete scope, justification, cost-benefit analysis, estimated life extension from a reference date, financial package, phasing of expenditure, schedule of completion, reference price level, estimated completion cost including foreign exchange component, if any, record of consultation with beneficiaries and any other information considered to be relevant by the generating company.

Provided that in case of coal-based thermal generating station, the generating company, may, in its discretion, avail of a "special allowance" in accordance with the norms specified in clause (d), as compensation for meeting the requirement of expenses including renovation and modernization beyond the useful life of the generating station or a unit thereof, and in such an event revision of the capital cost shall not be considered and the applicable operational norms shall not be relaxed but the special allowance shall be included in the annual fixed cost.

Provided also that such option shall not be available for a generating station or unit for which renovation and modernization has been undertaken and the expenditure has been admitted by the Commission before commencement of these regulations, or for a generating station or unit which is in a depleted condition and operating under relaxed operational and performance norms.



- (b) Where the generating company makes an application for approval of its proposal for renovation and modernization, the approval shall be granted after due consideration of reasonableness of the cost estimates, financing plan, schedule of completion, interest during construction, use of efficient technology, cost-benefit analysis, and such other factors as may be considered relevant by the Commission.
- (c) Any expenditure incurred or projected to be incurred and admitted by the Commission after prudence check based on the estimates of renovation and modernization expenditure and life extension, and after deducting the accumulated depreciation already recovered from the original project cost, shall form the basis for determination of tariff.
- (d) A generating company, on opting for the alternative in the first proviso to clause (a) of this regulation, for a coal-based thermal generating station, shall be allowed special allowance @ Rs. 7.5lakh/MW/year in 2014-15 and thereafter escalated @ 6.35% every year during the tariff period 2014-19, unit-wise from the next Year from the respective date of the completion of useful life with reference to the date of commercial operation of the respective unit of generating station:
- Provided that in respect of a unit in commercial operation for more than 25 years as on 1.4.2014, this allowance shall also be admissible from the year 2014-15.
- (e) In the event of granting special allowance by the Commission, the expenditure incurred or utilized from special allowance shall be maintained separately by the generating station and details of same shall be made available to the Commission as and when directed to furnish details of such expenditure.
- (ii) The provisions of sub regulation (i) shall apply provided the generating company shall ensure to plan R&M of at least one unit of each generating station every year for life extension and improvement in performance, wherever due, after due techno economic studies and approval from the Commission to facilitate R&M or phase out.
- (iii) Any expenditure admitted by the Commission for determination of tariff on R&M and life extension shall be serviced on normative debt-equity ratio specified in Regulation 24 after writing off the original amount of the replaced assets from the original project cost. The generating company, for the purpose of R&M and life extension of the plant, shall be guided by the guide lines issued by the Commission from time to time.
- (6) Impact of additional capitalisation in tariff revision may be considered by the Commission each year in a tariff period, including revision of tariff after the cutoff date.



**Note 1:**

Any expenditure admitted on account of committed liabilities within the original scope of work and the expenditure deferred on techno-economic grounds but falling within the original scope of work shall be serviced in the normative debt-equity ratio specified in Regulation 24.

**Note 2:**

Any expenditure on replacement of old assets shall be considered after writing off the gross value of the original assets from the original project cost, except such items as are listed in clause (3) of this regulation.

**Note 3:**

Any expenditure admitted by the Commission for determination of tariff on account of new works not in the original scope of work shall be serviced in the normative debt-equity ratio specified in Regulation 24.

(7) Cost on implementation of ABT shall be allowed as additional capital expenditure in tariff.

**23. Sale of Infirm Power :**

Supply of infirm power shall be accounted and paid for as per the UI mechanism of the state, as prescribed by the Commission from time to time:

Provided also that the startup power drawn by the generating station from the grid shall be adjusted with ex-bus energy and such energy shall be billed to its beneficiaries in the proportion of contracted capacities.

**24. Debt-Equity Ratio:**

(1) In case of all generating stations, debt-equity ratio as on the date of commercial operation shall be 70:30 for determination of tariff. Where equity employed is more than 30%, the amount of equity for determination of tariff shall be limited to 30% and the balance amount shall be considered as the normative loan.

Provided that

(i) In case of a generating station where actual equity employed is less than 30%, the actual debt and equity shall be considered for determination of tariff;

(ii) The equity invested in foreign currency shall be designated in Indian rupees on the date of each investment; and

(iii) Any grant obtained for the execution of the project shall not be considered as a part of capital structure for the purpose of debt-equity ratio.



(2) The debt and equity amount arrived at in accordance with clause (1) shall be used for calculating interest on loan, return on equity, and Foreign Exchange Rate Variation.

(3) Any expenditure incurred or projected to be incurred on or after 1.4.2014 as may be admitted by the Commission as additional capital expenditure for determination of tariff, and renovation and modernisation expenditure for life extension shall be serviced in the manner specified in clause (1) of this regulation.

## **25. Computation of Capacity (Fixed) Charge:**

The capacity charges shall be computed on the following basis and their recovery shall be related to target availability in case of all existing as well as new generating stations.

Provided full capacity charges shall be recoverable at target availability specified in Regulation 18. Recovery of capacity (fixed) charges below the level of target availability shall be on *pro rata* basis. At zero availability, no capacity charges shall be payable.

Provided the payment of capacity charges shall be on monthly basis in proportion to the allocated capacity.

### **(i) Interest on loan capital**

- (a) Interest on loan capital shall be computed loan wise on the loans arrived at in the manner indicated in Regulation 24.
- (b) The loan outstanding as on 1<sup>st</sup> April 2014 shall be worked out as the gross loan as per Regulation 24 minus cumulative repayment as admitted by the Commission up to 31<sup>st</sup> March 2013. The repayment for any year during the Tariff Period shall be deemed to be equal to the depreciation allowed for that Year.

In case of decapitalisation of assets, the repayment shall be adjusted by taking into account cumulative repayment on a pro rata basis and the adjustment should not exceed cumulative depreciation recovered upto the date of decapitalisation of such asset.

- (c) The rate of the interest shall be the weighted average rate of interest calculated on the basis of actual loans at the beginning of each year and shall be adjusted based on actual loan each year accordingly.
- (d) If there is no actual loan for a particular year but normative loan is still outstanding, the last available weighted average of interest shall be considered.



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- (e) The generating company shall make every effort to re-finance the loan as long as it results in net benefit to the beneficiaries. The costs associated with such re-financing shall be borne by the beneficiaries and the net savings shall be shared between the beneficiaries and the generating company in the ratio of 2:1. The above facts shall be certified by statutory auditor.
- (f) The changes to the loan terms and conditions shall be reflected from the date of such re-financing and benefit passed on to the beneficiaries.
- (g) In case of any dispute, any of the parties may approach the Commission with proper application. However, the beneficiaries shall not withhold any payment as ordered by the Commission to the generating company during pendency of any dispute relating to re-financing of loan.
- (h) In case any moratorium period is availed of by the generating company, depreciation provided for in the tariff during the years of moratorium shall be treated as repayment during those years and interest on loan capital shall be calculated accordingly.
- (i) The generating company shall not make any profit on account of re-financing of loan and interest on loan.
- (j) In case, the generating company has contracted floating/variable rate of interest on loan resetting at certain interval of time the impact of change in rate of interest shall be assessed by the generating company on account of such resetting duly certified by statutory auditor and the capacity charge of the relevant year shall be adjusted for such impact and billed accordingly to beneficiary without approaching the Commission for change in tariff on this account.

Provided if the generating company does not have actual loan or have re-financed the loan resulting in no specific loan attributable to the generating station then the weighted average rate of interest of the generating company as a whole shall be considered.

Provided also in case of dispute, any party to such dispute may approach the Commission with proper application and it shall be ensured that the payment to the generating company is not withheld during pendency of the dispute.



**(ii) Depreciation :**

For the purpose of tariff, depreciation shall be computed in the following manner, namely:

- (a) Depreciation shall be computed from the date of commercial operation of a generating station or unit thereof. In case of the tariff of all the units of a generating station for which a single tariff needs to be determined, the depreciation shall be computed from the effective date of commercial operation of the generating station taking into consideration the depreciation of individual units or elements thereof.

Provided that effective date of commercial operation shall be worked out by considering the actual date of commercial operation and installed capacity of all the units of the generating station for which single tariff needs to be determined.

- (b) In case of multiple units of a generating station weighted average life for the generating station shall be applied. Depreciation shall be chargeable from the first year of operation. In case of operation of the asset for part of the year, depreciation shall be charged on pro rata basis.
- (c) The value base for the purpose of depreciation shall be the historical cost of the asset.

Provided that the historical capital cost of the asset shall include additional capitalization on account of Foreign Exchange Rate Variation up to 31.3.2014 already allowed by the Government /Commission.

- (d) The residual life of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the historical capital cost of the asset. Land other than the land held under lease shall not be a depreciable asset and its cost shall be excluded from the capital cost while computing depreciable value of asset.
- (e) In case of new projects, depreciation shall be calculated annually, based on straight line method over the useful life of the asset and at the rates prescribed in Appendix III to these regulations.

Provided that the remaining depreciable value as on 31st March of the year closing after a period of 12 years from the effective date of commercial operation of the station shall be spread over the balance useful life of the assets.



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Provided also that any depreciation disallowed on account of lower availability of the generating station shall not be allowed to be recovered at a later stage during the useful life and the extended life.

- (f) In case of the existing projects, the balance depreciable value as on 1.4.2014 shall be worked out by deducting the cumulative depreciation including Advance Against Depreciation as admitted by the Commission upto 31.3.2014 from the gross depreciable value of the assets. The rate of depreciation shall be continued to be charged at the rate specified in Appendix III till cumulative depreciation reaches 70%. Thereafter the remaining depreciable value shall be spread over the remaining life of the asset such that the maximum depreciation does not exceed 90%.

Provided also that any depreciation disallowed on account of lower availability of the generating station shall not be allowed to be recovered at a later stage during the useful life and the extended life.

- (g) The generating company shall submit the details of proposed capital expenditure during the fag end of the project (five years before the useful life) along with justification and proposed life extension. The Commission based on prudence check of such submissions shall approve the depreciation on capital expenditure during the fag end of the project.
- (h) In case of de-capitalization of assets in respect of generating station or unit thereof the cumulative depreciation shall be adjusted by taking into account the depreciation recovered in tariff by the decapitalized asset during its useful services.

### (iii) **Return on Equity:**

Return on equity shall be computed in rupee terms on the equity base determined in accordance with Regulation 24@ 15.5% per annum;

Provided that in case of projects commissioned on or after 1st April, 2014, if such projects are completed within the timeline specified in Appendix IV an additional return of 0.5%, shall be allowed;

Provided further that additional return shall not be admissible if the project is not completed within the timeline specified above for reasons whatsoever;

Provided that the rate of return of a new project shall be reduced by upto 1% for such period as maybe decided by the Commission, if the generating station is found to be declared under commercial operation without commissioning of any of the Restricted Governor Mode Operation



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(RGMO)/Free Governor Mode Operation (FGMO), data telemetry, communication system up to load dispatch centre or protection system;

Provided also that as and when any of the above requirements are found lacking in an existing generating station based on the report submitted by the SLDC, RoE may be reduced by upto 1% for such period as may be decided by the Commission;

**Explanation:** The premium raised by the generating company while issuing share capital and investment of internal resources created out of free reserve of the generating company, if any, for the funding of the project, shall also be reckoned as paid up capital for the purpose of computing return on equity, provided such premium amount and internal resources are actually utilized for meeting the capital expenditure of the generating station and forms part of the approved financial package.

**(iv) Operation and Maintenance expenses :**

(a) Coal-based generating stations except for those at (b) below:

Year	Upto 200/210/250 MW sets	300/330/350 MW sets	500 MW sets	600 MW & above sets
2014-15	23.90	19.95	16.00	14.40
2015-16	25.40	21.21	17.01	15.31
2016-17	27.00	22.54	18.08	16.27
2017-18	28.70	23.96	19.22	17.30
2018-19	30.51	25.47	20.43	18.38

(Rs. in lakh/MW)

(b) Obra A, Obra B, Panki, Parichha and Harduaganj Power Stations:

Year	Obra-A	Obra-B	Panki	Harduaganj	Parichha
2014-15	46.23	23.90	54.94	53.28	31.91
2015-16	48.16	25.40	57.24	55.51	33.24
2016-17	50.15	27.00	59.61	57.80	34.61
2017-18	52.20	28.70	62.04	60.17	36.03
2018-19	54.31	30.51	64.55	62.60	37.48

(Rs. in lakh/MW)



**Note**

(i) For the generating stations having combination of 200/210/250/300/330//500/600/660 MW and above sets, the weighted average value for operation and maintenance expenses shall be adopted.

(ii) Operation & Maintenance expenses, specified above or the actual expenditure, whichever less, shall be allowed in a particular year. Provided further that in case of partial utilisation of expenditure, unutilised amount may be allowed to meet the increased requirement of Operation & Maintenance expenditure in subsequent years.

(c) The expenses on regulatory fee, payment to pollution control board, impact of pay revision, capital spares, cost of water and water cess shall be paid additionally at actuals subject to prudence check. The details regarding the same shall be furnished along with the petition;

Provided that the generating station shall submit the details of year wise actual capital spares consumed at the time of truing up with appropriate justification for incurring the same and substantiating that the same is not funded through compensatory allowance or special allowance or claimed as a part of additional capitalisation or consumption of stores and spares and renovation and modernization.

(d) In case of coal-based thermal generating station a separate compensation allowance unit-wise may be permitted to meet expenses in nature of capital expenditure on replacement of minor assets which are not admissible under Regulation 22 of these regulations, and in such an event, revision of the capital cost shall not be allowed on account of compensation allowance but the compensation allowance shall be allowed to be recovered separately, in the following manner from the year following the year of completion of 10, 15, or 20 years of useful life:

Years of operation	Compensation Allowance
	(Rs lakh/ MW / year)
0-10	Nil
11-15	0.20
16-20	0.50
21-25	1.00



**(v) Interest on Working Capital**

(a) Working capital shall be allowed on a normative basis and for coal based generating stations shall include:

- (i) Cost of coal for 15 days for pit-head generating stations and 30 days for non-pit-head generating stations, corresponding to the target availability;
- (ii) Cost of coal for 30 days for generation corresponding to the target availability
- (iii) Cost of secondary fuel oil for two months corresponding to the target availability and in case of use of more than one secondary fuel oil, cost of fuel oil stock for the main secondary fuel oil;
- (iv) Operation and Maintenance expenses for one month;
- (v) Maintenance spares @ 20% of operation and maintenance expenses; and
- (vi) Receivables equivalent to two months of capacity charges and energy charges for sale of electricity calculated on the target availability.

(b) The cost of fuel in cases covered under sub-clauses (i) and (ii) of clause (a) of this regulation shall be based on the landed cost incurred (taking into account normative transit and handling losses) by the generating company and gross calorific value of the fuel (on 'as received basis' as defined by the Central Electricity Regulatory Commission) for the three months preceding the first month of the period for which tariff is to be determined and no fuel price escalation shall be provided during the tariff period.

(c) Rate of interest on working capital shall be on normative basis and shall be considered as the Bank Rate as on 1.4.2014 or as on 1st April of the year during the tariff period 2014-15 to 2018-19 in which the generating station or a unit thereof is declared under commercial operation, whichever is later.

(d) Interest on working capital shall be payable on normative basis notwithstanding that the generating company has not taken loan for working capital from any outside agency.



## 26. Energy Charges:

### (i) Coal & Lignite fired thermal generating stations

Energy charge rate (ECR) in Rupees per kWh on ex-power plant basis shall be determined to three decimal places in accordance with the following formulae:

$$ECR = \frac{\{(GSHR - SFC \times CVSF) \times LPPF / CVPF + SFC \times LPSFi + LC \times LPL\} \times 100}{(100 - AUX)}$$

Where,

AUX	=	Normative auxiliary energy consumption in percentage.
CVPF	=	(a) Weighted Average Gross calorific value of coal as received, in kCal per kg for coal based stations (b) Weighted Average Gross calorific value of primary fuel as received, in kCal per kg, per litre or per standard cubic meter, as applicable for lignite based stations. (c) In case of blending of fuel from different sources, the weighted average Gross calorific value of primary fuel shall be arrived in proportion to blending ratio.
CVSF	=	Calorific value of secondary fuel, in kCal per ml.
ECR	=	Energy charge rate, in Rupees per kWh sent out.
GSHR	=	Normative gross station heat rate, in kCal per kWh.
LC	=	Normative limestone consumption in kg per kWh.
LPL	=	Weighted average landed price of limestone in Rupees per kg.
LPPF	=	Weighted average landed price of primary fuel, in Rupees per kg during the month. (In case of blending of fuel from different sources, the weighted average landed price of primary fuel shall be arrived in proportion to blending ratio).
SFC	=	Normative Specific fuel oil consumption, in ml per kWh.
LPSFi	=	Weighted Average Landed Price of Secondary Fuel in Rs./ml during the month.



**(ii) Adjustment of rate of energy charge (ECR) on account of variation in price or heat value of fuels**

(a) Initially, Gross Calorific Value of coal or gas or liquid fuel shall be taken (on as received basis) of the preceding three months. Any variation shall be adjusted on month to month basis on the basis of Gross Calorific Value of coal or gas or liquid fuel received and landed cost incurred by the generating company for procurement of coal, oil, or gas or liquid fuel, as the case may be. No separate petition need to be filed with the Commission for fuel price adjustment. In case of any dispute, an appropriate application in accordance with Uttar Pradesh Electricity Regulatory Commission (Conduct of Business) Regulations 2004, as amended from time to time or any statutory re-enactment thereof, shall be made before the Commission.

(b) The generating company shall provide to the beneficiaries of the generating station the details of parameters of GCV and price of fuel i.e. domestic coal, imported coal, e-auction coal, liquid fuel etc., as per the forms prescribed at Appendix II to these regulations;

Provided that the details of blending ratio of the imported coal with domestic coal, proportion of e-auction coal and the weighted average GCV of the fuels as received shall also be provided separately, along with the bills of the respective month;

Provided further that copies of the bills and details of parameters of GCV and price of fuel i.e. domestic coal, imported coal, e-auction coal, lignite, liquid fuel etc., details of blending ratio of the imported coal with domestic coal, proportion of e-auction coal shall also be displayed on the website of the generating company. The details should be available on its website on monthly basis for a period of three months.

**(iii) Landed Cost of Coal**

The landed cost of coal shall include price of coal corresponding to the grade/quality of coal inclusive of royalty, taxes and duties as applicable and transportation cost (by rail/road or any other means) only. And for the purpose of computation of energy charges, quantity of coal shall be arrived at after considering normative transit and handling losses as percentage of the quantity of coal dispatched by the coal supply company during the month as given below:

Pit head generating stations	:	0.2%
Non-Pit head generating stations	:	0.8%



Any other charges incurred by the generating company in handling of coal at generating station shall be deemed to have been included in O&M expenses.

Provided that in case of pit head stations if coal is procured from sources other than the pit head mines which is transported to the station through rail, transit loss of 0.8% shall be applicable;

Provided further that in case of imported coal, the transit and handling losses shall be 0.2%.

**(iv) Cost of alternative coal supply**

In case of part or full use of alternative source of fuel supply by coal based thermal generating stations other than as agreed by the generating company and beneficiaries in their power purchase agreement for supply of contracted power on account of shortage of fuel or optimization of economical operation through blending, the use of alternative source of fuel supply shall be permitted to generating station;

Provided further that the weighted average price of use of alternative source of fuel shall not exceed 30% of base price of fuel computed as per clause (v) of this regulation;

Provided also that where the energy charge rate based on weighted average price of use of fuel including alternative source of fuel exceeds 30% of base energy charge rate as approved by the Commission for that year or energy charge rate based on weighted average price of use of fuel including alternative sources of fuel exceeds 20% of energy charge rate based on weighted average fuel price for the previous month, whichever is lower shall be considered and in that event, prior consent of the beneficiary shall be taken by the generator by serving a notice upon the beneficiary in writing not later than seven working days in advance.

Provided that if the beneficiary does not respond to the notice given by the generator in writing within the above stipulated time, the beneficiary shall be liable for payment of fixed charges to generator.

**Note**

Alternative coal supply from CIL beyond the FSA must be done through e-auction route and for procurement of domestic open market coal and imported coal the generating companies shall follow a transparent competitive bidding process so as to identify a reasonable market price.



**(v) Base energy charge rate**

The Commission through the specific tariff orders to be issued for each generating station shall approve the energy charge rate at the start of the tariff period. The energy charge so approved shall be the base energy charge rate at the start of the tariff period. The base energy charge rate for subsequent years shall be the energy charge computed after escalating the base energy charge rate approved at the start of the tariff period by escalation rates for payment purposes as notified by CERC from time to time for under competitive bidding guidelines.

**27. Incentive:**

Incentive to all power stations, shall be payable at a flat rate of 50 paise/kWh for ex-bus scheduled energy corresponding to scheduled generation in excess of ex-bus energy corresponding to target plant load factor.

**28. Unscheduled Interchange(UI) Charges:**

Variation between actual generation or actual drawl and scheduled generation or scheduled drawl shall be accounted for through Unscheduled Interchange (UI) Charges. UI for a generating station shall be equal to its actual generation minus its scheduled generation. UI for a beneficiary shall be equal to its total actual drawl minus its total scheduled drawl. UI shall be worked out for each 15 minute time block.

Charges for all UI transactions shall be based on average frequency of the time block as notified by CERC from time to time.

**Note**

The average frequency range and UI rates shall be subject to change as notified by the Central Electricity Regulatory Commission from time to time.

**29. Rebate :**

(1) For payment of bills of capacity charges and energy charges through a letter of credit on presentation, or through NEFT/RTGS within a period of 2 days of presentation of bills by the generating company, a rebate of 2% shall be allowed.

(2) Where payments are made on any day after 2 days and within a period of 30 days of presentation of bills by the generating company, a rebate of 1% shall be allowed.



### **30. Late Payment & Default in Payment:**

(1) In case the payment of bills of capacity charges and energy charges by the beneficiary (ies) is delayed beyond a period of 60 days from the date of billing, a late payment surcharge at the rate of 1.25% per month shall be levied by the generating company.

(2) The generating company may approach the Commission, for default in payments for necessary relief including proposal for regulation of supply to the concerned beneficiary, associated with alternative sale potential of such regulated power.

### **31. Scheduling:**

The methodology of scheduling and availability shall be as specified in the Uttar Pradesh Grid Code/IEGC as notified by the Commission from time to time.

### **32. Demonstration of Declared Capability:**

(1) The generating company may be required to demonstrate the declared capability of its generating station as and when asked by the State Load Despatch Centre. In the event of the generating company failing to demonstrate the declared capability, the capacity charges due to the generator shall be reduced as a measure of penalty.

(2) The quantum of penalty for the first mis-declaration for any duration/block in a day shall be the charges corresponding to two days fixed charges. For the second mis-declaration the penalty shall be equivalent to fixed charges for four days and for subsequent mis-declarations, the penalty shall be multiplied in the geometrical progression.

(3) The operating log books of the generating station shall be available for review by the State Load Despatch Centre. These books shall keep record of machine operation and maintenance.

### **33. Metering and Accounting:**

Metering arrangements, including installation, testing and operation and maintenance of meters and collection, transportation and processing of data required for accounting of energy exchanges and average frequency on 15 minute time block basis shall be organized by the State Transmission Utility in consultation with State Load Despatch Centre. All concerned entities (in whose premises the special energy meters are installed), shall fully cooperate with the State Transmission Utility/State Load Despatch Centre and extend the necessary assistance by taking weekly meter readings and transmitting them to the State Load Despatch Centre. The State Load Despatch Centre, on the basis of processed data of meters along with data relating to declared capability and



schedules etc., shall issue the State Accounts for energy on monthly basis as well as UI charges on weekly basis. UI accounting procedures shall be governed by the orders of the Central Electricity Regulatory Commission.

**34. Billing and Payment of Capacity Charges and submission of data:**

Billing and payment of capacity charges shall be done on a monthly basis in the following manner:

- (i) Each beneficiary shall pay the capacity charges in proportion to its percentage share in Installed Capacity of the generating station.

**Note-1**

Allocation of total capacity of State sector generating stations is made by State Government from time to time.

**Note-2**

The beneficiaries may propose surrendering part of their allocated share. In such cases, depending upon the technical feasibility of power transfer and specific agreements reached by the generating company with other States within/outside the state for such transfers, the shares of the beneficiaries may be re-allocated by the State Government for a specific period. When such re-allocations are made, the beneficiaries who surrender the share shall not be liable to pay capacity charges for the surrendered share. The capacity charges for the capacity surrendered and reallocated as above shall be paid by that beneficiary to whom the surrendered capacity is allocated. Except for the period of reallocation of capacity as above, the beneficiaries of the generating station shall continue to pay the full fixed charges as per allocated capacity shares.

- (ii) The beneficiaries shall have full freedom for negotiating any transaction for utilisation of their capacity shares. In such cases, the beneficiary having allocation in the capacity of the generating station shall be liable for full payment of capacity charges and energy charges (including that for sale of power under the transaction negotiated by him) corresponding to his total allocation and schedule respectively.

- (iii) If any capacity remains un-requisitioned during day-to-day operation, the State Load Despatch Centre shall advise all beneficiaries in the state and the other States/Regional Load Despatch Centres so that such capacity may be requisitioned through bilateral arrangements either with the concerned generating company or with the concerned beneficiary(ies) under intimation to the State Load Despatch Centre.



The information regarding un-requisitioned capacity shall also be made available by the other State Load Despatch Centre through their respective websites.

(iv) The total capacity charge payable for a generating station shall be shared by its beneficiaries as per their respective percentage share / allocation in the capacity of the generating station. The capacity charge payable to a thermal generating station for a calendar month shall be calculated in accordance with the following formulae:

$$\begin{aligned} \text{CC1} &= (\text{AFC}/12) (\text{PAF1} / \text{NAPAF}) \text{ subject to ceiling of } (\text{AFC}/12) \\ \text{CC2} &= ((\text{AFC}/6)(\text{PAF2} / \text{NAPAF}) \text{ subject to ceiling of } (\text{AFC}/6)) - \text{CC1} \\ \text{CC3} &= ((\text{AFC}/4) (\text{PAF3} / \text{NAPAF}) \text{ subject to ceiling of } (\text{AFC}/4)) - \text{CC1} + \text{CC2} \\ \text{CC4} &= ((\text{AFC}/3) (\text{PAF4} / \text{NAPAF}) \text{ subject to ceiling of } (\text{AFC}/3)) - \\ &\quad (\text{CC1} + \text{CC2} + \text{CC3}) \\ \text{CC5} &= ((\text{AFC} \times 5/12) (\text{PAF5} / \text{NAPAF}) \text{ subject to ceiling of } (\text{AFC} \times 5/12)) - \\ &\quad (\text{CC1} + \text{CC2} + \text{CC3} + \text{CC4}) \\ \text{CC6} &= ((\text{AFC}/2) (\text{PAF6} / \text{NAPAF}) \text{ subject to ceiling of } (\text{AFC}/2)) - \\ &\quad (\text{CC1} + \text{CC2} + \text{CC3} + \text{CC4} + \text{CC5}) \\ \text{CC7} &= ((\text{AFC} \times 7/12) (\text{PAF7} / \text{NAPAF}) \text{ subject to ceiling of } (\text{AFC} \times 7/12)) - \\ &\quad (\text{CC1} + \text{CC2} + \text{CC3} + \text{CC4} + \text{CC5} + \text{CC6}) \\ \text{CC8} &= ((\text{AFC} \times 2/3) (\text{PAF8} / \text{NAPAF}) \text{ subject to ceiling of } (\text{AFC} \times 2/3)) - \\ &\quad (\text{CC1} + \text{CC2} + \text{CC3} + \text{CC4} + \text{CC5} + \text{CC6} + \text{CC7}) \\ \text{CC9} &= ((\text{AFC} \times 3/4) (\text{PAF9} / \text{NAPAF}) \text{ subject to ceiling of } (\text{AFC} \times 3/4)) - \\ &\quad (\text{CC1} + \text{CC2} + \text{CC3} + \text{CC4} + \text{CC5} + \text{CC6} + \text{CC7} + \text{CC8}) \\ \text{CC10} &= ((\text{AFC} \times 5/6) (\text{PAF10} / \text{NAPAF}) \text{ subject to ceiling of } (\text{AFC} \times 5/6)) - \\ &\quad (\text{CC1} + \text{CC2} + \text{CC3} + \text{CC4} + \text{CC5} + \text{CC6} + \text{CC7} + \text{CC8} + \text{CC9}) \\ \text{CC11} &= ((\text{AFC} \times 11/12) (\text{PAF11} / \text{NAPAF}) \text{ subject to ceiling of } (\text{AFC} \times \\ &\quad 11/12)) - (\text{CC1} + \text{CC2} + \text{CC3} + \text{CC4} + \text{CC5} + \text{CC6} + \text{CC7} + \text{CC8} + \text{CC9} \\ &\quad + \text{CC10}) \\ \text{CC12} &= ((\text{AFC}) (\text{PAFY} / \text{NAPAF}) \text{ subject to ceiling of } (\text{AFC})) - (\text{CC1} + \text{CC2} \\ &\quad + \text{CC3} + \text{CC4} + \text{CC5} + \text{CC6} + \text{CC7} + \text{CC8} + \text{CC9} + \text{CC10} + \text{CC11}) \end{aligned}$$

Provided that in case of generating station or unit thereof or as the case may be, under shutdown due to Renovation and Modernisation, the generating company shall be allowed to recover part of AFC which shall include O&M expenses and interest on loan only.

Where,

AFC Annual fixed cost specified for the year, in Rupees

NAPAF = Normative annual plant availability factor in percentage.



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PAFM = Percent Plant availability factor achieved upto the end of the nth month.

PAFY = Percent Plant availability factor achieved during the Year

CC1, CC2, CC3, CC4, CC5, CC6, CC7, CC8, CC9, CC10, CC11 and CC12 are the Capacity Charges of 1st, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 9th, 10th, 11th and 12th months respectively.

(v) PAFM upto the end of a particular month and PAFY shall be computed in accordance with the following formula:

$$\text{PAFM or PAFY} = 10000 \times \frac{\sum_{i=1}^N \text{DC}_i}{\{N \times \text{IC} \times (100 - \text{AUX})\}} \%$$

Where,

AUX=Normative auxiliary energy consumption in percentage.

DC<sub>i</sub> = Average declared capacity (in ex-bus MW), for the ith day of the period i.e. the month or the year as the case may be, as certified by the concerned load dispatch centre after the day is over.

IC = Installed Capacity (in MW) of the generating station

N= Number of days during the period.

### Note

DC<sub>i</sub> and IC shall exclude the capacity of generating units not declared under commercial operation. In case of a change in IC during the concerned period, its average value shall be taken.

(vi) The Generating Company shall submit data of cost, expenditure and operation as specified in Appendix I to this regulation in the month of September & March of the each year.



## CHAPTER 3

### HYDRO POWER GENERATING STATIONS

#### **35. Definitions:**

Unless the context otherwise requires for the purpose of this chapter,

- (1) **'Act'** means the Electricity Act, 2003;
- (2) **'Additional Capitalisation'** means the capital expenditure actually incurred after the date of commercial operation of the station and admitted by the Commission after prudence check subject to provisions of Regulation 40;
- (3) **'Auditor'** means an auditor appointed by a generating company in accordance with the provisions of sections 224, 233B and 619 of the Companies Act, 1956 (1 of 1956)], as amended from time to time or Chapter X of the Companies Act, 2013 (18 of 2013) or any other law for the time being in force;
- (4) **'Authority'** means Central Electricity Authority referred to in Section 70 of the Act;
- (5) **'Auxiliary Energy Consumption'** in relation to a period in case of a generating station means the quantum of energy consumed by auxiliary equipment of the generating station, such as the equipment being used for the purpose of operating plant and machinery including switchyard of the generating station and the transformer losses within the generating station, expressed as a percentage of the sum of gross energy generated at the generator terminals of all the units of the generating station:

Provided that auxiliary energy consumption shall not include energy consumed for supply of power to housing colony and other facilities at the generating station and the power consumed for construction works at the generating station;

- (6) **'Bank Rate'** means the base rate of interest as specified by the State Bank of India from time to time or any replacement thereof for the time being in effect plus 350 basis points;
- (7) **'Beneficiary'** shall mean licensee or any person who has purchased the capacity from a generating station for buying power generated at such a generating station on payment of charges as determined by the Commission;



- (8) **'Change in law'** means occurrence of any of the following events:
- (a) the enactment, bringing into effect, adoption, promulgation, amendment, modification or repeal of any law; or
  - (b) change in interpretation of any law by a competent court, Tribunal or Indian Governmental Instrumentality which is the final authority under law for such interpretation;
  - (c) change by any competent statutory authority, in any consent, approval or license available or obtained for the project; or
  - (d) coming into force or change in any bilateral or multilateral agreement/treaty between the Government of India and any other Sovereign Government having implication for the generating station regulated under these regulations.
- (9) **'Commission'** means the Uttar Pradesh Electricity Regulatory Commission referred to in Section 82 of the Act;
- (10) **'Cutoff Date'** means the date of first financial year closing after two year of the date of commercial operation of whole or part of the project, and in case the whole or part of the project is declared under commercial operation in the last quarter of a year, the cutoff date shall be 31st March of the year closing after three years of the year of commercial operation;
- (11) **'Date of Commercial Operation'** or **'COD'** shall have the same meaning as defined in Regulation 7 of these regulations;
- (12) **'Day'** means a calendar day consisting of 24 hours period starting at 0000 hour;
- (13) **'Declared Capacity'** or **'DC'** in relation to a generating station means, the capability to deliver ex-bus electricity in MW declared by such generating station in relation to any time-block of the day as defined in the Grid Code or whole of the day, duly taking into account the availability of water, and subject to further qualification in the relevant regulation;
- (14) **'Design Energy'** means the quantum of energy which could be generated in a 90% dependable year with 95% installed capacity of the generating station;
- (15) **'Existing Generating Station'** means a generating station declared under commercial operation from a date prior to 1. 4.2014;



- (16) **‘Expenditure incurred’** means the fund, whether the equity or debt or both, actually deployed and paid in cash or cash equivalent, for creation or acquisition of a useful asset and does not include commitments or liabilities for which no payment has been released;
- (17) **‘Extended Life’** means the life of a generating station or unit thereof beyond the period of useful life, as may be determined by the Commission on case to case basis;
- (18) **‘Force Majeure’** for the purpose of these regulations means the event or circumstance or combination of events or circumstances including those stated below which partly or fully prevents the generating company to complete the project within the time specified in the Investment Approval, and only if such events or circumstances are not within the control the generating company and could not have been avoided, had the generating company taken reasonable care or complied with prudent utility practices:
- (a) Act of God including lightning, drought, fire and explosion, earthquake, volcanic eruption, landslide, flood, cyclone, typhoon, tornado, geological surprises, or exceptionally adverse weather conditions which are in excess of the statistical measures for the last hundred years; or
  - (b) Any act of war, invasion, armed conflict or act of foreign enemy, blockade, embargo, revolution, riot, insurrection, terrorist or military action; or
  - (c) Industry wide strikes and labour disturbances having a nationwide impact in India;
- (19) **‘Generating Unit’** in relation to a hydro generating station means turbine-generator and its auxiliaries;
- (20) **‘Generating Station’** means any station for generating electricity, including any building and plant with step-up transformer, switch-gear, switch yard, cables or other appurtenant equipment, if any, used for that purpose and the site thereof; a site intended to be used for a generating station, and any building used for housing the operating staff of a generating station, and where electricity is generated by water power, includes penstocks, head and tail works, main and regulating reservoirs, dams and other hydraulic works, but does not in any case include any sub-station;
- (21) **‘Grid Code’** means the UP Electricity Grid Code 2007 as amended from time to time or subsequent re-enactment thereof;



- (22) **'Infirm Power'** means electricity generated for injection into the grid prior to commercial operation of the unit of a generating station;
- (23) **'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) as approved by the Commission from time to time;
- (24) **'Implementation Agreement'** means the agreement, contract or memorandum of understanding, or any such covenant, entered into between transmission licensee and generating station for the execution of project in coordinated manner;
- (25) **'Investment Approval'** means approval by the Board of the generating company or any other competent authority conveying administrative sanction for the project including funding of the project and the timeline for the implementation of the project.

Provided that the date of Investment Approval shall reckon from the date of the resolution/minutes of the Board/approval by competent authority.

- (26) **'Kilowatt-Hour'** or **'kWh'** means a unit of electrical energy, measured in one kilowatt or one thousand watts of power produced or consumed over a period of one hour;
- (27) **'Normative Annual Plant Availability Factor'** or **'NAPAF'** in relation to a generating station means the availability factor as specified in Regulation 36 of these regulations for hydro generating station
- (28) **'New Project'** means the project achieving COD or anticipated to be achieving COD on or after 1.4.2014;
- (29) **'Operation and Maintenance Expenses'** or **'O&M Expenses'** means the expenditure incurred in operation and maintenance of the generating station, including part thereof, including the expenditure on manpower, repairs, spares, consumables, insurance and overheads;
- (30) **'Original Project Cost'** means the actual expenditure incurred by the generating company, as per the original scope of project up to first financial year closing after one year of the date of commercial operation of the last unit as admitted by the Commission for determination of tariff;
- (31) **'Project'** means a generating station and includes the complete hydro power generating facility covering all components such as



dam, intake, water conductor system, power generating station and generating units of the scheme as apportioned to power generation;

- (32) **‘Prudence Check’** means scrutiny of reasonableness of capital expenditure incurred, financing plan, use of efficient technology, cost and time over-run and such other factors as may be considered appropriate by the Commission for determination of tariff. While carrying out the Prudence Check, the Commission shall look into whether the generating company has been careful in its judgments and decisions for executing the project or has been careful and vigilant in executing the project;
- (33) **‘Run-of-river power station’** means a hydroelectric power generating station which has no upstream pondage;
- (34) **‘Run-of-river power station with pondage’** means a hydroelectric power generating station with sufficient pondage for meeting the diurnal variation of power demand;
- (35) **‘Scheduled Energy’** means the quantum of energy to be generated at the generating station over the 24-hour period, as scheduled by the State Load Despatch Centre;
- (36) **‘Scheduled Commercial Operation Date or SCOD’** shall mean the date(s) of commercial operation of a generating station or generating unit or block thereof as indicated in the Investment Approval or as agreed in power purchase agreement whichever is earlier;
- (37) **‘Scheduled Generation’** or **‘SG’** at any time or for any period or time block means schedule of generation in MW ex-bus given by the State Load Despatch Centre;
- (38) **‘Start Date or Zero Date’** means the date indicated in the Investment Approval for commencement of implementation of the project and where no date has been indicated, the date of investment approval shall be deemed to be Start Date or Zero Date;
- (39) **‘Storage Type power station’** means a hydroelectric power generating station associated with large storage capacity to enable variation of generation of power according to demand;
- (40) **‘Trial Run’** or **‘Trial Operation’** in relation to a generating station shall have the same meaning as specified in Regulation 7 of these regulations;
- (41) **‘Useful life’** in relation to a unit of a Hydro generating station shall mean 35 years from the COD; and



(42) 'Year' means a financial year starting from 1<sup>st</sup> April of a year to 31<sup>st</sup> March of the next year.

### **36. Norms of Operation:**

The norms of operation shall be as under, namely:

#### **(i) Normative Annual Plant Availability Factor for recovery of full capacity charges**

(a) Storage and Pondage type plants with head variation between Full Reservoir Level (FRL) and Minimum Draw Down Level (MDDL) of up to 8%, and where plant availability is not affected by silt: 90%

(b) In case of storage and pondage type plants with head variation between full reservoir level and minimum draw down level is more than 8% and when plant availability is not affected by silt, the month wise peaking capability as provided by the project authorities in the DPR (approved by CEA or the State Government) shall form basis of fixation of NAPAF.

(c) Pondage type plants where plant availability is significantly affected by silt: 85%.

(d) Run-of-river type plants: NAPAF to be determined plant-wise, based on 10-day design energy data, moderated by past experience where available/relevant.

#### **Note-1**

There shall be pro rata recovery of capacity charges in case the generating station achieves NAPAF below the prescribed normative levels. At Zero NAPAF, no capacity charges shall be payable to the generating station.

#### **Note-2**

In case of non-availability of unit (s) due to Renovation and Modernization, the effective capacity left after discounting such capacity, shall be considered for the purpose of calculation of NAPAF.



**(ii) Auxiliary Energy Consumption :**

- (a) Surface hydroelectric power generating stations with rotating exciters mounted on the generator shaft  
- 0.7% of energy generated
- (b) Surface hydroelectric power generating stations with static excitation system  
- 1.0% of energy generated
- (c) Underground hydroelectric power generating stations with rotating exciters mounted on the generator shaft  
- 0.9% of energy generated
- (d) Underground hydroelectric power generating stations with static excitation system  
- 1.2% of energy generated

**37. Capital Cost:**

Subject to prudence check by the Commission, the actual expenditure incurred on completion of the project shall form the basis for determination of final tariff for new and existing projects.

- (1) The final tariff for a new project shall be determined based on the admitted capital cost which shall include:
  - (a) the expenditure actually incurred up to the date of commercial operation of the project;
  - (b) Interest during construction and financing charges, on the loans (i) being equal to 70% of the funds deployed, in the event of the actual equity in excess of 30% of the funds deployed, by treating the excess equity as normative loan, or (ii) being equal to the actual amount of loan in the event of the actual equity less than 30% of the funds deployed;
  - (c) Increase in cost in contract packages as approved by the Commission;
  - (d) Interest during construction and incidental expenditure during construction as computed in accordance with Regulation 38 of these regulations;



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- (e) Capitalised initial spares subject to ceiling norms of 4% (as a percentage of the Plant and Machinery cost) upto cut-off date (excluding IDC, IEDC, Land Cost and cost of civil works);

Provided where the generating station has any transmission equipment forming part of the generation project, the ceiling norms for initial spares for such equipment shall be as per the ceiling norms specified by the Commission for transmission system from time to time.

- (f) Expenditure on account of additional capitalization and de-capitalisation determined in accordance with Regulation 40 of these regulations
- (g) Adjustment of revenue due to sale of infirm power prior to the COD as specified under Regulation 41 of these regulations; and

(2) The final tariff for an existing project shall be determined based on the admitted capital expenditure which shall include:

- (a) The capital cost admitted by the Commission prior to 1.4.2014 duly trued up by excluding liability, if any, as on 1.4.2014; and
- (b) Additional capitalization and de-capitalization for the respective year of tariff as determined in accordance with Regulation 40.
- (c) Expenditure on account of renovation and modernization as admitted by this Commission in accordance with Regulation 40.

(3) The following shall be excluded or removed from the capital cost of the existing and new projects:

- (a) The assets forming part of the project, but not in use;
- (b) Decapitalisation of Asset;
- (c) In case of hydro generating station any expenditure incurred or committed to be incurred by a project developer for getting the project site allotted by the State government by following a two stage transparent process of bidding;
- (d) The proportionate cost of land which is being used for generating power from generating station based on renewable energy:

Provided that any grant received from the Central or State Government or any statutory body or authority for the execution of the project which does not carry any liability of repayment shall be excluded from the Capital Cost for the purpose of computation of interest on loan, return on equity and depreciation.



(4) Prudence Check of Capital Expenditure: The following principles shall be adopted for prudence check of capital cost of the existing or new projects:

- (a) The Commission may issue new guidelines or adopt the guidelines prescribed by the Central Electricity Regulatory Commission for vetting of capital cost of hydro-electric projects by an independent agency or an expert and in that event the capital cost as vetted by such agency or expert may be considered by the Commission while determining the tariff for the hydro generating station.
- (b) The Commission may issue new guidelines or adopt the guidelines prescribed by the Central Electricity Regulatory Commission for scrutiny and approval of commissioning schedule of the hydro-electric projects which shall be considered for prudence check.
- (c) Where the power purchase agreement entered into between the generating company and the beneficiaries provides for ceiling of actual capital expenditure, the Commission shall take into consideration such ceiling for determination of tariff for prudence check of capital cost.

Provided that for all MoU route projects who are under PPA, the agreed ceiling capital cost between the generating company and the beneficiary shall be brought to the Commission for approval and the approved cost shall be a part of PPA. The actual capital cost, if it is equal to the approved ceiling capital cost, shall form the basis for prudence check and determination of tariff by the Commission. If the actual cost is lower, then the lower cost would be taken and if it is higher, then the additional cost would first be verified and agreed between the generating company and the beneficiary then shall be taken up by the Commission for consideration and approval.

### **38. Interest during Construction (IDC), Incidental Expenditure during Construction (IEDC):**

#### **(a) Interest During Construction :**

(1) Interest during construction shall be computed corresponding to the loan from the date of infusion of debt fund, and after taking into account the prudent phasing of funds upto SCOD.

(2) In case of additional costs on account of IDC due to delay in achieving the SCOD, the generating company shall be required to furnish detailed justifications with supporting documents for such delay including prudent phasing of funds:

Provided that if the delay is not attributable to the generating company and is due to uncontrollable factors as specified in Regulation 39 of these regulations, IDC may be allowed after due prudence check:



Provided further that only IDC on actual loan may be allowed beyond the SCOD to the extent, the delay is found beyond the control of generating company after due prudence and taking into account prudent phasing of funds.

**(b) Incidental Expenditure During Construction :**

(1) Incidental expenditure during construction shall be computed from the zero date and after taking into account pre-operative expenses upto SCOD:

Provided that any revenue earned during construction period up to SCOD on account of interest on deposits or advances, or any other receipts may be taken into account for reduction in incidental expenditure during construction.

(2) In case of additional costs on account of IEDC due to delay in achieving the SCOD, the generating company shall be required to furnish detailed justification with supporting documents for such delay including the details of incidental expenditure during the period of delay and liquidated damages recovered or recoverable corresponding to the delay:

Provided that if the delay is not attributable to the generating company and is due to uncontrollable factors as specified in Regulation 39 of these regulations, IEDC may be allowed after due prudence check:

Provided further that where the delay is attributable to an agency or contractor or supplier engaged by the generating company the liquidated damages recovered from such agency or contractor or supplier shall be taken into account for computation of capital cost.

**39. Controllable and Uncontrollable factors :**

The following shall be considered as controllable and uncontrollable factors leading to cost escalation impacting Contract Prices, IDC and IEDC of the project:

- (1) The "controllable factors" shall include but shall not be limited to the following:
  - (a) Variations in capital expenditure on account of time and/or cost overruns on account of land acquisition issues;
  - (b) Efficiency in the implementation of the project not involving approved change in scope of such project, change in statutory levies or force majeure events; and
  - (c) Delay in execution of the project on account of contractor, supplier or agency of the generating company.



(2) The “uncontrollable factors” shall include but shall not be limited to the following:

- (a) Force Majeure events.; and
- (b) Change in law.

Provided that no additional impact of time overrun or cost over-run shall be allowed on account of non-commissioning of the generating system or associated transmission system by SCOD, as the same should be recovered through Implementation Agreement between the generating company and the transmission licensee:

Provided further that if the generating station is not commissioned on the SCOD of the associated transmission system, the generating company shall bear the IDC or transmission charges if the transmission system is declared under commercial operation;

Provided also that if the transmission system is not commissioned on SCOD of the generating station, the transmission licensee shall arrange the evacuation from the generating station at its own arrangement and cost till the associated transmission system is commissioned.

#### **40. Additional capitalisation :**

(1) The following capital expenditure in respect of a new project or an existing project within the original scope of work actually incurred after the date of commercial operation and up to the cutoff date may be admitted by the Commission, subject to prudence check:

- (i) Deferred liabilities;
- (ii) Works deferred for execution;
- (iii) Procurement of initial capital spares in the original scope of work, subject to ceiling specified in Regulation 37;
- (iv) Liabilities to meet award of arbitration or for compliance of the order or decree of a court; and
- (v) On account of change in law.

Provided that original scope of work along with estimates of expenditure shall be submitted along with the application for provisional tariff.

Provided further that a list of the deferred liabilities and works deferred for execution shall be submitted along with the application for final tariff after the date of commercial operation of the generating station.



(2) Subject to the provisions of clause(3) of this regulation, the capital expenditure of the following nature for new or existing projects actually incurred after the cutoff date may be admitted by the Commission, subject to prudence check:

- (i) Liabilities to meet award of arbitration or for compliance of the order or decree of a court;
- (ii) On account of change in law;
- (iii) Any expenses to be incurred on account of need for higher security and safety of the plant as advised or directed by appropriate Government Agencies of statutory authorities responsible for national security/internal security;
- (iv) Deferred liabilities relating to works/services within the original scope of work;
- (v) Any additional works/services which have become necessary for efficient and successful operation of the generating station, but not included in the original project cost. The claim shall be substantiated with the technical justification duly supported by the documentary evidence like test results carried out by an independent agency in case of deterioration of assets, report of an independent agency in case of damage caused by natural calamities, obsolescence of technology, up-gradation of capacity for the technical reason such as increase in fault level; and
- (vi) In case of hydro generating stations, any expenditure which has become necessary on account of damage caused by natural calamities (but not due to flooding of power house attributable to the negligence of the generating company) and due to geological reasons after adjusting the proceeds from any insurance scheme, and expenditure incurred due to any additional work which has become necessary for successful and efficient plant operation;

(3) Any expenditure on minor items/assets like normal tools and tackles, personal computers, furniture, air-conditioners, voltage stabilizers, refrigerators, fans, coolers, TV, washing machines, heat-convectors, carpets, mattresses etc. brought after the cutoff date shall not be considered for additional capitalisation for determination of tariff. The said items are illustrated and may include any other similar items:

Provided also that if any expenditure has been claimed under Renovation and Modernisation (R&M), repairs and maintenance under (O&M) expenses and Compensation Allowance, same expenditure cannot be claimed under this regulation.



(4) In case of de-capitalisation of assets of a generating company the original cost of such asset as on the date of de-capitalisation shall be deducted from the value of gross fixed asset and corresponding loan as well as equity shall be deducted from outstanding loan and the equity respectively in the year such de-capitalisation takes place, duly taking into consideration the year in which it was capitalised.

(5) Renovation and Modernization (R&M)

(i)

(a) The hydro generating company, for meeting the expenditure on renovation and modernization(R&M) for the purpose of extension of life beyond the useful life of the generating station or a unit thereof, shall make an application before the Commission for approval of the proposal with a Detailed Project Report giving complete scope, justification, cost-benefit analysis, estimated life extension from a reference date, financial package, phasing of expenditure, schedule of completion, reference price level, estimated completion cost including foreign exchange component, if any, record of consultation with beneficiaries and any other information considered to be relevant by the generating company.

(b) Where the hydro generating company makes an application for approval of its proposal for renovation and modernization, the approval shall be granted after due consideration of reasonableness of the cost estimates, financing plan, schedule of completion, interest during construction, use of efficient technology, cost-benefit analysis, and such other factors as may be considered relevant by the Commission.

(c) Any expenditure incurred or projected to be incurred and admitted by the Commission after prudence check based on the estimates of renovation and modernization expenditure and life extension, and after deducting the accumulated depreciation already recovered from the original project cost, shall form the basis for determination of tariff.

(ii) The provisions of sub regulation (i) shall apply provided the generating company shall ensure to plan R&M of at least one unit of each generating station every year for life extension and improvement in performance, wherever due, after due techno economic studies and approval from the Commission to facilitate R&M or phase out.

(iii) Any expenditure admitted by the Commission for determination of tariff on R&M and life extension shall be serviced on normative debt-equity ratio specified in Regulation 42 after writing off the original amount of the replaced assets from the original project cost. The generating company, for the purpose of R&M and life extension of the plant, shall be guided by the guide lines issued by the Commission from time to time.



(6) Impact of additional capitalisation in tariff revision may be considered by the Commission each year in a tariff period, including revision of tariff after the cut off date.

**Note 1**

Any expenditure admitted on account of committed liabilities within the original scope of work and the expenditure deferred on techno-economic grounds but falling within the original scope of work shall be serviced in the normative debt-equity ratio specified in Regulation 42.

**Note 2**

Any expenditure on replacement of old assets shall be considered after writing off the gross value of the original assets from the original project cost, except such items as are listed in clause (3) of this regulation.

**Note 3**

Any expenditure admitted by the Commission for determination of tariff on account of new works not in the original scope of work shall be serviced in the normative debt-equity ratio specified in Regulation 42.

(7) Cost on implementation of ABT shall be allowed as additional capital expenditure in tariff.

**41. Sale of Infirm Power:**

Supply of infirm power shall be accounted and paid for as per the UI mechanism of the state, as prescribed by the Commission from time to time:

Provided also that the startup power drawn by the generating station from the grid shall be adjusted with ex-bus energy and such energy shall be billed to its beneficiaries in the proportion of contracted capacities.



## **42. Debt-Equity Ratio:**

(1) In case of all generating stations, debt-equity ratio as on the date of commercial operation shall be 70:30 for determination of tariff. Where equity employed is more than 30%, the amount of equity for determination of tariff shall be limited to 30% and the balance amount shall be considered as the normative loan.

Provided that

- (i) In case of a generating station where actual equity employed is less than 30%, the actual debt and equity shall be considered for determination of tariff;
- (ii) The equity invested in foreign currency shall be designated in Indian rupees on the date of each investment; and
- (iii) Any grant obtained for the execution of the project shall not be considered as a part of capital structure for the purpose of debt-equity ratio.

(2) The debt and equity amount arrived at in accordance with clause (1) shall be used for calculating interest on loan, return on equity, and Foreign Exchange Rate Variation.

(3) Any expenditure incurred or projected to be incurred on or after 1.4.2014 as may be admitted by the Commission as additional capital expenditure for determination of tariff, and renovation and modernization expenditure for life extension shall be serviced in the manner specified in clause (1) of this regulation.

## **43. Computation of Annual Charges:**

The fixed cost of a hydro generating station shall be computed on annual basis, based on norms specified under these Regulations, and shall be recovered on monthly basis under capacity charge (inclusive of incentive) and energy charge, which shall be payable by the beneficiaries in proportion to their respective allocation in the saleable capacity of the generating station, i.e., in the capacity excluding the free power to the home State. Annual Fixed Charge shall consist of:

- (a) Interest on loan capital;
- (b) Depreciation;
- (c) Return on equity;
- (d) Operation and maintenance expenses including insurance; and
- (e) Interest on working capital.



#### **44. Computation of Annual Fixed Charge:**

The annual fixed charges shall be computed, in case of all existing as well as new generating stations, on the following basis:

**(i) Interest on loan capital**

- (a) Interest on loan capital shall be computed loan wise on the loans arrived at in the manner indicated in Regulation 42.
- (b) The loan outstanding as on 1<sup>st</sup> April shall be worked out as the gross loan as per Regulation 42 minus cumulative repayment as admitted by the Commission up to 31<sup>st</sup> March. The repayment for any year during the Tariff Period shall be deemed to be equal to the depreciation allowed for that Year.

In case of decapitalisation of assets, the repayment shall be adjusted by taking into account cumulative repayment on a pro rata basis and the adjustment should not exceed cumulative depreciation recovered upto the date of decapitalisation of such asset.

- (c) The rate of the interest shall be the weighted average rate of interest calculated on the bases of actual loan portfolio at the beginning of each year applicable to the project and shall be adjusted based on actual loan portfolio during each year applicable to the project.
- (d) If there is no actual loan for a particular year but normative loan is still outstanding the last available weighted average of interest shall be considered.
- (e) The generating company shall make every effort to re-finance the loan as long as it results in net benefit to the beneficiaries. The costs associated with such refinancing shall be borne by the beneficiaries and the net savings shall be shared between the beneficiaries and the generating company in the ratio of 2:1. The above facts shall be certified by statutory auditor.
- (f) The changes to the loan terms and conditions shall be reflected from the date of such re-financing and benefit passed on to the beneficiaries.
- (g) In case of any dispute, any of the parties may approach the Commission with proper application. However, the beneficiaries shall not withhold any payment as ordered by the



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Commission to the generating company during pendency of any dispute relating to swapping of loan.

- (h) In case any moratorium period is availed of by the generating company, depreciation provided for in the tariff during the years of moratorium shall be treated as repayment during those years and interest on loan capital shall be calculated accordingly.
- (i) The generating company shall not make any profit on account of re-financing of loan and interest on loan.
- (j) In case, the generating company has contracted floating/variable rate of interest on loan resetting at certain interval of time the impact of change in rate of interest shall be assessed by the generating company on account of such resetting duly certified by statutory auditor and the capacity charge of the relevant year shall be adjusted for such impact and billed accordingly to beneficiary without approaching the Commission for change in tariff on this account.

Provided if the generating company does not have actual loan or have re-financed the loan resulting in no specific loan attributable to the generating station then the weighted average rate of interest of the generating company as a whole shall be considered.

Provide also in case of dispute, any party to such dispute may approach the Commission with proper application and it shall be ensured that the payment to the generating company is not withheld during pendency of the dispute.

### (ii) **Depreciation**

For the purpose of tariff, depreciation shall be computed in the following manner, namely:

- (a) Depreciation shall be computed from the date of commercial operation of a generating station or unit thereof. In case of the tariff of all the units of a generating station for which a single tariff needs to be determined, the depreciation shall be computed from the effective date of commercial operation of the generating station taking into consideration the depreciation of individual units or elements thereof.

Provided that effective date of commercial operation shall be worked out by considering the actual date of commercial



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operation and installed capacity of all the units of the generating station for which single tariff needs to be determined.

- (b) In case of multiple units of a generating station weighted average life for the generating station shall be applied. Depreciation shall be chargeable from the first year of operation. In case of operation of the asset for part of the year, depreciation shall be charged on pro rata basis.
- (c) The value base for the purpose of depreciation shall be the historical cost of the asset.

Provided that the historical capital cost of the asset shall include additional capitalization on account of Foreign Exchange Rate Variation up to 31.3.2014 already allowed by the Government /Commission.

- (d) The residual life of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the historical capital cost of the asset. Land other than the land held under lease and the land for reservoir in case of hydro generating station shall not be a depreciable asset and its cost shall be excluded from the capital cost while computing depreciable value of asset.

Provided that in case of hydro generating station, the salvage value shall be as provided in the agreement signed by the developers with the State Government for development of the Plant.

Provided further that the capital cost of the assets of the hydro generating station for the purpose of computation of depreciated value shall correspond to the percentage of sale of electricity under long-term power purchase agreement at regulated tariff.

- (e) In case of new projects, depreciation shall be calculated annually, based on straight line method over the useful life of the asset and at the rates prescribed in Appendix III to these regulations.

Provided that the remaining depreciable value as on 31st March of the year closing after a period of 12 years from the effective date of commercial operation of the station shall be spread over the balance useful life of the assets.



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Provided also that any depreciation disallowed on account of lower availability of the generating station shall not be allowed to be recovered at a later stage during the useful life and the extended life.

- (f) In case of the existing projects, the balance depreciable value as on 1.4.2014 shall be worked out by deducting the cumulative depreciation as admitted by the Commission upto 31.3.2014 from the gross depreciable value of the assets. The rate of depreciation shall be continued to be charged at the rate specified in Appendix III till cumulative depreciation reaches 70%. Thereafter the remaining depreciable value shall be spread over the remaining life of the asset such that the maximum depreciation does not exceed 90%.

Provided also that any depreciation disallowed on account of lower availability of the generating station shall not be allowed to be recovered at a later stage during the useful life and the extended life.

- (g) The generating company shall submit the details of proposed capital expenditure during the fag end of the project (five years before the useful life) along with justification and proposed life extension. The Commission based on prudence check of such submissions shall approve the depreciation on capital expenditure during the fag end of the project.
- (h) In case of de-capitalization of assets in respect of generating station or unit thereof the cumulative depreciation shall be adjusted by taking into account the depreciation recovered in tariff by the decapitalized asset during its useful services.

### (iii) **Return on Equity**

Return on equity shall be computed on the equity base determined in accordance with Regulation 42@ 15.5% per annum for the different hydro generating stations governed by these regulations.

Provided that in case of projects commissioned on or after 1st April, 2014, if such projects are completed within the timeline specified in Appendix IV, an additional return of 0.5%, shall be allowed;

Provided further that additional return shall not be admissible if the project is not completed within the timeline specified above for reasons whatsoever;



Provided that the rate of return of a new project shall be reduced by upto 1% for such period as maybe decided by the Commission, if the generating station is found to be declared under commercial operation without commissioning of any of the Restricted Governor Mode Operation (RGMO)/Free Governor Mode Operation (FGMO), data telemetry, communication system up to load dispatch centre or protection system;

Provided also that as and when any of the above requirements are found lacking in an existing generating station based on the report submitted by the SLDC, RoE may be reduced by upto 1% for such period as may be decided by the Commission;

### **Explanation**

The premium raised by the generating company while issuing share capital and investment of internal resources created out of free reserve of the generating company, if any, for the funding of the project, shall also be reckoned as paid up capital for the purpose of computing return on equity, provided such premium amount and internal resources are actually utilised for meeting the capital expenditure of the generating station and forms part of the approved financial package.

### **(iv) Operation and Maintenance expenses**

(a) The normative values of operation and maintenance expenses including insurance, for the existing hydro generating stations shall be as approved by the Commission in the tariff order based on the expenses approved in the previous control period, escalation rate of 6.64% per annum and any other factor as considered appropriate by the Commission.

(b) In case of the hydro generating stations declared under commercial operation on or after the date of commencement of these regulations, the base operation and maintenance expenses shall be fixed at 4.00% and 2.50% of the original project cost (excluding cost of rehabilitation & resettlement works) for first year of commercial operation for stations less than 200 MW projects and for stations more than 200 MW respectively and shall be subject to annual escalation of 6.64% per annum for the subsequent years.

(c) The expenses on regulatory fee, payment to pollution control board, impact of pay revision, cost of water and water cess shall be paid additionally at actuals.



**(v) Interest on Working Capital**

- (a) Working Capital shall cover:
- (i) Operation and Maintenance expenses for one month;
  - (ii) Maintenance spares @ 15% of operation and maintenance expenses ; and
  - (iii) Receivables equivalent to two months of fixed charges for sale of electricity.
- (b) Rate of interest on working capital shall be on normative basis and shall be considered as the Bank Rate as on 1.4.2014 or as on 1st April of the year during the tariff period 2014-15 to 2018-19 in which the generating station or a unit thereof is declared under commercial operation, whichever is later. The interest on working capital shall be payable on normative basis notwithstanding that the generating company has not taken working capital loan from any outside agency.

**45. Unscheduled Interchange (UI):**

(1) Variation between actual generation or actual drawal and scheduled generation or scheduled drawal shall be accounted for through Unscheduled Interchange (UI) charges. UI for a generating station shall be equal to its actual generation minus its scheduled generation. UI for a beneficiary shall be equal to its total actual drawal minus its total scheduled drawl. UI shall be worked out for each 15 minute time block.

Charges for all UI transactions shall be based on average frequency of the time block as notified by CERC from time to time.

**46. Rebate:**

(1) For payment of bills of capacity charges and energy charges through a letter of credit on presentation, or through NEFT/RTGS within a period of 2 days of presentation of bills by the generating company, a rebate of 2% shall be allowed.

(2) Where payments are made on any day after 2 days and within a period of 30 days of presentation of bills by the generating company, a rebate of 1% shall be allowed.

**47. Late Payment& Default in Payment:**

(1) In case the payment of bills of capacity charges and energy charges by the beneficiary (ies) is delayed beyond a period of 60 days from the date of billing, a



late payment surcharge at the rate of 1.25% per month shall be levied by the generating company.

The generating company may approach the Commission, for default in payments for necessary relief including proposal for regulation of supply to the concerned beneficiary, associated with alternative sale potential of such regulated power.

#### **48. Scheduling:**

(1) Scheduling shall be as specified in the Uttar Pradesh Grid Code/IEGC as notified from time to time by the Commission. Hydro power plants of capacity below 25 MW shall not be subject to scheduling.

(2) Declaration of available capacity shall also include limitation on generation during specific time periods, if any, on account of restriction(s) on water use due to irrigation, drinking water, industrial, environmental considerations, etc.

(3) For run-of-river power stations without pondage, since variation of generation in such stations may lead to spillage, these shall be treated as must run stations. The maximum available capacity, duly taking into account the over load capability, must be equal to or greater than that required to make full use of the available water.

(4) For run-of-river power station with pondage and storage type power stations, since, these hydro stations are designed to operate during peak hours to meet system peak demand, maximum available capacity of the station declared for the day shall be equal to the installed capacity including overload capability, minus auxiliary consumption and transformation losses, corrected for the reservoir level. The State Load Despatch Centre shall ensure that generation schedules of such type of stations are prepared and the stations dispatched for optimum utilization of available hydro energy except in the event of specific system requirements/constraints.

#### **49. Demonstration of Declared Capability:**

(1) The generating company may be required to demonstrate the declared capacity of its generating station as and when asked by the State Load Despatch Centre. In the event of the generating company failing to demonstrate the declared capacity, within the tolerance as specified by the State Load Despatch Center, the capacity charges due to the generating station shall be reduced as a measure of penalty.

(2) The quantum of penalty for the first mis-declaration for any duration or block in a day shall be the charges corresponding to two days fixed charges. For the second mis-declaration the penalty shall be equivalent to fixed charges for four days and for subsequent mis-declarations, the penalty shall be multiplied in the geometrical progression.



(3) The operating log books of the generating station shall be available for review by the State Load Despatch Center. These books shall keep record of machine operation and maintenance, reservoir level and spillway gate operation.

## **50. Metering and Accounting:**

Metering arrangements, including installation, testing and operation and maintenance of meters and collection, transportation and processing of data required for accounting of energy exchanges and average frequency on 15 minute time block basis shall be organised by the State Transmission Utility in consultation with State Load Despatch Centre. All concerned entities (in whose premises the special energy meters are installed), shall fully cooperate with the State Transmission Utility/State Load Despatch Centre and extend the necessary assistance by taking weekly meter readings and transmitting them to the State Load Despatch Centre. The State Load Dispatch Centre, on the basis of processed data of meters along with data relating to declared capability and schedules etc., shall issue the State Accounts for energy on monthly basis as well as UI charges on weekly basis. UI accounting procedures shall be governed by the orders of the Central Electricity Regulatory Commission.

### **Note:**

This provision shall be applicable with effect from the date these regulations come into force except for UI that shall come into force from such date specified by the Commission for implementation of ABT in the State.

## **51. Billing and Payment:**

Billing and payment of capacity charges shall be done on a monthly basis in the following manner:

- (i) Each beneficiary shall pay the capacity charges in proportion to its percentage share in total saleable capacity of the generating station. Saleable capacity shall mean total capacity minus free capacity to home state(s) in case of IPP, if any.

### **Note 1**

Allocation of total capacity of State sector generating stations is made by State Government from time to time.

### **Note 2**

The beneficiaries may propose surrendering part of their allocated capacity. In such cases, depending upon the technical feasibility of power transfer and specific agreements reached by the generating company with other States within/outside the region for such transfers, the shares of the beneficiaries may be re-allocated by the State Government for a specific



period. When such re-allocations are made, the beneficiaries who surrender the share shall not be liable to pay capacity charges for the surrendered share. The capacity charges for the capacity surrendered and reallocated as above shall be paid by the State(s) to whom the surrendered capacity is allocated. Except for the period of reallocation of capacity as above, the beneficiaries of the generating station shall continue to pay the full fixed charges as per allocated capacity shares.

(ii) The beneficiaries shall have full freedom for negotiating any transaction for utilisation of their capacity shares. In such cases, the beneficiary having allocation in the capacity of the generating station shall be liable for full payment of capacity charges and energy charges (including that for sale of power under the transaction negotiated by him) corresponding to his total allocation and schedule respectively.

(iii) If any capacity remains un-requisitioned during day-to-day operation, the State Load Despatch Centre shall advise all beneficiaries in the State and the other States/Regional Load Despatch Centres so that such capacity may be requisitioned through bilateral arrangements either with the concerned generating company or the concerned beneficiary (ies) under intimation to the State Load Despatch Centre.

The information regarding un-requisitioned capacity shall also be made available by the State Load Despatch Centres through their respective websites.

(iv) The capacity charges(inclusive of incentive) shall be paid by the beneficiary(ies) including those outside the state/region to the generating company every month in accordance with the following formula and in proportion to their respective shares in the concerned generating station for a calendar month shall be:

$AFC \times 0.5 \times NDM / NDY \times (PAFM / NAPAF)$  (in Rupees)

Where,

AFC = Annual fixed cost specified for the year, in Rupees

NAPAF = Normative plant availability factor in percentage

NDM = Number of days in the month

NDY = Number of days in the year

PAFM = Plant availability factor achieved during the month, in percentage

(v) The PAFM shall be computed in accordance with the following formula :

$$PAFM = 10000 \times \sum_{i=1}^N DCi / \{N \times IC \times (100 - AUX)\} \%$$



Where

AUX = Normative auxiliary energy consumption in percentage

DC<sub>i</sub> = Declared capacity (in ex-bus MW) for the i<sup>th</sup> day of the month which the station can deliver for at least three (3) hours, as certified by the nodal load dispatch centre after the day is over.

IC = Installed capacity (in MW) of the complete generating station

N = Number of days in the month

(vi) The energy charge shall be payable by every beneficiary for the total energy scheduled to be supplied to the beneficiary, excluding free energy, if any, during the calendar month, on ex power plant basis, at the computed energy charge rate. Total Energy charge payable to the generating company for a month shall be:

(Energy charge rate in Rs. / kWh) x {Scheduled energy (ex-bus) for the month in kWh} x (100 – FEHS) / 100

(vii) Energy charge rate (ECR) in Rupees per kWh on ex-power plant basis, for a hydro generating station, shall be determined up to three decimal places based on the following formula, subject to the provisions of clause (ix):

$$ECR = AFC \times 0.5 \times 10 / \{DE \times (100 - AUX) \times (100 - FEHS)\}$$

Where,

DE = Annual design energy specified for the hydro generating station, in MWh, subject to the provision in clause (viii) below.

FEHS = Free energy for home State, in percent and shall be taken as 13% or actual whichever is less.

Provided that in cases where the site of a hydro project is awarded to a developer, by the State Government by following a two stage transparent process of bidding, the "free energy" shall be taken as 13%.

(viii) In case the actual total energy generated by a hydro generating station during a year is less than the design energy for reasons beyond the control of the generating station, the following treatment shall be applied on a rolling basis on an application filed by the generating company:

(a) In case the energy shortfall occurs within ten years from the date of commercial operation of a generating station, the ECR for the year following the year of energy shortfall shall be computed based on the formula specified in clause (vii) with the modification that the DE for the year shall be considered as equal to the actual energy generated during the year of the shortfall, till the energy charge shortfall of the



## UPERC (Terms and Conditions of Generation Tariff) Regulations 2014

previous year has been made up, after which normal ECR shall be applicable:

Provided that in case actual generations from a hydro generating station is less than the design energy for a continuous period of 4 years on account of hydrology factor, the generating station shall approach CEA with relevant hydrology data for revision of design energy of the station.

- (b) In case the energy shortfall occurs after ten years from the date of commercial operation of a generating station, the following shall apply.

**Explanation :** Suppose the specified annual design energy for the station is DE MWh, and the actual energy generated during the concerned (first) and the following (second) financial years is A1 and A2 MWh respectively, A1 being less than DE. Then, the design energy to be considered in the formula in clause (vii) of these regulations for calculating the ECR for the third financial year shall be moderated as  $(A1 + A2 - DE)$  MWh, subject to a maximum of DE MWh and a minimum of A1 MWh.

- (c) Actual energy generated (e.g. A1, A2) shall be arrived at by multiplying the net metered energy sent out from the station by  $100 / (100 - AUX)$ .

- (ix) In case the energy charge rate (ECR) for a hydro generating station, computed as per clause (vii) of this regulation exceeds ninety paise per kWh, and the actual saleable energy in a year exceeds  $\{DE \times (100 - AUX) \times (100 - FEHS) / 10000\}$  MWh, the Energy charge for the energy in excess of the above shall be billed at ninety paise per kWh only:

Provided that in a year following a year in which total energy generated was less than the design energy for reasons beyond the control of the generating company, the energy charge rate shall be reduced to ninety paise per kWh after the energy charge shortfall of the previous year has been made up.

- (x) The Generating Company shall submit data of cost, expenditure and operation as specified in Appendix I to this regulation in the month of September & March of the each year.

- 52.** These Regulations are made in English & translated into Hindi. In case of dispute, English version shall prevail.

By Order of the Commission

Secretary

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***Statement of  
Reasons -  
UPERC (Terms  
and Conditions  
of Generation  
Tariff)  
Regulations,  
2014  
UPERC***

*16<sup>th</sup> December 2014*



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# 1. Introduction

## **Legal and regulatory framework**

The Uttar Pradesh Electricity Regulatory Commission (the Commission) has been vested with the functions under the Section 86 of the Electricity Act, 2003 (the Act) to determine the tariff for generation, supply, transmission and wheeling of electricity, wholesale, bulk or retail, as the case maybe, within the State. Section 61 of the Act requires the Commission to be guided by the multi-year tariff principles while specifying the terms and conditions for determination of tariff.

*“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"*

Further, Section 181(2) (zd) of the Act empowers the State Commission to make regulations on the Terms and Conditions for the determination of tariff under section 61. Section 61(i) of the Act provides that while specifying the terms and conditions of tariff, the Commission shall be guided by the National Electricity Policy and Tariff Policy.

## **UPERC Generation Tariff Regulations**

The Commission after enactment of Electricity Act, 2003, issued the Uttar Pradesh Electricity Regulatory Commission (Terms and Conditions of Generation Tariff) Regulations, 2004 which remained in force for a period of 3 years from its date of notification on 7<sup>th</sup> June 2005. The

Commission then issued Uttar Pradesh Electricity Regulatory Commission (Terms and Conditions of Generation Tariff) (First Amendment) Regulations, 2007 which remained in force from 1<sup>st</sup> April, 2008 to 31<sup>st</sup> March 2009. The Uttar Pradesh Electricity Regulatory Commission (Terms and Conditions of Generation Tariff) Regulations, 2009 (“UPERC Generation Tariff Regulations, 2009”) came into force with effect from 1<sup>st</sup> April, 2009 and were effective up to 31<sup>st</sup> March, 2014. The UPERC Generation Tariff Regulations, 2009 were amended through the Uttar Pradesh Electricity Regulatory Commission (Terms and Conditions of Generation Tariff) (First Amendment) Regulations, 2012 vide notification dated 20<sup>th</sup> March 2012.

## ***Discussion Paper for UPERC Generation Tariff Regulations 2014***

The Commission began the process for review of UPERC Generation Tariff Regulations for 2014-19 by issuing a Discussion Paper on its website <http://www.uperc.org> on 6.3.2014. The objective of publication of the Discussion Paper was to solicit views on different aspects of regulations applicable for next control period (FY 2014-19). Through the Discussion Paper, the Commission granted an opportunity to stakeholders to generate a debate on various aspects of the tariff framework. The Commission considered that this process would provide the element of transparency to the exercise. Therefore, letters inviting comments and suggestions on Discussion Paper were sent to CEA, CERC, SERCs, UPPCL, Discoms, UPRVUNL, RPSCL, Bajaj Energy and other stakeholders.

## ***Draft UPERC Generation Tariff Regulations 2014, Explanatory Memorandum and Public Hearing***

The Commission published the Draft UPERC Generation Tariff Regulations 2014, along with the Explanatory Memorandum to the same, on its website <http://www.uperc.org>. The Explanatory Memorandum to the Draft Regulations discussed various aspects of the tariff regulations including existing provisions, issues raised in the Discussion Paper, summary of comments received from stakeholders and the Commission's view for framing the Draft Tariff Regulations for 2014-19. The Explanatory Memorandum to the draft regulations is annexed in Appendix.

To gather the views of the stakeholders on the regulations, a public hearing was held in the Commission's office on 27.10.2014. The Commission received comments from different stakeholders including the state owned generating company (UPRVUNL), UPPCL on behalf of State Discoms and independent power producers like Rosa Power Supply Company Limited (RPSCL), Bajaj Energy Private Limited (BEPL) and Lalitpur Power Generation Company Limited (LPGCL). Based on the comments received from the stakeholders and subsequent discussion, the Commission has made certain amendments to the draft regulations. The select comments received from the stakeholders, amendments made in the draft regulations and the reasons for the same are discussed in subsequent sections of this Statement of Reasons (SOR). The Commission while examining the various aspects of the tariff regulations is guided by the provisions of the Electricity Act 2003, the Tariff Policy, National Electricity Policy and other statutes to protect the interests of consumers and to promote investment in generation assets in the State.

## **2. Statement of Reasons**

### **2.1. Scope and extent of application (Regulation 2(4))**

#### **Stakeholders' comments/suggestions**

The state distribution company UPPCL is of the view that the entire exhaustive and consultative process of framing the Regulations is an exercise for specifying the norms for different categories of generating stations and thus applicable norms must be specified and adhered to in the current Regulations. However most of the developers in the state are of the view that the norms of operation to be specified in the Regulations must not be inconsistent with the norms agreed to between different parties in existing Power Purchase Agreements.

#### **Commission's views**

Section 61 of the Act empowers the Commission to specify, by regulations, the terms and conditions for determination of tariff in accordance with the provisions of the said section and guided by the National Electricity Policy and Tariff Policy, 2006. In terms of clause (s) of sub-section (2) of Section 178 of the Act, the Commission has been vested with the powers to notify regulations on the terms and conditions of tariff under Section 61. Also as per Section 61 the Commission shall be guided by the methodologies adopted by the Central Commission in framing the principles and methodologies governing the tariff applicable in case of generating stations. However the Commission also appreciates the concern of the developers regarding hardships, if any, due to discrepancy/inconsistency between parameters (norms of operation) given in these Regulations and those approved in the existing Power Purchase Agreements. In light of the above the Commission decides to modify the first proviso to Regulation 2(4) as under:

*“Provided that in case of projects where parameters have been agreed to in the Power Purchase Agreement or determined through an earlier Regulation prior to 1.4.2014, for any hardship due to discrepancy/inconsistency with parameters given in these Regulations, the Commission may be approached and parameters in such cases may be determined by the Commission at the time of tariff determination of respective generating station.”*

### **2.2. Application for determination of tariff (Regulation 5(3))**

#### **Stakeholders' comments/suggestions**

The state distribution company UPPCL has suggested that the Commission should specify time period for filing of application of provisional tariff as "within 180 days of anticipated date of completion of the project"

#### **Commission's views**

In light of the submission made by UPPCL and the similar provision adopted by the Central Commission the Regulation 5(3) stands modified as under:

*“(3) In case of a generating station declared under commercial operation on or after the date of commencement of this regulation, an application for fixation of tariff shall be made as per Appendix II to these regulations, for determination of provisional tariff within 180 days of the anticipated date of commercial operation based on the capital expenditure actually incurred up to the date of making of the application or a date prior to making of the application, duly audited and certified by the statutory auditors, and the provisional tariff shall be charged from the date of commercial operation of the respective unit of the generating station.*

*A generating company shall make a fresh application as per Appendix II to these regulations, for determination of final tariff based on actual capital expenditure incurred up to the date of commercial operation of the generating station, duly audited and certified by the statutory auditors.*

*Provided further that over or under recovery of charges by the generating company on account of provisional tariff shall be subject to retrospective adjustment on the basis of final tariff determined by the Commission. The generating company, 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 beneficiary (ies), for the period the provisional tariff remained effective, within six months of determination of final tariff, along with simple interest calculated at rate equal to Bank Rate as on 1st April of the relevant year.”*

## **2.3. Application for determination of tariff (Regulation 5(4))**

### **Stakeholders’ comments/ suggestions**

Bajaj Energy Private Limited (BEPL) and Lalitpur Power Generation Company Limited (LPGCL) have suggested that provisional tariff determination is a time consuming process, the developer has to file the application with actual expenditure incurred upto that date which may be about 3 months prior to the anticipated COD. During this gap, the cost would continuously be incurred upto achieving COD and the provision of granting 90% of the annual fixed cost of the project claimed in the application may cause hardship on the generator due to inadequate recovery of the fixed charges and may be reviewed.

### **Commission’s views**

The Commission follows the methodology of allowing provisional tariff for new projects only on the basis of the capital expenditure actually incurred upto the date of making the application duly certified by the auditors. The Commission in the explanatory memorandum to the draft regulations had stated *“The Commission in the past has observed that most of the capital expenditure is incurred during the initial years of construction period. Also, the Central Commission in its Explanatory Memorandum to CERC (Terms and Conditions of Generation Tariff) Regulations, 2014 has observed that there has been a wide variation in terms of projected vs. actual capital expenditure”*. The Commission believes that since the provisional tariff is granted on actual expenditure and not the projected values there is merit in the suggestions of the stakeholders and thus the said clause 5(4) stands modified as under:

*“(4) Where application for determination of tariff of an existing or a new project has been filed before the Commission in accordance with clauses (2) and (3) of this regulation, the Commission may consider in its discretion to grant provisional tariff up to 95% of the annual fixed cost of the project claimed in the application subject to adjustment as per proviso to clause (3) of this regulation after the final tariff order has been issued.*

*Provided that recovery of capacity charge and energy charge, as the case may be, in respect of the existing or new project for which provisional tariff has been granted shall be made in accordance with the relevant provisions of these regulations.”*

## **2.4. Independent audit of power plants (Regulation 6(3))**

### **Stakeholders’ comments/ suggestions**

The UP Rajya Vidyut Upbhokta Parishad (UPRVUP) requested that since the burden of the generation cost has to be borne by the consumers of the state the accounts of the generating companies in the state should be audited by CAG.

### **Commission’s views**

With regards to the requirement of CAG audit or any third party audit the Commission is of the view that the financial and operational performance of the generation companies should be audited. The Commission has thus included the following proviso in Regulation 6 (3):

*“(3) The generating company shall submit for the purpose of truing up, details of capital expenditure and additional capital expenditure incurred duly audited and certified by the auditors.*

*Provided the Commission may appoint a separate independent auditor who, under the supervision of the Commission, shall undertake the audit of the financial and operational parameters of the generating station at any time”*

## **2.5. Mid-term review (Regulation 6)**

### **Commission’s views**

The draft regulations provided for mid-term review of capex by the generation companies in relation to the projected capital expenditure. However, since the Commission allows capital expenditure on a scheme-wise basis and the cost of the same is included in the fixed cost at the time of truing up, the provisions for mid-term review have been deleted.

## **2.6. Date of Commercial Operation (Regulation 7)**

### **Stakeholders’ comments/ suggestions**

The state generating company Uttar Pradesh Rajya Vidyut Utpadan Nigma Ltd. (UPRUVNL) has suggested that the Commission may align the definition completely in line with the one proposed by the Central Commission.

## Commission's views

In line with the suggestion of the UPRUVNL the Commission proposes to add a proviso to the Regulation 7(3) as under

*“Provided that where beneficiaries have been tied up for purchasing power from the generating station, the trial run shall commence after giving seven days’ notice by the generating company.”*

## **2.7. Definitions (Regulation 16(20))**

### Commission's views

The definition of ‘Generation Station’ and ‘Project’ has been modified in line with that prescribed by CERC. The revised definition is given below:

*“(20) ‘Generating Station’ means any station for generating electricity, including any building and plant with step-up transformer, switch-gear, switch yard, cables or other appurtenant equipment, if any, used for that purpose and the site thereof; a site intended to be used for a generating station, and any building used for housing the operating staff of a generating station but does not in any case include any sub-station”*

*“(35) Project’ means a generating station and in case of a thermal generating station does not include mining if it is a pit head project and dedicated captive coal mine;”*

## **2.8. Target Availability (Regulation 18(i))**

### Stakeholders’ comments/ suggestions

UPPCL has suggested that the target availability be reviewed after a period of three years based on actual on ground situation. UPRUVNL has suggested that the current norm may be retained. Rosa Power has commented that in view of the deteriorating coal situation, target availability may be revised to 83%.

UPRUVNL has also requested that in case of non-availability of unit(s) due to Renovation and Modernization or deletion of capacity or deration of capacity, the effective capacity left after discounting capacity of such unit(s), should be considered for the purpose of calculation of plant availability as per the provision contained in the amendment to the previous regulations.

### Commission's views

The Commission believes that with blending with alternative coal supply outside the FSA being allowed in the current Regulations the generating stations must improve their availability factor. However the Commission also understands that the coal situation has been precarious in the past and actual stocks available with generating stations have been very low. In case the coal situation does not improve on a sustained basis it will be difficult to attain the normative availability. Thus the Commission proposes to modify the Regulations 18(i) as under:

*“(a) All thermal power generating stations, except those covered under clause (b) below - 85%*

*Provided that in view of shortage of coal and uncertainty of assured coal supply on sustained basis experienced by the generating stations, the target availability for recovery of fixed charges may be reduced to 83% based on the submissions made by the generating station and approval of the Commission.*

*(b)*

<i>S. No.</i>	<i>Power Station</i>	<i>2014-19</i>
<i>(i)</i>	<i>Obra-A</i>	<i>70</i>
<i>(ii)</i>	<i>Obra-B</i>	<i>80</i>
<i>(iii)</i>	<i>Panki TPS</i>	<i>70</i>
<i>(iv)</i>	<i>Harduaganj TPS</i>	<i>65</i>
<i>(v)</i>	<i>Parichha</i>	<i>75</i>

*Figures in %*

*Note -1*

*Recovery of capacity (fixed) charges below the level of target availability shall be on pro rata basis. At zero availability, no capacity charges shall be payable.*

*Note-2*

*In case of non-availability of unit(s) due to Renovation and Modernization or deletion of capacity or deration of capacity, the effective capacity left after discounting capacity of such unit(s), shall be considered for the purpose of calculation of plant availability.*

*Note-3*

*In case of thermal backing instruction, the capacity (fixed) charges shall be payable on the basis of availability.”*

## **2.9. Gross Station Heat Rate (Regulation 18(iii))**

### **Stakeholders’ comments/ suggestions**

UPRUVNL has suggested that in case of Obra B the GSHR specified have a margin of at least 4.5% above the design heat rate. Most of the stakeholders have suggested that the methodology to be adopted in case of new generating stations may be in line with the one adopted by the Central Commission where it specifies the Maximum Design Unit Heat Rate in case of Sub Bituminous Indian Coal and Bituminous Imported Coal.

## Commission's views

In light of the submissions received by the Commission and the methodology adopted by the Central Commission the Regulation 18(iii) is modified as under. The GSHR for Obra B has also been revised in line with the design heat rate of the generating station.

“(a) In case of coal-based thermal power generating station achieving COD before 1.4.2014, and coal-based thermal power generating stations other than those covered under clause (b) below:

<i>Upto 50 MW Sets</i>	<i>200/210/250/300/330/ 350 MW Sets</i>	<i>500 MW and above Sets</i>
<i>2890 kCal/kWh</i>	<i>2475kCal/kWh</i>	<i>2410 kCal/kWh</i>

*Note 1*

*In respect of 500 MW and above units where the boiler feed pumps are electrically operated, the gross station heat rate shall be 40kCal/kWh lower than that indicated above.*

*Note 2*

*For the generating stations having combination of 200/210/250/300/330/350 MW sets and 500 MW and above sets, the normative gross station heat rate shall be the weighted average gross station heat rate of the combinations.*

(b)

<i>S. No.</i>	<i>Power Station</i>	<i>2014-19</i>
<i>(i)</i>	<i>Obra-A</i>	<i>2890</i>
<i>(ii)</i>	<i>Obra-B</i>	<i>2755</i>
<i>(iii)</i>	<i>Panki TPS</i>	<i>2980</i>
<i>(iv)</i>	<i>Harduaganj TPS</i>	<i>3150</i>
<i>(v)</i>	<i>Parichha</i>	<i>2980</i>

*(Figures in Kcal/Kwh)*

(c) In case of new coal-based thermal power generating station achieving COD on or after 1.4.2014

*Gross Station Heat Rate = 1.045 X Design Heat Rate (kCal/kWh)*

*Where the Design Heat Rate of a generating unit means the unit heat rate guaranteed by the supplier at conditions of 100% MCR, zero percent make up, design coal and design cooling water temperature/back pressure.*

*Provided that the design heat rate shall not exceed the following maximum design unit heat rates depending upon the pressure and temperature ratings of the units:*

<i>Pressure Rating (Kg/cm<sup>2</sup>)</i>	<i>150</i>	<i>170</i>	<i>170</i>	<i>247</i>
<i>SHT/RHT (°C)</i>	<i>535/535</i>	<i>537/537</i>	<i>537/565</i>	<i>565/593</i>
<i>Type of BFP</i>	<i>Electrical Driven</i>	<i>Turbine Driven</i>	<i>Turbine Driven</i>	<i>Turbine Driven</i>
<i>Max Turbine Heat Rate (kCal/kWh)</i>	<i>1955</i>	<i>1950</i>	<i>1935</i>	<i>1850</i>
<i>Min. Boiler Efficiency</i>				
<i>Sub-Bituminous Indian Coal</i>	<i>0.86</i>	<i>0.86</i>	<i>0.86</i>	<i>0.86</i>
<i>Bituminous Imported Coal</i>	<i>0.89</i>	<i>0.89</i>	<i>0.89</i>	<i>0.89</i>
<i>Max Design Unit Heat Rate (kCal/kWh)</i>				
<i>Sub bituminous Indian Coal</i>	<i>2273</i>	<i>2267</i>	<i>2250</i>	<i>2151</i>
<i>Bituminous Imported Coal</i>	<i>2197</i>	<i>2191</i>	<i>2174</i>	<i>2078</i>

*Provided further that in case pressure and temperature parameters of a unit are different from above ratings, the maximum design unit heat rate of the nearest class shall be taken;*

*Provided also that where unit heat rate has not been guaranteed but turbine cycle heat rate and boiler efficiency are guaranteed separately by the same supplier or different suppliers, the unit design heat rate shall be arrived at by using guaranteed turbine cycle heat rate and boiler efficiency;*

*Provided also that where the boiler efficiency is below 86% for Sub-bituminous Indian coal and 89% for bituminous imported coal, the same shall be considered as 86% and 89% respectively for Sub-bituminous Indian coal and bituminous imported coal for computation of station heat rate;*

*Provided also that maximum turbine cycle heat rate shall be adjusted for type of dry cooling system;*

*Provided also that if one or more generating units were declared under commercial operation prior to 1.4.2014, the heat rate norms for those generating units as well as generating units declared under commercial operation on or after 1.4.2014 shall be lower of the heat rate norms arrived at by above methodology and the norms as per the Regulation 18(iii) (a).*

#### *Note*

*In respect of generating units where the boiler feed pumps are electrically operated, the maximum design unit heat rate shall be 40 kCal/kWh lower than the maximum design unit heat rate specified above with turbine driven BFP.”*

## 2.10. Secondary Fuel Oil Consumption (Regulation 18(iv))

### Stakeholders' comments/ suggestions

BEPL has suggested that for smaller generating stations the norms for the previous period may be retained.

### Commission's views

The Commission believes there is merit in the suggestion made by BEPL. In light of the submissions received by the Commission, Regulation 18(iv) is modified as under:

“(a) Coal-based generating stations except those covered under sub-clause (b) below:

*Generating stations upto 100 MW - 1 ml/kWh*

*Other generating stations - 0.75 ml/kWh*

(b)

S. No.	Power Station	2014-19
(i)	Obra-A	3.2
(ii)	Obra-B	2.1
(iii)	Panki TPS	2.1
(iv)	Harduaganj TPS	3.7
(v)	Parichha	2.6

*Figures in ml/kWh”*

## 2.11. Capital Cost (Regulation 19 and 39)

### Stakeholders' comments/ suggestions

Stakeholders have suggested that provisions regarding capital cost may be aligned with those adopted by the Central Commission. UPPCL has also suggested that capital expenditure under PAT scheme may be admitted in the project cost but in case the generator gets Energy Efficiency Certificate for operating above the benchmark fixed by PAT, the benefit may be shared in the ratio of 50:50 between the generator and the beneficiary. Additionally in the event of under achievement of the bench mark fixed by PAT, the generator should solely bear its burden.

### Commission's views

The Commission appreciates the suggestions made by UPPCL and agrees that the benefit of any capital expenditure on account of PAT must be passed on to the consumers since essentially they are bearing the burden of the same. Also in case the generator is unable to achieve the targets set under the PAT then the beneficiary must not be burdened on account of compliance requirements of the

generation company. Thus the Commission has taken into account the provisions made by the Central Commission regarding capital cost and the suggestions from UPPCL and has modified Regulation 19 and 39 as below:

**“19. Capital Cost:**

*(1) Subject to prudence check by the Commission, the actual expenditure incurred on completion of the project shall form the basis for determination of final tariff for new and existing projects.*

*(2) The final tariff for a new project shall be determined based on the admitted capital cost which shall include:*

*(a) the expenditure actually incurred up to the date of commercial operation of the project;*

*(b) Interest during construction and financing charges, on the loans (i) being equal to 70% of the funds deployed, in the event of the actual equity in excess of 30% of the funds deployed, by treating the excess equity as normative loan, or (ii) being equal to the actual amount of loan in the event of the actual equity less than 30% of the funds deployed;*

*(c) Increase in cost in contract packages as approved by the Commission*

*(d) Interest during construction and incidental expenditure during construction as computed in accordance with Regulation 20 of these regulations;*

*(e) Capitalised initial spares subject to ceiling norms of 4% (as a percentage of the Plant and Machinery cost) for coal/lignite based generating stations upto cut-off date (excluding IDC, IEDC, Land Cost and cost of civil works);*

*Provided where the benchmark norms for initial spares have been published as part of the benchmark norms for capital cost by the Central Electricity Regulatory Commission and are adopted by the Commission for prudence check, such norms shall apply to the exclusion of the norms specified above:*

*Provided where the generating station has any transmission equipment forming part of the generation project, the ceiling norms for initial spares for such equipment shall be as per the ceiling norms specified by the Commission for transmission system from time to time.*

*(f) Expenditure on account of additional capitalization and de-capitalisation determined in accordance with Regulation 22 of these regulations; and*

*(g) Adjustment of revenue due to sale of infirm power in excess of fuel cost prior to the COD as specified under Regulation 23 of these regulations.*

*Provided that for all MoU route projects who are under PPA, the agreed ceiling capital cost between the generating company and the beneficiary shall be brought to the Commission for approval and the approved cost shall be a part of PPA. The actual capital cost, if it is equal to the approved ceiling capital cost, shall form the basis for prudence check and determination of tariff by the Commission. If the actual cost is lower, then the lower cost would be taken and if it is higher, then the additional cost would first be verified and agreed between the generating company and the beneficiary then shall be taken up by the Commission for consideration and approval.*

(3) *The final tariff for an existing project shall be determined based on the admitted capital cost which shall include:*

*(a) the capital cost admitted by the Commission prior to 1.4.2014 duly trued up by excluding liability, if any, as on 1.4.2014;*

*(b) additional capitalization and de-capitalization for the respective year of tariff as determined in accordance with Regulation 22; and*

*(c) expenditure on account of renovation and modernization as admitted by this Commission in accordance with Regulation 22.*

*(4) The capital cost w.r.t. a thermal generating station incurred on account of the Perform, Achieve and Trade (PAT) scheme of Government of India will be considered by the Commission on case to case basis and shall include:*

*(a) Cost of plan proposed by developer in conformity with norms of PAT Scheme; and*

*(b) The expected benefits accrued on account of PAT Scheme.*

*Provided that if the generator gets any revenue from sale of Energy Efficiency Certificates for operating above the bench mark fixed under the PAT scheme, the benefit may be shared in the ratio of 50:50 between the generator and the beneficiary.*

*Provided further that in case of the under achievement of the bench mark fixed by PAT, the generator shall solely bear the burden arising out of purchase of Energy Efficiency Certificates for compliance with the targets set under the PAT.*

*(5) The following shall be excluded or removed from the capital cost of the existing and new projects:*

*(a) The assets forming part of the project, but not in use;*

*(b) Decapitalisation of Asset;*

*(c) the proportionate cost of land which is being used for generating power from generating station based on renewable energy:*

*Provided that any grant received from the Central or State Government or any statutory body or authority for the execution of the project which does not carry any liability of repayment shall be excluded from the Capital Cost for the purpose of computation of interest on loan, return on equity and depreciation.*

*(6) Prudence Check of Capital Expenditure: The following principles shall be adopted for prudence check of capital cost of the existing or new projects:*

*(a) In case of the thermal generating station, prudence check of capital cost may be carried out taking into consideration the benchmark norms specified/to be specified by the Central Electricity Regulatory Commission from time to time:*

*(b) Provided that in cases where benchmark norms have not been specified, prudence check may include scrutiny of the capital expenditure, financing plan, interest during construction, incidental expenditure during construction for its reasonableness, use of efficient technology, cost over-run and time over-run, competitive bidding for procurement and such other matters as may be considered appropriate by the Commission for determination of tariff:*

*(c) Provided further that in cases where benchmark norms have been specified, the generating company shall submit the reasons for exceeding the capital cost from benchmark norms to the satisfaction of the Commission for allowing cost above benchmark norms.*

*(d) The Commission may issue new guidelines or adopt the guidelines prescribed by the Central Electricity Regulatory Commission for vetting of capital cost of projects by an independent agency or an expert and in that event the capital cost as vetted by such agency or expert may be considered by the Commission while determining the tariff for the generating station.*

*(e) The Commission may issue new guidelines or adopt the guidelines prescribed by the Central Electricity Regulatory Commission for scrutiny and approval of commissioning schedule of the projects which shall be considered for prudence check.*

*(f) Where the power purchase agreement entered into between the generating company and the beneficiaries provides for ceiling of actual capital expenditure, the Commission shall take into consideration such ceiling for determination of tariff for prudence check of capital cost.”*

### **“39. Capital Cost :**

*Subject to prudence check by the Commission, the actual expenditure incurred on completion of the project shall form the basis for determination of final tariff for new and existing projects.*

*(1) The final tariff for a new project shall be determined based on the admitted capital cost which shall include:*

*(a) the expenditure actually incurred up to the date of commercial operation of the project;*

*(b) Interest during construction and financing charges, on the loans (i) being equal to 70% of the funds deployed, in the event of the actual equity in excess of 30% of the funds deployed, by treating the excess equity as normative loan, or (ii) being equal to the actual amount of loan in the event of the actual equity less than 30% of the funds deployed;*

*(c) Increase in cost in contract packages as approved by the Commission;*

*(d) Interest during construction and incidental expenditure during construction as computed in accordance with Regulation 38 of these regulations;*

*(e) Capitalised initial spares subject to ceiling norms of 4% (as a percentage of the Plant and Machinery cost) upto cut-off date (excluding IDC, IEDC, Land Cost and cost of civil works);*

*Provided where the generating station has any transmission equipment forming part of the generation project, the ceiling norms for initial spares for such equipment shall be as per the ceiling norms specified by the Commission for transmission system from time to time.*

*(f) Expenditure on account of additional capitalization and de-capitalisation determined in accordance with Regulation 40 of these regulations*

*(g) Adjustment of revenue due to sale of infirm power prior to the COD as specified under Regulation 41 of these regulations; and*

*(2) The final tariff for an existing project shall be determined based on the admitted capital expenditure which shall include:*

*(a) The capital cost admitted by the Commission prior to 1.4.2014 duly tried up by excluding liability, if any, as on 1.4.2014; and*

*(b) Additional capitalization and de-capitalization for the respective year of tariff as determined in accordance with Regulation 40.*

*(c) Expenditure on account of renovation and modernization as admitted by this Commission in accordance with Regulation 40.*

*(3) The following shall be excluded or removed from the capital cost of the existing and new projects:*

*(a) The assets forming part of the project, but not in use;*

*(b) Decapitalisation of Asset;*

*(c) In case of hydro generating station any expenditure incurred or committed to be incurred by a project developer for getting the project site allotted by the State government by following a two stage transparent process of bidding;*

*(d) The proportionate cost of land which is being used for generating power from generating station based on renewable energy:*

*Provided that any grant received from the Central or State Government or any statutory body or authority for the execution of the project which does not carry any liability of repayment shall be excluded from the Capital Cost for the purpose of computation of interest on loan, return on equity and depreciation.*

*(4) Prudence Check of Capital Expenditure: The following principles shall be adopted for prudence check of capital cost of the existing or new projects:*

*(a) The Commission may issue new guidelines or adopt the guidelines prescribed by the Central Electricity Regulatory Commission for vetting of capital cost of hydro-electric projects by an independent agency or an expert and in that event the capital cost as vetted by such agency or expert may be considered by the Commission while determining the tariff for the hydro generating station.*

*(b) The Commission may issue new guidelines or adopt the guidelines prescribed by the Central Electricity Regulatory Commission for scrutiny and approval of commissioning schedule of the hydro-electric projects which shall be considered for prudence check.*

*(c) Where the power purchase agreement entered into between the generating company and the beneficiaries provides for ceiling of actual capital expenditure, the Commission shall take into consideration such ceiling for determination of tariff for prudence check of capital cost.*

*Provided that for all MoU route projects who are under PPA, the agreed ceiling capital cost between the generating company and the beneficiary shall be brought to the Commission for approval and the approved cost shall be a part of PPA. The actual capital cost, if it is equal to the approved ceiling capital cost, shall form the basis for prudence check and determination of tariff by the Commission. If the actual cost is lower, then the lower cost would be taken and if it is higher, then the additional cost would first be verified and agreed between the generating company and the beneficiary then shall be taken up by the Commission for consideration and approval.”*

## **2.12. Controllable and uncontrollable factors (Regulation 21(2) and 41(2))**

### **Stakeholders’ comments/ suggestions**

The stakeholders requested that the provision should be aligned with that made by the Central Commission to provide for the contingency wherein the generating station is not commissioned on the SCOD of the associated transmission system.

### **Commission’s views**

The Commission has decided to modify the regulation in light of the representation received and in line with the provision adopted by the Central Commission as follows:

*“(2) The “uncontrollable factors” shall include but shall not be limited to the following:*

*(a) Force Majeure events.; and*

*(b) Change in law.*

*Provided that no additional impact of time overrun or cost over-run shall be allowed on account of non-commissioning of the generating system or associated transmission system by SCOD, as the same should be recovered through Implementation Agreement between the generating company and the transmission licensee:*

*Provided further that if the generating station is not commissioned on the SCOD of the associated transmission system, the generating company shall bear the IDC or transmission charges if the transmission system is declared under commercial operation;*

*Provided also that if the transmission system is not commissioned on SCOD of the generating station, the transmission licensee shall arrange the evacuation from the generating station at its own arrangement and cost till the associated transmission system is commissioned.”*

## ***2.13. Computation of fixed charge – Depreciation (Regulation 25(ii) and 45(ii))***

### **Stakeholders' comments/ suggestions**

Most of the stakeholders have suggested that the Commission may either continue with the existing provision of Advance Against Depreciation or increase the current rate of Depreciation so that the generators are able to service their debt obligation.

### **Commission's views**

The Commission understands the concerns of the developers and in order to enable them to meet their current debt obligations efficiently decides to increase the average depreciation rate as 5.83%.

## ***2.14. Computation of fixed charge – Return on Equity (Regulation 25(iii) and 45(iii))***

### **Commission's views**

The draft regulations provided that equity invested in foreign currency shall be allowed a return up to the prescribed limit in the same currency and the payment on this account shall be made in Indian Rupees based on the exchange rate prevailing on the due date of billing. However, in view of the provisions adopted by the Central Commission and the Commission regarding determination of capital cost and FERV, this provision is not required. The provision has thus been deleted.

## ***2.15. Computation of fixed charge – Operation and Maintenance Expenses (Regulation 25(iv))***

### **Stakeholders' comments/ suggestions**

UPRUVNL has stated that in case of Obra B, the units were under R&M scheme during the previous control period, due to which the Operation & Maintenance expenses were exceptionally low and the actuals must not be used as a benchmark for arriving at the expenses for the next control period.

### **Commission's views**

The Commission in line with the submission from UPRUVNL understands that no benchmark is available for defining the operation and maintenance expenses for Obra B. Thus the Commission is inclined to adopt the methodology adopted in the previous control period and specify the same norms for Obra B as those specified by the Central Commission in case of 200 MW units. Thus the Regulation 25(iv) stands modified as under:

“(a) Coal-based generating stations except for those at (b) below:

Year	Upto 200/210/250 MW sets	300/330/350 MW sets	500 MW sets	600 MW & above sets
2014-15	23.90	19.95	16.00	14.40
2015-16	25.40	21.21	17.01	15.31
2016-17	27.00	22.54	18.08	16.27
2017-18	28.70	23.96	19.22	17.30
2018-19	30.51	25.47	20.43	18.38

(Rs. in lakh/MW)

(b) Obra A, Obra B, Panki, Parichha and Harduaganj Power Stations:

Year	Obra-A	Obra-B	Panki	Harduaganj	Parichha
2014-15	46.23	23.90	54.94	53.28	31.91
2015-16	48.16	25.40	57.24	55.51	33.24
2016-17	50.15	27.00	59.61	57.80	34.61
2017-18	52.20	28.70	62.04	60.17	36.03
2018-19	54.31	30.51	64.55	62.60	37.48

(Rs. in lakh/MW)

#### Note

(i) For the generating stations having combination of 200/210/250/300/330//500/600/660 MW and above sets, the weighted average value for operation and maintenance expenses shall be adopted.

(ii) Operation & Maintenance expenses, specified above or the actual expenditure, whichever less, shall be allowed in a particular year. Provided further that in case of partial utilisation of expenditure, unutilised amount may be allowed to meet the increased requirement of Operation & Maintenance expenditure in subsequent years.

(c) The expenses on regulatory fee, payment to pollution control board, impact of pay revision, capital spares, cost of water and water cess shall be paid additionally at actuals subject to prudence check. The details regarding the same shall be furnished along with the petition;

Provided that the generating station shall submit the details of year wise actual capital spares consumed at the time of truing up with appropriate justification for incurring the same and substantiating that the same is not funded through compensatory allowance or special allowance

or claimed as a part of additional capitalisation or consumption of stores and spares and renovation and modernization.

(d) In case of coal-based thermal generating station a separate compensation allowance unit-wise may be permitted to meet expenses in nature of capital expenditure on replacement of minor assets which are not admissible under Regulation 22 of these regulations, and in such an event, revision of the capital cost shall not be allowed on account of compensation allowance but the compensation allowance shall be allowed to be recovered separately, in the following manner from the year following the year of completion of 10, 15, or 20 years of useful life:

Years of operation	Compensation Allowance
	(Rs lakh/ MW / year)
0-10	Nil
11-15	0.20
16-20	0.50
21-25	1.00

”

## **2.16. Computation of fixed charge – Interest on working capital (Regulation 25(v))**

### **Stakeholders’ comments/ suggestions**

Most of the stakeholders have suggested that the clause may be aligned in line with the one adopted by the Central Commission. Also the stakeholders in the public hearing have suggested that the Commission may clarify the definition of “on as received basis” to avoid any confusion.

### **Commission’s views**

The coal stocks in transit have to be funded by 30 days coal cost. The Central Commission in calculation of the Interest on Working Capital has also provided for 30 days of cost of coal. In light of the overwhelming inclination of the stakeholders towards the methodology adopted by the Central Commission and in order to provide boost to the struggling sector the Commission decides to modify the Regulation 24(v) as under:

“(a) Working capital shall be allowed on a normative basis and for coal based generating stations shall include:

(i) Cost of coal for 15 days for pit-head generating stations and 30 days for non-pit-head generating stations, corresponding to the target availability;

(ii) Cost of coal for 30 days for generation corresponding to the target availability

(iii) Cost of secondary fuel oil for two months corresponding to the target availability and in case of use of more than one secondary fuel oil, cost of fuel oil stock for the main secondary fuel oil;

(iv) Operation and Maintenance expenses for one month;

(v) Maintenance spares @ 20% of operation and maintenance expenses; and

(vi) Receivables equivalent to two months of capacity charges and energy charges for sale of electricity calculated on the target availability.

(b) The cost of fuel in cases covered under sub-clauses (i) and (ii) of clause (a) of this regulation shall be based on the landed cost incurred (taking into account normative transit and handling losses) by the generating company and gross calorific value of the fuel (on as received basis as defined by the Central Electricity Regulatory Commission) for the three months preceding the first month of the period for which tariff is to be determined and no fuel price escalation shall be provided during the tariff period.

(c) Rate of interest on working capital shall be on normative basis and shall be considered as the Bank Rate as on 1.4.2014 or as on 1st April of the year during the tariff period 2014-15 to 2018-19 in which the generating station or a unit thereof is declared under commercial operation, whichever is later.

(d) Interest on working capital shall be payable on normative basis notwithstanding that the generating company has not taken loan for working capital from any outside agency.”

## **2.17. Energy Charges – cost of alternative coal supply (Regulation 25(v))**

### **Stakeholders’ comments/ suggestions**

All the stakeholders appreciated the Commission’s concern towards dwindling coal stocks of generating stations through conventional FSAs. The distribution company UPPCL also suggested that prior permission may be made mandatory in case the weighted average price of the alternative fuel supply is more than the level specified by the Commission and no permission may be sought prior to that level. The stakeholders also suggested that the period of notice may be specified as “seven working days”.

### **Commission’s views**

In light of the suggestions received from the stakeholders the Commission decides to modify the Regulation 25(v) as under:

*“In case of part or full use of alternative source of fuel supply by coal based thermal generating stations other than as agreed by the generating company and beneficiaries in their power purchase agreement for supply of contracted power on account of shortage of fuel or optimization of economical operation through blending, the use of alternative source of fuel supply shall be permitted to generating station;*

*Provided further that the weighted average price of use of alternative source of fuel shall not exceed 30% of base price of fuel computed as per clause (v) of this regulation;*

*Provided also that where the energy charge rate based on weighted average price of use of fuel including alternative source of fuel exceeds 30% of base energy charge rate as approved by the Commission for that year or energy charge rate based on weighted average price of use of fuel including alternative sources of fuel exceeds 20% of energy charge rate based on weighted average fuel price for the previous month, whichever is lower shall be considered and in that event, prior consent of the beneficiary shall be taken by the generator by serving a notice upon the beneficiary in writing not later than seven working days in advance.*

*Provided that if the beneficiary does not respond to the notice given by the generator in writing within the above stipulated time, the beneficiary shall be liable for payment of fixed charges to generator.*

*Note*

*Alternative coal supply from CIL beyond the FSA must be done through e-auction route and for procurement of domestic open market coal and imported coal the generating companies shall follow a transparent competitive bidding process so as to identify a reasonable market price.”*

## **2.18. Definitions (Regulation 37(13))**

### **Commission’s views**

The definition of Declared Capacity for hydro power stations has been revised to align the same with the provisions made by the Central Commission as below.

*“(13) ‘Declared Capacity’ or ‘DC’ in relation to a generating station means, the capability to deliver ex-bus electricity in MW declared by such generating station in relation to any time-block of the day as defined in the Grid Code or whole of the day, duly taking into account the availability of water, and subject to further qualification in the relevant regulation;”*

## **2.19. Computation of Annual Fixed Charge – Operation and Maintenance Expenses (Regulation 44(iv))**

### **Stakeholders’ comments/ suggestions**

The state hydro generation company Uttar Pradesh Jal Vidyut Nigam Ltd. (UPJVNL) has suggested that the O&M expenses may be fixed on the basis of actual of previous control period and an escalation rate of 13%.

### **Commission’s views**

UPJVNL has not made any representation on the actual operation and maintenance expenses incurred in the previous control period. The Commission is thus inclined to follow the methodology adopted in the previous control period and the Regulation 44(iv) is modified as under

*“(a) The normative values of operation and maintenance expenses including insurance, for the existing hydro generating stations shall be as approved by the Commission in the tariff order based on the expenses approved in the previous control period, escalation rate of 6.64% per annum and any other factor as considered appropriate by the Commission.*

*(b) In case of the hydro generating stations declared under commercial operation on or after the date of commencement of this regulation, the base operation and maintenance expenses shall be fixed at 4.00% and 2.50% of the original project cost (excluding cost of rehabilitation & resettlement works) for first year of commercial operation for stations less than 200 MW projects and for stations more than 200 MW respectively and shall be subject to annual escalation of 6.64% per annum for the subsequent years.*

*(c) The expenses on regulatory fee, payment to pollution control board, impact of pay revision, cost of water and water cess shall be paid additionally at actuals.”*

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# ***Appendix***

## ***Explanatory Memorandum to the UPERC Draft Generation Tariff Regulations 2014-19***

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# 1. Introduction

## **Legal and regulatory framework**

The Uttar Pradesh Electricity Regulatory Commission (the Commission) has been vested with the functions under the Section 86 of the Electricity Act, 2003 (the Act) to determine the tariff for generation, supply, transmission and wheeling of electricity, wholesale, bulk or retail, as the case maybe, within the State. Section 61 of the Act requires the Commission to be guided by the multi-year tariff principles while specifying the terms and conditions for determination of tariff.

*“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”*

Further, Section 181(2) (zd) of the Act empowers the State Commission to make regulations on the Terms and Conditions for the determination of tariff under section 61. Section 61(i) of the Act provides that while specifying the terms and conditions of tariff, the Commission shall be guided by the National Electricity Policy and Tariff Policy.

## **UPERC Generation Tariff Regulations**

The Commission after enactment of Electricity Act, 2003, issued the Uttar Pradesh Electricity Regulatory Commission (Terms and Conditions of Generation Tariff) Regulations, 2004 which remained in force for a period of 3 years from its date of notification on 7<sup>th</sup> June 2005. The

Commission then issued Uttar Pradesh Electricity Regulatory Commission (Terms and Conditions of Generation Tariff) (First Amendment) Regulations, 2007 which remained in force from 1<sup>st</sup> April, 2008 to 31<sup>st</sup> March 2009. The Uttar Pradesh Electricity Regulatory Commission (Terms and Conditions of Generation Tariff) Regulations, 2009 (“UPERC Generation Tariff Regulations, 2009”) came into force with effect from 1<sup>st</sup> April, 2009 and were effective up to 31<sup>st</sup> March, 2014. The UPERC Generation Tariff Regulations, 2009 were amended through the Uttar Pradesh Electricity Regulatory Commission (Terms and Conditions of Generation Tariff) (First Amendment) Regulations, 2012 vide notification dated 20<sup>th</sup> March 2012.

## ***Discussion Paper for UPERC Generation Tariff Regulations 2014-19***

The Commission began the process for review of UPERC Generation Tariff Regulations for 2014-19 by issuing a Discussion Paper on its website <http://www.uperc.org> on 6.3.2014. The objective of publication of the Discussion Paper was to solicit views on different aspects of regulations applicable for next control period (FY 2014-19). Through the Discussion Paper, the Commission granted an opportunity to stakeholders to generate a debate on various aspects of the tariff framework. The Commission considered that this process would provide the element of transparency to the exercise. Therefore, letters inviting comments and suggestions on Discussion Paper were sent to CEA, CERC, SERCs, UPPCL, Discoms, UPRVUNL, RPSCL, Bajaj Energy and other stakeholders.

The Commission received comments from different stakeholders including the state owned generating company (UPRUVNL), UPPCL on behalf of State Discoms and independent power producers like Rosa Power Supply Company Limited (RPSCL) and Lalitpur Power Generation Company Limited (LPGCL). The Commission in the subsequent sections has discussed various aspects of the tariff regulations including existing provisions, issues raised in the Discussion Paper, summary of comments received from stakeholders and the Commission's view for framing Tariff Regulations for 2014-19. The Commission while examining the various aspects of the tariff regulations is guided by the provisions of the Electricity Act 2003, the Tariff Policy, National Electricity Policy and other statutes to protect the interests of consumers and to promote investment in generation assets in the State.

## 2. Financial Principles

### 2.1. Capital Cost

#### Background

Capital cost remains one of the main components for determination of tariff and is key to the returns available to a generation company. In order to promote growth in the sector it is important that the regulators provide for an environment where investors are provided good returns on their investment. The capital cost approved by the Commission forms the rate base for determination of return on investment. Capital cost also includes interest during construction, financing charges and foreign exchange rate variation up to the date of commercial operation of the project.

#### Existing Provisions of UPERC Generation Tariff Regulations, 2009

In respect of **thermal generating stations** the existing provisions in UPERC Generation Tariff Regulations, 2009 are as follows:

##### 17. Capital Cost:

*Subject to prudence check by the Commission, the actual expenditure incurred on completion of the project shall form the basis for determination of final tariff. The final tariff shall be determined based on the admitted capital expenditure actually incurred up to the date of commercial operation of the generating station and shall include capitalised initial spares subject to following ceiling norms as a percentage of the original project cost as on the cut-off date:*

Coal-based generating stations	-	2.5%
Gas Turbine/Combined Cycle generating stations	-	4.0%

*Provided that where the Power Purchase Agreement entered into between the generating company and the beneficiaries provides a ceiling on capital expenditure and the actual capital expenditure exceeds such ceiling, such increase/escalations shall be decided by the Commission on case to case basis on an application filed by the generating company.*

*Provided further that in case of the existing generating stations, the capital cost admitted by the Commission prior to the date of commencement of this regulation shall form the basis for determination of tariff.*

**Note:** *Scrutiny of the project cost estimates by the Commission shall be limited to the reasonableness of the capital cost, financing plan, interest during construction, use of efficient technology, and such other matters for determination of tariff.*

##### 18. Additional capitalisation:

*The following capital expenditure within the original scope of work actually incurred after the date of commercial operation and up to the cut-off date may be admitted by the Commission, subject to prudence check:*

- *Deferred liabilities;*
- *Works deferred for execution;*
- *Procurement of initial capital spares in the original scope of work, subject to ceiling specified in regulation 17;*
- *Liabilities to meet award of arbitration or for compliance of the order or decree of a court; and*
- *On account of change in law.*

*Provided that original scope of work along with estimates of expenditure shall be submitted along with the application for provisional tariff.*

*Provided further that a list of the deferred liabilities and works deferred for execution shall be submitted along with the application for final tariff after the date of commercial operation of the generating station.*

*Subject to the provisions of clause (3) of this regulation, the capital expenditure of the following nature actually incurred after the cut-off date may be admitted by the Commission, subject to prudence check:*

- *Deferred liabilities relating to works/services within the original scope of work;*
- *Liabilities to meet award of arbitration or for compliance of the order or decree of a court;*
- *On account of change in law;*
- *Any additional works/services which have become necessary for efficient and successful operation of the generating station, but not included in the original project cost; and*
- *Deferred works relating to ash pond or ash handling system in the original scope of work.*
- *Any expenditure on minor items/assets like normal tools and tackles, personal computers, furniture, air-conditioners, voltage stabilizers, refrigerators, fans, coolers, TV, washing machines, heat-convectors, carpets, mattresses etc. brought after the cut-off date shall not be considered for additional capitalisation for determination of tariff. The said items are illustrated and may include any other similar items.*

In respect of **hydro generating stations** the existing provisions in UPERC Generation Tariff Regulations, 2009 are as follows:

### 33. Capital Cost:

*Subject to concurrence of the Authority or prudence check by the Commission, as the case may be, the actual expenditure incurred on completion of the project shall form the basis for determination of final tariff. The final tariff shall be determined based on the admitted capital expenditure actually incurred up to the date of commercial operation of the generating station and shall include initial capital spares subject to a ceiling norm of 1.5% of the original project cost as on the cut-off date.*

*Provided that where the Power Purchase Agreement entered into between the generating company and the beneficiaries provides a ceiling on capital expenditure and the actual capital expenditure exceeds such ceiling, such increase/escalations shall be decided by the Commission on case to case basis on an application filed by the generating company.*

*Provided that the requirement of higher initial spares due to reasons specific to a generating station shall be decided by the Commission on case to case basis on an application filed by the generating company.*

*In case of existing generating stations, the project cost admitted by the Commission prior to commencement of this regulation shall form the basis for determination of tariff.*

**Note:** *The scrutiny of the project cost estimates by the Commission shall be limited to the reasonableness of the capital cost, financing plan, interest during construction, use of efficient technology and such other matters for the purposes of determination of tariff.*

### 34. Additional capitalisation:

*The following capital expenditure within the original scope of work actually incurred after the date of commercial operation and up to the cut-off date may be admitted by the Commission subject to prudence check.*

- *Deferred liabilities,*
- *Works deferred for execution,*
- *Procurement of initial capital spares in the original scope of works subject to ceiling specified in regulation 33,*
- *Liabilities to meet award of arbitration or in compliance of the order or decree of a court, and*
- *On account of change in law.*

*Provided that original scope of works along with estimates of expenditure shall be submitted along with the application for provisional tariff.*

*Provided further that a list of the deferred liabilities and works deferred for execution shall be submitted along with the application for final tariff after the date of commercial operation of generating station.*

*Subject to the provision of clause (3) of this regulation, the capital expenditure of the following nature actually incurred after the cut-off date may be admitted by the Commission subject to prudence check:*

- *Deferred liabilities relating to works/services within the original scope of work;*
- *Liabilities to meet award of arbitration or in compliance of the order or decree of a court;*
- *On account of change in law; and*
- *Any additional works/service which has become necessary for efficient and successful operation of plant but not included in the original capital cost.*
- *Any expenditure incurred on acquiring minor items/assets like tools and tackles, personal computers, furniture, air-conditioners, voltage stabilizers, refrigerators, coolers, fans, T.V, washing machine, heat-convectors, mattresses, carpets, etc brought after the cut-off date shall not be considered for additional capitalization for determination of tariff. The said items are illustrated and may include any other similar item.*

## ***Issues raised, stakeholder's response and Commission's view***

The Commission in its Discussion Paper brought out certain issues inviting comments/ suggestions from the stakeholders. In response, the stakeholders made their submissions on various issues. The summary of comments/suggestions as submitted by the stakeholders and the Commission's view thereof is discussed below.

### ***Provisional vs. Actual Expenditure***

#### ***Issues raised in the Discussion Paper:***

*Should provisional tariff for new power plants be computed based on projected capital expenditure or should tariff be approved on the basis of actual capital expenditure incurred by the Generating Companies as per their audited balance sheet upto the time of filing of the petition?*

#### ***Stakeholder's response:***

1. Most of the stakeholders suggested that the computation of provisional tariff on the basis of actually admitted expenditure as made in UPERC Generation Tariff Regulations, 2009 should be continued.
2. One of the stakeholders suggested that the provisional tariff for new power plant should be computed based on projected capital expenditure since the expenditure incurred between the period of tariff determination and COD is not taken into account and the tariff so determined on the basis of audited expenditure is not recoverable till final tariff is determined resulting in

a liquidity problem. The suggestion was that over or under recovery of charges by the generating company shall be subject to retrospective adjustment on the basis of final tariff determined by the commission and to bill such amount to be recovered or paid by it from or to the beneficiaries for the period provisional tariff remain effective, within 6 months of determination of final tariff, along with simple interest calculated at rate equal to short term PLR of SBI prevailing as on 1-April of the relevant year.

3. Another stakeholder suggested that the "Projected capital expenditure" approach should be adopted subject to prudence check for the purpose of determination of tariff (Annual Fixed Charges) for a generating station for the tariff period 2014-19 since the existing provisions help in minimizing the impact/quantum of retrospective revision of tariff and thus provide tariff certainty to both beneficiaries and generators. Also, it provides the mechanism for recovery/refund of under/excess tariff along-with interest which protects the interest of the parties in the eventuality of variation in projected capital expenditure vis-a-vis the actual expenditure at the time of truing up

### **Commission's view:**

The Commission in the past has observed that most of the capital expenditure is incurred during the initial years of construction period. Also, the Central Commission in its Explanatory Memorandum to CERC (Terms and Conditions of Generation Tariff) Regulations, 2014 has observed that there has been a wide variation in terms of projected vs. actual capital expenditure. The variation in actual capital expenditure and projected capital expenditure along with the interest is required to be considered at the time of truing up. In past it has been observed that wide variations in projected and actual capital expenditure has led to incorrect representation of costs in tariff defeating the entire objective of providing certainty in tariff. Thus the Commission is inclined to continue with its current approach of allowing tariff for generating stations as per their audited balance sheets at the time of filing of the petition.

### **Standardization of Construction Period**

#### **Issues raised in the Discussion Paper:**

*Is there a need to relook at the existing provision based on experience of considerable delays resulting into higher IDC on actual basis? Should IDC for equity infusion above desired level be allowed till the date of capitalization (COD) along with actual IDC in case of allowance of time over run or should such IDC be capped up to scheduled construction time period decided upfront? Suggestions on the treatment of various controllable and uncontrollable factors for arriving at their subsequent impact on the capital expenditure of the project and the sharing of gains and losses on account of these factors.*

#### **Stakeholder's response:**

1. Stakeholders have suggested that the burden of additional IDC on account of controllable parameters such as time over run etc. should be borne by the Generating Company, since they are incentivized for early commissioning through additional 0.5 % return of equity. In case of delay due to uncontrollable factors, Generating Company should bear the burden of 50% of additional IDC.

2. Stakeholders have also suggested, capping the IDC up to the scheduled construction time can be a welcome step. However, at the same time interest of Generating Companies also needs to be protected. Additions to capital cost carried out during construction phase at the instance of the off taker/beneficiary or due to regulations/government directives should be recognized and IDC thereon factored in. As an illustration a situation may come where entire station has been put up for the generation of electricity but the power evacuation system, which is responsibility of procurer/STU as per Energy Policy, 2009 of Government of Uttar Pradesh, is not made available. Under such situation since the power cannot be evacuated, the COD of the project will face time overrun and resultantly there will be an increase in IDC cost. Hence, additions to capital cost incurred at the instance of the off taker/beneficiary or due to regulations/government directives should be recognized as uncontrollable factor for the generator and IDC thereon factored in allowing time over run. Simultaneously, IDC for equity infusion above the desired level till the date of capitalization (COD) be allowed along with actual IDC.
3. Stakeholders have also suggested that it may not be possible to standardize the construction phase as construction period involves numerous factors like new technology, suppliers' default, national/ international/ political factors like recession, litigation, environment factors, land acquisition, rehabilitation of land evictees, fuel linkage vis-à-vis on time fuel availability. Developers are also facing financing challenges because of problems such fuel issues, payment issues by distribution companies and as a result achieving a standard equity structure is a challenge and equity above threshold limit must be allowed for calculating IDC and project delays must be considered on case to case basis and any extra IDC should be allowed and must not be capped based on construction schedule decided upfront.

### **Commission's view:**

Delay in commissioning of any project may lead to significant increase in the capital cost. The reasons attributable to delays in project commissioning vary widely with projects which affect the standardized construction period so it is relevant to specify the methodology to be adopted for treatment of increase in project cost on account of the delay in commissioning. APTEL in its Judgement in Appeal No. 72 of 2010 highlighted the probable reasons for the delay in project execution:

*"7.4. the delay in execution of a generating project could occur due to following reasons:*

*i) Due to factors entirely attributable to the generating company, e.g., imprudence in selecting the contractors/suppliers and in executing contractual agreements including terms and conditions of the contracts, delay in award of contracts, delay in providing inputs like making land available to the contractors, delay in payments to contractors/suppliers as per the terms of contract, mismanagement of finances, slackness in project management like improper co-ordination between the various contractors, etc.*

*ii) Due to factors beyond the control of the generating company e.g. delay caused due to force majeure like natural calamity or any other reasons which clearly establish, beyond any doubt, that there has been no imprudence on the part of the generating company in executing the project.*

*iii) Situation not covered by (i) & (ii) above. "*

*"In our opinion in the first case the entire cost due to time over run has to be borne by the generating company. However, the Liquidated Damages (LDs) and insurance proceeds on account of delay, if any, received by the generating company could be retained by the generating company. In the second case the generating company could be given benefit of the additional cost incurred due to time over-run. However, the consumers should get full benefit of the LDs recovered from the contractors/suppliers of the generating company and the insurance proceeds, if any, to reduce the capital cost. In the third case the additional cost due to time overrun including the LDs and insurance proceeds could be shared between the generating company and the consumer. It would also be prudent to consider the delay with respect to some benchmarks rather than depending on the provisions."*

The Central Commission, in its Tariff Regulations, 2014 has proposed that delay only on account of uncontrollable parameters must be allowed as part of the capital cost upon prudence check while IDC and IEDC should be restricted in case of delay on account of controllable parameters. The Commission, in line with the approach followed by the Central Commission proposes to specify the controllable and uncontrollable parameters leading to cost escalation as follows:

Some of the **controllable factors** shall include but not limited to the following:

1. Variations in capital expenditure on account of time and/or cost overruns on account of land acquisition issues.
2. Efficiency in the implementation of a project not involving approved change in scope of such project, change in statutory levies or force majeure events;
3. Delay in execution by contractors appointed.

The **Uncontrollable factors** shall include but not limited to the following:

1. Force Majeure events, such as acts of war, fire, natural calamities, etc.;
2. Change in law;

The Commission would also like to mention here that while discussing the standardization of construction period it is important to decide the starting point or zero date of the project so as to maintain uniformity. In order to maintain the uniform approach the Commission proposes to include the definitions of "Start date or Zero date" and "Scheduled Commercial Operation Date (SCOD)" as given by the Central Commission in CERC Tariff Regulations, 2014.

### *International Competitive Bidding*

#### **Issues raised in the Discussion Paper:**

*Whether to make ICB mandatory for the procurement of main plant packages/ major packages and competitive bidding for the other packages to ensure competitiveness of prices?*

#### **Stakeholder's response:**

1. The licensee UPPCL has submitted that ICB should be made mandatory but it should also be endeavoured that overall project cost is comparable at par with cost derived from benchmark costs.

2. Other stakeholders have submitted that making ICB mandatory for the whole project may create following implications.
  - a) This may sometimes delay award of the projects and thus may increase cost particularly when the entire project is not awarded through a single EPC
  - b) Considering the risk of exchange rate fluctuation as well as complexity of international transaction ICB should not be made compulsory and preference should be given to domestic supply.
  - c) It would be impractical to consider ICB for award of all the packages particularly when the project is being executed by awarding multiple packages and it may not be possible to attract international suppliers in such cases. Looking to above ICB should be made mandatory for the main packages like BTG for the upcoming plants and for BOP / other packages domestic competitive bidding should be provisioned to ensure competitive prices.
3. Another suggestion was that as long as costs are reasonable and comparable to the CERC benchmark costs it does no matter whether it was achieved through ICB or any other route. Since many Generation Companies implement projects on package basis ICB in such a case is difficult and additionally selection of contractors is not always on lowest price basis, selection criteria should include quality, workmanship, post commissioning support etc and implementation of project on individual packages basis by certain developers having in house engineering/EPC capabilities can result in lower project cost than what can be achieved through international competitive bidding basis.

### **Commission's view:**

On the issue of International Competitive Bidding the Commission understands that it may not be possible for developers as this sometimes delays award of the projects and thus may increase cost particularly when the entire project is not awarded through a single EPC. However to ensure the lowest possible impact on beneficiaries it important that in a cost plus regime expenses are carried out judiciously. The Commission thus proposes that competitive bidding be made mandatory for all the main plant packages and International Competitive Bidding will be an option available to the procurers depending upon the availability of technology and cost effectiveness. However, developers must take care to safeguard impact of foreign exchange risk variations as part of their contracts to minimize its impact on beneficiaries.

### ***Trial Run and Trial Operation***

#### **Issues raised in the Discussion Paper:**

*Suggestions/comments on the existing methodology followed for the trial operation of generating station. Furnish alternative methodologies followed by State generating stations, Central generating stations and others, if any. Suggestions on addressing the issue of trial operation and commissioning of the project when a generating station is ready but cannot be operated due to non-availability of load or evacuation system.*

### **Stakeholder's Response:**

1. One of the stakeholders submitted that the trial operation of generating plant should be done as per Chapter-2 of CERC Regulation-2014. Performance results must be witnessed by independent expert appointed by beneficiary and successful completion be certified by him. Acceptance of declared COD by the beneficiary should be the essential element for commencements of Commercial Operation. They have also suggested that the beneficiary should be absolved from the financial burden arising due to mismatch in CODs of generating station and evacuation facility. The defaulter i.e. generating companies or transmission licensee as the case may be, should bear the liability of Annual Fixed Charge (AFC) of the other party till the default vanishes.
2. As per existing provisions the commissioning test of each unit shall be conducted in presence of the seller, procurer and the independent engineer appointed by seller in consultation with the procurer. In light of above LPGCL has suggested that in case the unit cannot be operated at the desired level of specified at or 95% of installed capacity due to non-availability of the adequate load in the system or non-availability of transmission evacuation system the performance trial of that unit should be deemed to have been passed and COD declared on the report of Independent Engineer.
3. Another stakeholder has suggested that the existing provisions provides for declaration of COD after demonstrating maximum continuous rating (MCR) or installed capacity through a successful trial run after notice to all beneficiaries. Moreover, the present Regulations provides for incentive/ disincentive on Fixed Charge recovery thereby ensuring that these generators ensure the availability of units once declared COD. Thus the existing provisions of trial operation are sufficient and may be continued.
4. One of the stakeholders has also suggested that in case only part load/ part transmission line is available the trial operation should be carried, out on part capacity and capacity tested should be allowed for declaring COD. Once the grid/transmission constraints are resolved, then full capacity can be tested. In case the part or full capacity cannot be tested due to non-availability of load, transmission line etc. the same be considered as deemed available for payment of capacity charges. Such capacity charges should either be paid by the procurers or by the transmission licensee in case of delay of transmission facilities.

### **Commission's view:**

With regards to the trial operation the Commission proposes to bring a specific provision for trial operation in line with methodology proposed by the Central Commission in CERC Tariff Regulations, 2014. The same provision as stipulated in CERC Tariff Regulations is

**"5. Trial Run and Trial Operation.-** (1) Trial Run in relation to generating station or unit thereof shall mean the successful running of the generating station or unit thereof at maximum continuous rating or installed capacity for continuous period of 72 hours in case of unit of a thermal generating station or unit thereof and 12 hours in case of a unit of a hydro generating station or unit thereof:..."

## *Perform, Achieve and Trade Scheme (PAT)*

### **Issues raised in the Discussion Paper:**

*Suggestions to deal with capital expenditures made by generator to achieve targets of the efficiency improvement under the Perform, Achieve & Trade (PAT) scheme. Comments on type of expenditure to be considered as necessary for successful operation and efficient operation in case of hydro projects*

### **Stakeholder's response:**

1. Most of the stakeholders have suggested that the capital expenditure under PAT scheme may be admitted in the project cost. Additionally one of the stakeholders has also suggested that any other scheme towards compliance of statutory/regulatory requirement notified by MoEF or any other Government agency should be allowed to be recovered from tariff.
2. Additionally one of the stakeholders has suggested that in case the generator gets Energy Efficiency Certificate for operating above the bench mark fixed by PAT, the benefit may be shared in the ratio of 50:50 between the generator and the beneficiary and in the event of under achievement of the bench mark fixed by PAT, the generator should solely bear its burden because he has already been paid in terms of R&M or Special Allowance. Further if the generator fails to achieve the normative bench mark of operation fixed by the Commission then the special allowance may be withdrawn.
3. Another suggestion that was received suggested that there should be a list of PAT schemes for each control period and a benchmark capital cost for each PAT scheme. This amount can be determined by UPERC based on data obtained from existing power plants for improvement in efficiency under the PAT scheme. Since currently, it may be difficult to establish the benchmark capital costs as recommended above for the control period 2014-19, benchmarking may be considered while formulating regulations for 2019-23 based on the data collected during 2014-19. Hence for the Control period of 2014-19, any additional capital expenditure which is required or become necessary due to statutory requirements or in order to improve efficiency, safety of operations or to sustain long term efficient operations of the power station may be considered on case to case basis subject of prudence check by the Commission.

### **Commission's view:**

With regards to the subject of capital expenditure incurred under Perform Achieve Trade mechanism the Commission feels any such expenditure must be viewed in light of the cost benefit analysis anticipated as a result of such expenditure and efficiency improvement targeted by employing such measures.

## 2.2. Renovation and Modernization

### Background

There is shortage of power generation capacity in the country which makes it necessary to improve the current generation supply and its reliability. Renovation and modernization schemes increase the generation capacity of existing stations. Thus these schemes of current generating stations should be encouraged in public interest and supported with recovery of cost incurred for improvement in plant load factor, reduction in fuel cost and extension in useful life of the plant.

### Existing Provisions of UPERC Generation Tariff Regulations, 2009

In respect of **thermal generating stations** the existing provisions in UPERC Generation Tariff Regulations, 2009 are as follows:

#### 4. Renovation and Modernization (R&M):

*(i) (a) The generating company, for meeting the expenditure on renovation and modernization (R&M) for the purpose of extension of life beyond the useful life of the generating station or a unit thereof, shall make an application before the Commission for approval of the proposal with a Detailed Project Report giving complete scope, justification, cost-benefit analysis, estimated life extension from a reference date, financial package, phasing of expenditure, schedule of completion, reference price level, estimated completion cost including foreign exchange component, if any, record of consultation with beneficiaries and any other information considered to be relevant by the generating company.*

*Provided that in case of coal-based thermal generating station, the generating company, may, in its discretion, avail of a 'special allowance' in accordance with the norms specified in clause (d), as compensation for meeting the requirement of expenses including renovation and modernization beyond the useful life of the generating station or a unit thereof, and in such an event revision of the capital cost shall not be considered and the applicable operational norms shall not be relaxed but the special allowance shall be included in the annual fixed cost.*

*Provided also that such option shall not be available for a generating station or unit for which renovation and modernization has been undertaken and the expenditure has been admitted by the Commission before commencement of these regulations, or for a generating station or unit which is in a depleted condition and operating under relaxed operational and performance norms.*

*(b) Where the generating company makes an application for approval of its proposal for renovation and modernization, the approval shall be granted after due consideration of reasonableness of the cost estimates, financing plan, schedule of completion, interest during construction, use of efficient technology, cost-benefit analysis, and such other factors as may be considered relevant by the Commission.*

*(c) Any expenditure incurred or projected to be incurred and admitted by the Commission after prudence check based on the estimates of renovation and modernization expenditure and life*

extension, and after deducting the accumulated depreciation already recovered from the original project cost, shall form the basis for determination of tariff.

(d) A generating company, on opting for the alternative in the first proviso to clause (a) of this regulation, for a coal-based thermal generating station, shall be allowed special allowance @ Rs. 5 lakh/MW/year in 2009-10 and thereafter escalated @ 5.72% every year during the tariff period 2009-14, unit-wise from the next financial year from the respective date of the completion of useful life with reference to the date of commercial operation of the respective unit of generating station:

(ii) The provisions of sub regulation (i) shall apply provided the generating company shall ensure to plan R&M of atleast one unit of each generating station every year for life extension and improvement in performance, wherever due, after due techno economic studies and approval from the Commission to facilitate R&M or phase out.

(iii) Any expenditure admitted by the Commission for determination of tariff on R&M and life extension shall be serviced on normative debt-equity ratio specified in regulation 20 after writing off the original amount of the replaced assets from the original project cost. The generating company, for the purpose of R&M and life extension of the plant, shall be guided by the guide lines issued by the Commission from time to time.

## **Issues raised, stakeholder's response and Commission's view**

The Commission in its Discussion Paper brought out certain issues inviting comments/ suggestions from the stakeholders. In response, the stakeholders made their submissions on various issues. The summary of comments/suggestions as submitted by the stakeholders and the Commission's view thereof is discussed below.

### **Issues raised in the Discussion Paper:**

*In light of this discussion, comments/suggestion are solicited on whether there is a need to address the above issues & review the provision relating to Renovation & Modernization and Special allowance to make it more responsive to the requirement of generating stations?*

### **Stakeholder's response:**

1. Most of the stakeholders have suggested that the existing provision may be continued.
2. One of the suggestions was since R&M is an exclusive technical job, separate petition may be filed by the generator giving DPR, justification, cost benefit analysis, estimated life extension, schedule of completion, reference of price level and estimated completion cost including FERV and record of consultation with the beneficiaries.
3. One stakeholder has also suggested a different criterion i.e. one lakh hours of running of machine and the cost of R&M should be limited to 35% of capital cost. A monitoring wing must also be created that will keep a close watch on the various parameters of the machines and suggest R&M or Life Extension. The same monitoring wing will also monitor the post R&M achievement of expected values of operating norms.

**Commission's view:**

The Commission is of the view that the special allowance introduced during the tariff period 2009-14 incentivises the generators to invest in maintenance of the plant and enables them to achieve normative parameters for operation. The Commission thus proposes to extend this provision and increase the Special Allowance to Rs 7.5 Lakh/MW (for FY 2014-15, escalated by 6.35% per annum) for the units which will opt for Special Allowance during the tariff period 2014-19. However each generating company must also maintain records of the Special Allowance to ensure that is being used for the intended purpose.

**2.3. Depreciation****Background**

Depreciation is a major component of annual fixed cost. Depreciation serves as the means for repayment of loans for a generating company. There have been suggestions of linking depreciation to creation of a reserve fund for replacement of assets versus the linking of depreciation to cash flow for repayment of loans taken by the generation company. It is accepted in regulatory regime that the depreciation represents service to capital subscribed and is normally considered a cash flow available for repayment of loan.

**Existing Provisions of UPERC Generation Tariff Regulations, 2009***(a) Depreciation*

*For the purpose of tariff, depreciation shall be computed in the following manner, namely:*

- i. The value base for the purpose of depreciation shall be the historical cost of the asset. Depreciation shall be calculated annually, based on straight line method over the useful life of the asset and at the rates prescribed in Appendix II to these regulations.*
- ii. The residual life of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the historical capital cost of the asset. Land other than the land held under lease shall not be a depreciable asset and its cost shall be excluded from the capital cost while computing depreciable value of asset. The historical capital cost of the asset shall include additional capitalization on account of Foreign Exchange Rate Variation up to 31.3.2009 already allowed by the Government /Commission.*
- iii. On repayment of entire loan, the remaining depreciable value shall be spread over the balance useful life of the asset.*
- iv. Depreciation shall be chargeable from the first year of operation. In case of operation of the asset for part of the year, depreciation shall be charged on pro rata basis.*

*(b) Advance Against Depreciation*

*In addition to allowable depreciation, the generating company shall be entitled to Advance Against Depreciation, computed in the manner given hereunder:*

*AAD = Loan repayment amount as per regulation 21 (i) subject to a ceiling of 1/10th of loan amount as per regulation 20 minus depreciation as per schedule*

*Provided that Advance Against Depreciation shall be permitted only if the cumulative repayment up to a particular year exceeds the cumulative depreciation up to that year;*

*Provided further that Advance Against Depreciation in a year shall be restricted to the extent of difference between cumulative repayment and cumulative depreciation up to that year.*

## ***Issues raised, stakeholder's response and Commission's view***

The Commission in its Discussion Paper brought out certain issues inviting comments/ suggestions from the stakeholders. In response, the stakeholders made their submissions on various issues. The summary of comments/suggestions as submitted by the stakeholders and the Commission's view thereof is discussed below.

### ***Depreciation rates***

#### ***Issues raised in the Discussion Paper:***

*Should the Commission allow depreciation rates as prescribed by CERC and the concept of AAD be dispensed with?*

#### ***Stakeholder's response:***

1. The licensee UPPCL has suggested that the provision of AAD must be dispensed with and higher rates of depreciation may be allowed keeping in view the 12 year repayment period in line with the National Tariff Policy. Additionally AAD allowed over and above the rate arrived on the basis of useful life in order to take care the repayment liability has not given enough incentive to generating company to look forward for better terms in long term loan arrangements and on the other hand due to AAD, the tariff becomes front loaded.
2. Other stakeholders have commented that the present mechanism of AAD provides for shortfall in repayment of debt over and above the cash received by generating companies in form of depreciation. This mechanism helps in allocation of fair return the lenders and funds to providers of finances i.e. equity and debt capital in respect of any project. The lender community in the present circumstances while assessing the project wishes to ensure the Debt Service Coverage Ratio (DSCR) to be more than 1.25 or 1.30. Absence of AAD is likely to put pressure on the projected cash flows and may render the project unviable on standalone basis.
3. Stakeholders have also commented that the depreciation provided presently to the developer is not sufficient for repayment of loans since the present loan tenure available is around 10-12 years only for repayment after COD. Without AAD, cash received from RoE will be utilized by the Generating Companies for meeting their loan repayment, thereby effectively reducing the returns. In the current scenario, where the cost of equity has considerably increased in last 4 - 5 years, removal of AAD is not desired. Removal of AAD will not only create cash flow issues for the Generating Companies in term of requirement to meet loan repayment but would also increase the income tax liability of Generating Companies due to higher depreciation rates allowed as a component of fixed charge. With the current prevailing financial health of the

Generating Companies, provision of AAD should be continued. Alternatively, the rate of depreciation should be enhanced to cover the repayment of loan within 10 years.

### **Commission's view:**

The Central Commission after detailed deliberations in the tariff period 2009-14 discontinued the provision of Advance Against Depreciation (AAD). In order to enable generating companies to service their debt obligation the Central Commission also specified a higher rate of depreciation during the initial 12 years of useful life of the Projects, with remaining depreciable value at the end of 12 years to be spread over the balance useful life of the assets. In the current tariff period also the Central Commission has not allowed the concept of Advance Against Depreciation (AAD) and has continued with the same approach. In light of the above the Commission also proposes to increase the depreciation rates allowed for the generating stations to 5.28% (on an average) and discontinue the provision of Advance Against Depreciation.

### *Weighted average depreciation*

#### **Issues raised in the Discussion Paper:**

*Whether the treatment of weighted average useful life in case of combination, due to gradual commissioning of units, shall continue or alternatives if any? Can additional expenditure during fag end of life be considered for the re-assessment of useful life? Can additional expenditure after Renovation and modernization (or special allowance) be restricted to limited items/equipment? Can a regulatory method be derived wherein life gets reassessed at the start of every tariff period or every additional capital expenditure through a provision in the same way it is prescribed in accounting standard? In case of re-assessment of useful life, can depreciation be charged over the balance life of the assets along with the original written down value up to 90% value OR add cap and original amount depreciate over revised/reassessed useful life of asset?*

#### **Stakeholder's response:**

1. Most of the stakeholders have suggested that the weighted average rate in case of combination due to gradual commissioning of units may be continued and in case of re-assessment of useful life, depreciation should be charged over the revised balance life of the assets along with the written down value up to 90% of revised GFA.
2. Another suggestion was that if a part of additional capitalization is related to package based renovation, which is expected to increase the useful life for a considerable period, the schedule rate should be applied for the first 12 years and then the balance shall be depreciated over the balance extended life.
3. In case of capital expenditure incurred during fag end of the project the Generating Company may submit the details of such capital expenditure and the Commission based on prudence checks shall approve depreciation on capital expenditure during fag end of each project similar to the practice followed by the Central Commission. Also any additional expenditure post R&M efficiency improvement may not be allowed. In case of additional capitalization only weighted average useful life may be determined.

4. Additional expenditure during fag end of the life of project should be considered for re-assessment of life, without any restriction on items. Additional expenditure under R&M should continue to be allowed as per present scheme in this regard.
5. One of the stakeholders also stated that since frequent revisions in depreciation will result in uncertainty of cash flows and will create problem in arranging financing for the project, thus it may not be desirable to reassess life and re-compute depreciation at the start of every tariff period.

***Commission's view:***

In light of the comments received from various stakeholders the Commission is of the view that re-assessment of useful life at the beginning of every tariff period will not be a practical solution. Thus the current methodology of weighted average rate in case of combination due to gradual commissioning of units may be continued.

The Commission is also of the view that in case of assets added during fag end of the useful life of a generating station the generating company shall submit details of such additional capital expenditure. The Commission based on prudence check of such submissions shall approve the capital expenditure for R&M/ life extension. The depreciation on capital expenditure during the fag end of the project shall be spread over the balance revised/re-assessed useful life of the project.

## ***2.4. Net Fixed Asset v/s Gross Fixed Asset Approach***

### ***Background***

The Gross Fixed Assets approach creates internal resources for capacity replacement/addition through return on equity base of 30% (normative equity) even though the assets are written off up to 10% (salvage value). The interest on loan is computed duly taking into account the loan repayment equivalent to the depreciation and considering weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year applicable to the project. Under the Net Fixed Assets approach the entire capital base including debt and equity is depreciated. The return on equity available to the Generation Company is only allowed upto the time the equity investment has not been recovered through the depreciation allowed to the generator.

### ***Existing Provisions of UPERC Generation Tariff Regulations, 2009***

The Commission in the existing provisions has considered GFA approach in which the returns are provided on the normative equity base i.e. 30% on a perpetual basis over the entire life of the assets. The interest on loan is being computed duly taking into account the loan repayment equivalent to the depreciation and considering weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year applicable to the project.

## ***Issues raised, stakeholder's response and Commission's view***

The Commission in its Discussion Paper brought out certain issues inviting comments/ suggestions from the stakeholders. In response, the stakeholders made their submissions on various issues. The summary of comments/suggestions as submitted by the stakeholders and the Commission's view thereof is discussed below.

### ***Issues raised in the Discussion Paper:***

*Should the Commission follow the NFA model where NFA is arrived at by deducting the accumulated depreciation from the Gross Capital Cost admitted for tariff purposes?*

*Or should the Commission follow a modified GFA approach where gross capital may be divided in the ratio of loans and equity and the loan amount may be reduced to the extent of depreciation accrued. Once the loan amount is fully repaid and reduced to zero, further depreciation would be allowed to reduce the equity component.*

### ***Stakeholder's response:***

1. Most of the stakeholders have suggested that the NFA method is suitable in context of ROCE method i.e. return on capital employed method. NFA model is not been followed by CERC or other SERCs.
2. One of the stakeholders was of the view that it has been planning the capacity addition targets on the cash flow projections based on the GFA approach. Any change in the approach at this stage on such a fundamental principle would severely affect the cash flow of UPRVUNL and would jeopardize the capacity addition plan.
3. Another suggestion was that the existing methodology must be continued because
  - a. Equity remains invested at all times and it does not depreciate;
  - b. Equity and debt can't be treated in same manner as debt has to be repaid, but equity remains forever, on which profit is to be earned by way of RoE allowed in the tariff.
4. Another suggestion was that GFA approach must be continued in order to maintain regulatory certainty. If the NFA is considered the returns will reduce after debt repayment is made. Also benchmarking of ROCE is difficult in current unstable Indian financial markets as well as power sector which is fraught with various challenges. Also since equity invested at the beginning of the project remains unaltered throughout the life of the project; in fact it is increased due to accumulation of undistributed profit. NFA will have substantial adverse impact on the sector and investment and should be adopted only if depreciation/AAD is allowed on high rate which can, in 10 to 12 yrs, recover the whole investment (equity and debt both) and the legal framework allows redemption of equity every year in the same manner as repayment of debt.

5. Another response that was received stated that the modified GFA approach may be followed as had been suggested by the KP Rao Committee report, while other stakeholders have contested the rationality of such an approach.

### **Commission's view:**

The Commission observes that at present only the 'Gross Fixed Assets Approach' is being followed by other SERCs for allowing returns to generation companies. The Delhi Electricity Regulatory Commission has introduced the 'Net Fixed Assets Approach' for transmission and distribution business but not for the generation companies. The Central Commission too has prescribed the 'Gross Fixed Assets Approach' for tariff period 2014-19. Further, taking cognizance of stakeholder's responses and the challenges in the current macro-economic environment that have significant impact on the growth of the sector the Commission proposes to continue the 'Gross Fixed Assets Approach'.

## **2.5. Debt Equity Ratio**

### **Background**

Debt: Equity ratio is the most important factor for the promoters as it has an impact on return on investment. The financing pattern which is usually allowed on normative basis as 70:30 (debt: equity).

### **Existing Provisions of UPERC Generation Tariff Regulations, 2009**

*"In case of all generating stations, debt–equity ratio as on the date of commercial operation shall be 70:30 for determination of tariff. Where equity employed is more than 30%, the amount of equity for determination of tariff shall be limited to 30% and the balance amount shall be considered as the normative loan.*

*Provided that in case of a generating station where actual equity employed is less than 30%, the actual debt and equity shall be considered for determination of tariff.*

*The debt and equity amount arrived at in accordance with clause (1) shall be used for calculating interest on loan, return on equity, Advance Against Depreciation and Foreign Exchange Rate Variation."*

### **Issues raised, stakeholder's response and Commission's view**

The Commission in its Discussion Paper brought out certain issues inviting comments/ suggestions from the stakeholders. In response, the stakeholders made their submissions on various issues. The summary of comments/suggestions as submitted by the stakeholders and the Commission's view thereof is discussed below.

### ***Issues raised in the Discussion Paper:***

*The Commission in its Discussion Paper invited comments/suggestions from the stakeholders on whether there is a need to revisit the existing approach for debt: equity ratio or to continue with the existing composition?*

### ***Stakeholder's Responses***

In response to the issues brought out in the Approach Paper by the Commission, the stakeholders submitted their comments/suggestions on various issues. The summary of comments/suggestions as submitted by the stakeholders is as follows:

1. The debt equity ratio followed at present is consistent with the tariff policy 2006. This is also in line with practice followed by CERC & other SERCs. Therefore there is no need to revisit the existing approach.
2. One of the stakeholders suggested that ROE on additional equity above 30% and upto 40% may be allowed for a period of 2 years from the COD until which the Developer would be required to replace such additional equity above 30% with long term debt. In case of failure of developer to replace equity with long term loan, the additional equity be considered as Normative Debt. This approach would not only reduce IDC of the project but would also provide opportunity to the developer to raise debt at competitive rates post COD of the project as the risk perception of lenders reduces post COD of the project.

### ***Commission's view***

In order to balance the interests of the beneficiaries as well as the generating companies it is important that generating companies earn sufficient returns as well as the consumers are benefited in the long run. The wide acceptability of current levels of 70:30 in terms of the debt equity ratio and given the fact that power sector projects form the major chunk of lending amongst the infrastructure projects in India the Commission is inclined to continue with the existing approach and continue with a debt: equity ratio of 70:30. It is also important to note that other SERCs have followed the same normative ratio for tariff determination in their respective States. The Commission had also specified the debt equity ratio of 70:30 for financing new capital expenditure on projects in the previous control period.

## ***2.6. Return on Equity (RoE)***

### ***Background***

To provide returns on investments made by Generating Companies and to incentivise capacity addition in the sector providing a sound return on equity is important. In this context, the Tariff Policy stipulates:

*"a) Return on Investment*

*Balance needs to be maintained between the interests of consumers and the need for investments while laying down rate of return. Return should attract investments at par with, if not in preference*

to, other sectors so that the electricity sector is able to create adequate capacity. The rate of return should be such that it allows generation of reasonable surplus for growth of the sector."

## **Existing Provisions of UPERC Generation Tariff Regulations, 2009**

*Return on equity shall be computed on the equity base determined in accordance with regulation 20 @ 15.5% per annum;*

*Provided that in case of projects commissioned on or after 1st April, 2009, if such projects are completed within the timeline specified in Appendix-IV, or for projects approved by the Commission before 1st April, 2009 in absence of any provision made in PPA, an additional return of 0.5%, shall be allowed;*

*Provided further that additional return shall not be admissible if the project is not completed within the timeline specified above for reasons whatsoever;*

*Provided that equity invested in foreign currency shall be allowed a return up to the prescribed limit in the same currency and the payment on this account shall be made in Indian Rupees based on the exchange rate prevailing on the due date of billing.*

**Explanation:** *The premium raised by the generating company while issuing share capital and investment of internal resources created out of free reserve of the generating company, if any, for the funding of the project, shall also be reckoned as paid up capital for the purpose of computing return on equity, provided such premium amount and internal resources are actually utilised for meeting the capital expenditure of the generating station and forms part of the approved financial package.*

## **Issues raised, stakeholder's response and Commission's view**

The Commission in its Discussion Paper brought out certain issues inviting comments/ suggestions from the stakeholders. In response, the stakeholders made their submissions on various issues. The summary of comments/suggestions as submitted by the stakeholders and the Commission's view thereof is discussed below.

### **Rate of return on equity**

#### **Issues raised in the Discussion Paper:**

*Comments are invited on issues relating to the return on equity to be allowed to generating stations in the state during the next control period.*

#### **Stakeholder's Responses**

In response to the issues brought out in the Approach Paper by the Commission, the stakeholders submitted their comments/suggestions on various issues. The summary of comments/suggestions as submitted by the stakeholders is as follows:

1. The licensee has suggested that current approach may be continued and the Commission may also follow the approach of the Central Commission where while deciding the return on equity the Central Commission had taken the basis of prevalent SBI PLR & G-Sec as well as risk premium. The licensee has also suggested that the adjustment of income tax along with RoE may be followed as per CERC Tariff Regulation, 2014.
2. Another stakeholder has stated that the current ROE of 15.5% is quite low. RoE calculated under CAPM model considering present cost of debt and factoring risk associated with power projects, the even number should be around 20%. Cost of debt and RoE need a model based on market conditions so as to make it more attractive for developers. RoE may be kept at cost of debt plus 5% and cost of debt can be benchmarked to SBI base rate plus spread in order to attract developers
3. One of the stakeholders stated that the SBI Benchmark PLR has increased from 11.75% as of June 2009 to 14.75% in Nov 2013, while the Return on Equity has remained fixed at 15.5%. It would, therefore, not be appropriate to fix the RoE at 15.5% for the next 5 years and same needs to be increased. The RoE set should take cognizance of the fact that during the last five years (Jan 2009- Oct 2013), the CPI inflation index has increased from 148 to 241 and increase of 62.8%, a CAGR of 12.96%. Consequently it would be appropriate to increase the RoE to at least 18% Post-Tax which would yield an Equity IRR of around 15.5%. Further, to take care of loss of ROE during the construction period, a 2% margin should be provided. Also, the Return on Equity should be revised periodically taking into account the current developments in the industry's risk-return profile and changing market conditions.

### ***Commission's view***

The Commission after considering the views of different stakeholders and the provisions of the CERC Tariff Regulations, 2014 in this regard proposes to continue with the existing base rate of return on equity of 15.50% with an additional 0.50% return on equity as an incentive for timely completion of projects and in case the project is not completed within the stipulated timeline for any reasons whatsoever the provision of providing additional return shall not be admissible.

### ***Penalty for non-installation of RGMO/FGMO, data telemetry and communication system***

#### ***Issues raised in the Discussion Paper:***

*Is there a need to deliberate the inclusion of the provision of reducing return on equity by 1% in case the generating station declares COD without commissioning of RGMO/FGMO, data telemetry and communication system to respective load dispatch centre?*

### ***Stakeholder's Responses***

1. The licensee has suggested that a similar provision in line with the CERC Tariff Regulations, 2014 may be adopted by the Commission.
2. Other stakeholders have suggested that existing provisions may be continued or any changes in existing regulations must safeguard the interest of the generators who should not be penalised for non-availability of infrastructure at the SLDC end and for reasons beyond their control.

## **Commission's view**

The Commission in line with the Central Commission's provisions proposes a reduction of upto 1% in the rate of return on equity in case generation station declares COD without commissioning of RGMO/FGMO, data telemetry and communication system to respective load dispatch centre, and protection system. If any generating station is unable to install the necessary equipment on account of non-availability of infrastructure at the SLDC end, the same should be brought to the notice of the Commission. The Commission shall take a decision in such instances on a case to case basis.

## **2.7. Cost of Debt**

### **Background**

In UPERC Generation Tariff Regulations, 2009 interest on loan is a pass through and is computed by considering weighted average rate of interest on the basis of actual loan, actual interest rate and scheduled loan repayment.

### **Existing Provisions of UPERC Generation Tariff Regulations, 2009**

*Interest on loan capital shall be computed loan wise on the loans arrived at in the manner indicated in regulation 20.*

*The loan outstanding as on 1st April shall be worked out as the gross loan as per regulation 20 minus cumulative repayment as admitted by the Commission up to 31st March. The repayment shall be worked out on a normative basis.*

*The rate of the interest shall be the weighted average rate of interest calculated on the basis of actual loans at the beginning of each year and shall be adjusted based on actual loan each year accordingly.*

*If there is no actual loan for a particular year but normative loan is still outstanding, the last available weighted average of interest shall be considered.*

*The generating company shall make every effort to swap the loan as long as it results in net benefit to the beneficiaries. The costs associated with such swapping shall be borne by the beneficiaries and the net savings shall be shared between the beneficiaries and the generating company in the ratio of 2:1.*

*The changes to the loan terms and conditions shall be reflected from the date of such swapping and benefit passed on to the beneficiaries.*

*In case of any dispute, any of the parties may approach the Commission with proper application. However, the beneficiaries shall not withhold any payment as ordered by the Commission to the generating company during pendency of any dispute relating to swapping of loan.*

*In case any moratorium period is availed of by the generating company, depreciation provided for in the tariff during the years of moratorium shall be treated as repayment during those years and interest on loan capital shall be calculated accordingly.*

*The generating company shall not make any profit on account of swapping of loan and interest on loan.*

*In case, the generating company has contracted floating/variable rate of interest on loan resetting at certain interval of time the impact of change in rate of interest shall be assessed by the generating company on account of such resetting duly certified by statutory auditor and the capacity charge of the relevant year shall be adjusted for such impact and billed accordingly to beneficiary without approaching the Commission for change in tariff on this account.*

*Provided that the generating company shall make every effort to refinance/swap the loan as long as it results in net benefit to the beneficiaries. The costs associated with such refinancing/swapping shall be borne by the beneficiaries. Both the above facts shall be certified by statutory auditor.*

*Provided if the generating company does not have actual loan or have swapped/refinanced the loan resulting in no specific loan attributable to the generating station then the weighted average rate of interest of the generating company as a whole shall be considered.*

*Provided also in case of dispute, any party to such dispute may approach the Commission with proper application and it shall be ensured that the payment to the generating company is not withheld during pendency of the dispute.*

## **Issues raised, stakeholder's response and Commission's view**

The Commission in its Discussion Paper brought out certain issues inviting comments/ suggestions from the stakeholders. In response, the stakeholders made their submissions on various issues. The summary of comments/suggestions as submitted by the stakeholders and the Commission's view thereof is discussed below.

### **Issues raised in the Discussion Paper:**

*The Commission in its Discussion Paper brought out the following issue inviting comments/ suggestions from the stakeholders:*

*Can we continue the existing method of working out cost of debt by considering weighted average rate of interest, calculated on the basis of actual loan, actual interest rate and scheduled loan repayment, or switchover to normative cost of debt calculated on the basis of present debt market condition? What should be the criteria for working out normative cost of debt?*

*How can we address the variation of cost of debt among different rating Companies? Can allowable cost of debt be linked to a benchmark yield on comparable bonds or Government securities? Can ceiling be specified linking with benchmark yield? Any other alternatives.*

### ***Stakeholder's Responses***

1. One of the stakeholder suggested that the Commission may lay down the procedure for calculating normative cost of debt as per market condition and put a restriction that actual weighted average cost of actual debt should not be more than this benchmark.
2. Stakeholders have also suggested that the debt market in India has not matured and is still in development stages; therefore it is not possible to determine the normative cost of debt based on the prevailing market conditions.
3. In terms of linking cost of debt among different rating companies the stakeholders have suggested that since different projects have different risk profile in terms of its size, features, arrangements, promoters and actual operations. Two different project Companies may have same rating owing to various factors however in the lenders community both may enjoy different set of interest rates. In such cases linking cost of debt to a benchmark yield is not a practical method for the cost of debt payable in tariff. In fact, if actual cost of debt is not factored in the tariff, then lenders are likely to refuse funding to such projects. Also certain projects have to bear higher interest rates due to project related risks (including the utility risk rating) therefore the normative cost of debt could lead to severe under recovery of interest cost.
4. Another suggestion was that variation of cost of debt amongst various projects and companies having different ratings cannot be accounted for by fixing any benchmark yield. This will pose significant financial risk on the Generating Companies who have availed debt at much higher rate of interest as compared to the benchmark yields. In other words, this approach would pose an entry barrier on the new players since the cost of borrowings are generally higher for new utilities with lower rating or low financial base. Hence it is advisable to continue with existing norm until the debt market is matured in India.

### ***Commission's view***

The debt markets in India have not yet matured. Given the volatility of interest rates it will not be prudent on part of the Commission in the current scenario to link the cost of debt to a normative rate of interest. Also the fact that the power sector in India has not seen participation from a large number of organizations and consequently owing to lack of data addressing the significant variation in cost of debt among different organizations with varying credit ratings will remain a challenge. Accordingly in line with the provisions adopted by the Central Commission, the Commission proposes to continue the existing methodology of weighted average rate of interest calculated on the basis of the actual loan portfolio and consider repayment of loan on a normative basis.

## 2.8. Truing Up

### Background

The Central Commission in the CERC Tariff Regulations, 2014 stated that it shall carry out truing up of tariff of generating station based on the performance of the station on controllable parameters.

### Existing Provisions of UPERC Generation Tariff Regulations, 2009

#### 5. (5) Truing up of Capital Expenditure and Tariff

*(i) The Commission shall carry out truing up 'exercise along with the tariff petition filed for the next tariff period, with respect to the capital expenditure including additional, capital expenditure incurred up to 31-3-2014, as admitted by the Commission after prudence check at the time of truing up*

*Provided that the generating, company may in its discretion make an application before the Commission one more time prior to 2013-14 for revision of tariff.*

*(ii) The generating company shall make an application, as per Appendix I to these regulations, for carrying out truing up exercise in respect of the generating station. or any of its units or block of Units thereof by 31-10-2014,*

*(iii) The generating company shall submit for the purpose of truing up, details of capital expenditure and additional capital expenditure incurred for the period from 14-2009 to 31-3-2014, duly audited and certified by the auditors;*

*(iv) Where after the truing up the tariff recovered exceeds the tariff approved by, the Commission under these regulations the generating company shall refund to the beneficiaries,. the excess amount so recovered along with simple interest at the rate equal to short-term Prime Lending Rate of State Bank of India prevailing as on 1st April of the respective year.*

*(v) Where after the truing up the tariff recovered is less than the tariff approved by the Commission under these regulations the generating company shall recover from the beneficiaries, the under-recovered amount along with simple interest at the rate equal to the short-term Prime Lending Rate of State Bank of India, prevailing as on 1st April of the respective year.*

*(vi) The amount under-recovered or over-recovered, along with simple interest at the rate equal, to the short term Prime Lending Rate of State Bank of India prevailing as on 1st April of the respective year, shall be recovered or refunded by the, generating company, in six equal monthly instalments starting within three months from the date of the tariff order issued by the Commission after the truing up exercise.*

## ***Issues raised, stakeholder's response and Commission's view***

The Commission in its Discussion Paper brought out certain issues inviting comments/ suggestions from the stakeholders. In response, the stakeholders made their submissions on various issues. The summary of comments/suggestions as submitted by the stakeholders and the Commission's view thereof is discussed below.

### ***Issues raised in the Discussion Paper:***

*Whether the existing principle of only truing up the capital expenditure should be continued or is there a need to take a relook at the current methodology and also allow truing up on account of change in performance parameters? Should there be a mechanism for truing up of O&M expenses?*

*Additionally what should be the frequency for truing up of controllable factors? Also suggestions are invited on the methodology for sharing of gains/losses on account of truing up with the beneficiaries?*

### ***Stakeholder's Responses***

1. Most of the stakeholders have suggested that the current methodology of truing up may be continued. Additionally the stakeholders have also suggested that truing up on account of performance parameters should also be done in lines with the concept envisaged by CERC Tariff Regulations 2014 so as to pass the apportioned accrued gain to the consumers. Also truing up mechanism for O&M expenses in line with the sharing of benefit for other parameters should also be devised.
2. One of the stakeholders also suggested that truing up for MoU route projects needs to be provisioned specifically in the regulation. It should be based on actual performance parameters and actual O&M cost annually.
3. The state owned generating company has also suggested that any variation on account of uncontrollable parameters should be allowed to be recovered annually by an *Annual Performance Review* which is prevalent in several states like Maharashtra, West Bengal, and Madhya Pradesh etc.
4. Another stakeholder suggested that truing up should only be on account of capital costs and no truing up must be done for controllable parameters. On the point of the frequency of true up stakeholders have suggested different frequencies ranging from annually to a midterm review once after three years during the tariff period.

### ***Commission's view***

The Commission proposes to conduct a mid-term review of the capital expenditure plan approved for each generating company in the FY 2016-17. In case, the cumulative incurred capital expenditure and/or capitalisation deviates from the approved capital expenditure / capitalisation by more than 20% (cumulative), the Commission will make necessary changes to capital investment plan for the Control Period after consultation with Generation Company and adjust depreciation and financing cost, which includes cost of debt (interest), working capital interest, cost of equity (return) based on the actual capital expenditure and/or capitalisation vis-à-vis approved capital expenditure/

capitalisation. The Commission believes this is necessary for preventing front loading of tariff on consumers.

In addition to the variation in capital cost the Commission also believes that variation in other parameters like station heat rate, auxiliary consumption and secondary fuel oil consumption (in case of generating station) which has an impact on tariff must also be accounted for. The Commission has therefore expanded the scope of truing up to controllable parameters also viz. station heat rate, auxiliary consumption and Secondary Fuel Oil Consumption. The financial gains on account of truing up of the aforesaid parameters shall be in the ratio of 80:20 between the generating companies and the licensees.

With respect to truing up of O&M expenses, the Tariff Regulations, 2009 stated that “*in case the actual expenditure during one year is lower than normative levels the excess is allowed to be carry forwarded to offset any increased requirement of O&M expenses in subsequent years of the tariff period*”. The Commission proposes to continue this provision. However, in case the actual O&M expenses are greater than the normative expenses, no truing up shall be carried out.

## **2.9. Interest on Working Capital**

### **Background**

The working capital is separately specified by Commission for coal-fired thermal generating station, open-cycle /combined cycle gas generating stations and hydro generating stations. The working capital is determined based on fuel stock, inventory of maintenance spares, operation and maintenance cost and receivables depending on type of thermal generating station and hydro projects.

### **Existing Provisions of UPERC Generation Tariff Regulations, 2009**

*In respect of **thermal generating stations** the existing provisions in UPERC Generation Tariff Regulations, 2009 are as follows:*

*21. (1) (v) Interest on working capital:*

*(a) Working capital shall cover:*

*Coal based / fired generating stations*

*Cost of coal for 1½ months for pit-head generating stations and 2 months for non-pit-head generating stations, corresponding to the target availability;*

*Cost of secondary fuel oil for two months corresponding to the target availability;*

*Operation and Maintenance expenses for one month;*

*From 2009-2010, Maintenance spares @ 20% of operation and maintenance expenses; and*

*Receivables equivalent to two months or actual, whichever is lower, comprising of fixed and variable charges for sale of electricity calculated on the target availability.*

*(b) Rate of interest on working capital shall be on normative basis and shall be equal to the short-term Prime Lending Rate of State Bank of India as on 1.4.2009 or on 1<sup>st</sup> April of the year in which the generating station or a unit thereof is declared under commercial operation, whichever is later. Interest on working capital shall be payable on normative basis notwithstanding that the generating company has not taken working capital loan from any outside agency.*

*In respect of **hydro generating stations** the existing provisions in UPERC Generation Tariff Regulations, 2009 are as follows:*

*38. (v) Interest on working capital:*

*(a) Working Capital shall cover:*

*Operation and Maintenance expenses for one month;*

*From 2009-2010, Maintenance spares @ 15% of operation and maintenance expenses ; and*

*Receivables equivalent to two months of fixed charges for sale of electricity, calculated on normative capacity index.*

*(b) Rate of interest on working capital shall be the short-term Prime Lending Rate of State Bank of India as on 1.4.2009 or on 1<sup>st</sup> April of the year in which the generating unit/station is declared under commercial operation, whichever is later. The interest on working capital shall be payable on normative basis notwithstanding that the generating company has not taken working capital loan from any outside agency.*

## ***Issues raised, stakeholder's response and Commission's view***

The Commission in its Discussion Paper brought out certain issues inviting comments/ suggestions from the stakeholders. In response, the stakeholders made their submissions on various issues. The summary of comments/suggestions as submitted by the stakeholders and the Commission's view thereof is discussed below.

### **Issues raised in the Discussion Paper:**

*Whether amount and stock of fuel oil/O&M expenses/maintenance spares/receivables specified in the existing regulations should continue or, any change is required? Whether O&M expenses should form a part of the working capital as per the existing methodology? In this regard it is to be deliberated whether the Depreciation and Return of equity should be considered as part of annual fixed costs while working out two months receivable for working capital as no working capital is required to fund the depreciation and return on equity.*

### **Stakeholder's Responses**

1. One of the stakeholders suggested that the existing regulation may be modified to the extent that the cost of fuel towards the fuel stock should be considered as 15 days for pithead stations at 30 days for non-pithead stations or the maximum of storage capacity, whichever is lower in lines with CERC Regulation 2014.
2. Another suggestion was that since the working capital is to meet the items of immediate need during the period of no revenue income from the date of supply of electricity to the date of payment of bill whereas the O&M is on ongoing process which covers items like employees cost which is paid monthly, insurance which is paid yearly etc. Therefore the items of O&M should not form a part of working capital in totality. However the working capital also includes 1/12 of O&M which addresses the issue. Moreover if O&M items are covered fully under working capital developer will get only interest on O&M and not the O&M expenditure itself.
3. Most of the other stakeholders have proposed that the existing norms should be continued. It was also suggested that since working capital is not required to fund depreciation and RoE these should be segregated from 2 months receivable amount for assessing the working capital requirement while the other stakeholders believe that the existing provisions in this regard should be continued.
4. Another response stated that in case of shortage of domestic coal from CIL, the Generating Companies have to use imported coal for which payment is made on FOR basis. It usually takes around 45 days for the coal from loading port to reach the power plant which also has to maintain a minimum of 2 months of imported coal stock in order to take care of volatilities in international coal market. Hence the working capital requirement on account of imported coal is generally more than 2.5 months and must be incorporated in the new regulations.

### **Commission's view**

The Commission has deliberated the suggestions received from various stakeholders on this issue. The existing regulations specify cost of coal for 1½ months for pit-head generating stations and 2 months for non-pit-head generating stations, corresponding to the target availability. The Commission also sought information from various generating stations with regards to actual annual average coal stock maintained by them. The information submitted by different generating stations is summarised below:

**Table 1: Average days of stock of fuel**

	<b>Pit head/Non pit head</b>	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>	<b>Five Year</b>

							average
Rosa	Non pit head	-	12	19	11	23	16.25
Parichha	Non pit head	13	15	21	17	8	14.8
Parichha Extn	Non pit head	13	15	21	17	8	14.8
Parichha Extn 2nd Stage	Non pit head	13	15	21	17	8	14.8
Anpara A	Pit head	11	9	9	18	14	12.2
Anpara B	Pit head	11	9	9	18	14	12.2
Obra A	Pit head	16	9	8	20	22	15
Obra B	Pit head	16	9	8	20	22	15
Panki	Non pit head	13	12	12	20	11	13.6
Harduaganj	Non pit head	5	25	5	15	7	11.4
Harduaganj Extn.	Non pit head	5	25	5	15	7	11.4

As is evident above the actual fuel available at different generating stations was well below the normative levels specified in the regulations, the Commission therefore proposes to reduce the cost of fuel as 15 days for pit head stations and 30 days for non-pit head generating stations for calculation of interest on working capital.

With regards to the other components of working capital requirement, the Commission proposes to continue with the existing approach for arriving at normative working capital requirement. The Commission also proposes to continue with norms for hydro power stations.

## **2.10. Operation and Maintenance Cost**

### **Background**

The expansion of capacity and use of latest technology is expected to reduce O&M cost. However O&M expenses of generating stations have increased significantly owing to the high inflationary trends in the economy. These factors call for the review of normative O&M cost.

### **Existing Provisions of UPERC Generation Tariff Regulations, 2009**

*In respect of **thermal generating stations** the existing regulations specify normative levels of O&M expenses for different capacities of generating stations.*

*In case of coal-based thermal generating station a separate compensation allowance unit-wise has been permitted to meet expenses in nature of capital expenditure on replacement of minor assets upon completion of 10, 15, or 20 years of useful life as per the prescribed schedule.*

*In respect of **hydro generating stations** the existing provisions in UPERC Generation Tariff Regulations, 2009 are as follows:*

38. (iv) Operation and Maintenance expenses:

(a) The normative values of operation and maintenance expenses including insurance, for the existing generating stations for the base year 2009-10, shall be derived from values approved by the Commission for FY 08-09, under tariff orders, escalated by 10%.

(b) The rate of escalation of operation & maintenance expenses from year 2009-10 onwards shall be 5.72% p.a., excluding abnormal operation and maintenance expenses, if any, after prudence check by the Commission.

Provided further that generating company may approach the Commission for adjustment in O&M expenses only on account of establishment expenses, insurance charges and repair and maintenance based on annual audited financial statements and prudence check.

(c) In case of the hydroelectric generating stations declared under commercial operation on or after the date of commencement of this regulation, the base operation and maintenance expenses shall be fixed at 2.0% of the actual capital cost as admitted by the Commission, after prudence check by the Commission, in the year of commissioning and shall be escalated @ 5.72% per annum for the subsequent years excluding abnormal operation and maintenance expenses, if any.

Provided also that the Commission may consider revising the percentage, subject to ceiling of 2.5% of capital cost, for tracing the O & M expense from the capital cost of the project on case to case basis.

(d) The expenses on regulatory fee, payment to pollution control board, fringe benefit tax, impact of pay revision, cost of water and water cess shall be paid additionally at actuals.

## **Issues raised, stakeholder's response and Commission's view**

The Commission in its Discussion Paper brought out certain issues inviting comments/ suggestions from the stakeholders. In response, the stakeholders made their submissions on various issues. The summary of comments/suggestions as submitted by the stakeholders and the Commission's view thereof is discussed below.

### **Norms for thermal power stations**

#### **Issues raised in the Discussion Paper:**

Comments on adequacy of the existing O&M norms with regard to the O&M requirement and resultant cash flows. Whether to review the existing O&M norms? Comments on the requirement of mid-term review of normative O&M cost. How to deal with variations in O&M cost during the tariff period? Is there a need for introduction of truing up after specifying normative parameters?

### **Stakeholder's Responses**

1. One of the stakeholders suggested that since the current normative levels of O&M expenses have been derived from actuals they are adequate and must be continued in the next control period.
2. The state owned generating company as suggested that O&M should be partly normative and partly based on actuals especially in case of government owned companies where establishment charges and pay revision are un-controllable expenses. Additionally in public sector next pay revision will be effective in or around year 2016 and hence an additional escalation factor should be considered while determining norms. Un-controllable items like Ash Evacuation, CISF expenditure, consumption of stores including overhauling, change in law, etc. should be linked with actual expenditure at the end of each year for prudence check by the Commission and accordingly tariff rate should be changed.
3. Some of the stakeholders have contested that since new technologies like 45 MW FBC and 660 MW super critical systems have not been operational for long relaxed norms must be prescribed in their case. Bajaj Energy Private Limited stated that their generating stations which are using CFBC technology are incurring much higher O&M cost compare to Obra thermal power station which has been considered as benchmark by the Commission in its Regulation-2009.
4. One of the suggestions was that weight of CPI & WPI should be based on the actual breakup of O&M expenses and should be different for different businesses. Illustratively since a transmission line that does not have a substation, major component of O&M will be manpower cost and hence CPI should have more weightage. Composite index should consider WPI, CPI and variations in wage revision, water charges etc.

### **Commission's view**

For coal based generating stations, the Commission proposes to adopt norms for O&M expenses in line with the norms adopted by the Central Commission in CERC Tariff Regulations, 2014 except for specific stations specified below:

**Table 2: Proposed O&M expenses for generating stations**

<b>Year</b>	<b>Upto 250 MW sets</b>	<b>300/330/350 MW sets</b>	<b>500 MW sets</b>	<b>600 MW and above sets</b>
FY 2014-15	23.90	19.95	16.00	14.40
FY 2015-16	25.40	21.21	17.01	15.31
FY 2016-17	27.00	22.54	18.08	16.27
FY 2017-18	28.70	23.96	19.22	17.30
FY 2018-19	30.51	25.47	20.43	18.38

\*All figures in Rs Lakhs/MW

The Commission in its previous tariff regulations had allowed higher O&M expenses for stations with high vintage viz. Obra A, Obra B, Panki, Parichha and Harduaganj Power Stations. The Commission has analysed the O&M expenses incurred by these stations during 2009-14 and notes that the actual O&M expenses of these stations has been much higher than the norm allowed in the regulations. Considering the high vintage of the stations, they need to be allowed higher O&M expenses to operate in an efficient manner. However, there is a need to bring in efficiency in the O&M expenses as the current level of expenses is not sustainable. In view of the above the Commission has decided to revise the O&M expenses of these stations.

The Commission while formulating the revised norms of O&M has analysed the information given by UPRUVNL under three major heads: Employee cost, R&M expenses and A&G expenses. The Commission is of the view that employee cost must be allowed on actuals and thus the Commission has considered the actual employee expenses of FY 2012-13 while arriving at norms for the next control period. In respect of R&M expenses, the Commission notes that these expenses vary in different years with no particular trend. The Commission therefore proposes to consider average of the 4 years' R&M expenses while arriving at the new norm. A&G expenses are under the control of the generator and the Commission believes that that the generator must strive to minimize the same. The Commission has considered the minimum A&G expenses during 2009-14 for arriving at the norm for the next Control Period. The Commission while formulating the new norms for O&M expenses has applied the above stated methodology for arriving at the base year expenses for the next Control Period. For subsequent years these expenses shall be escalated by 6.35%, the same escalation rate as specified in case of other generating stations by CERC.

While the Commission has considered actual O&M expenses of the generating stations for arriving at the new norm, it believes that there is a need for introducing efficiencies in operations of these generating stations. The Commission observes that O&M expenses allowed to generating stations of similar capacities in other states are considerably lower. Therefore for arriving at O&M expenses of different years of the Control Period the Commission proposes to introduce the concept of an efficiency factor  $X_n$ , where

*O&M for  $n^{\text{th}}$  year of the control period = O&M expenses calculated as per proposed methodology  $\times (1 - n \times X_n)$*

The Commission for the purpose of introducing efficiencies proposes an efficiency factor of 2% for the Control Period for these stations. The norm for O&M expenses so arrived shall be as follows:

**Table 3: Proposed O&M expenses for select generating stations of UPRUVNL**

<b>Year</b>	<b>Obra-A</b>	<b>Obra-B</b>	<b>Panki</b>	<b>Harduaganj</b>	<b>Parichha</b>
2014-15	46.23	17.87	54.94	53.28	31.91
2015-16	48.16	18.61	57.24	55.51	33.24
2016-17	50.15	19.38	59.61	57.80	34.61
2017-18	52.20	20.18	62.04	60.17	36.03
2018-19	54.31	20.99	64.55	62.60	37.48

\*All figures in Rs Lakhs/MW

## *Norms for hydro power stations*

### **Issues raised in the Discussion Paper:**

*Efficacy of the method of determining O&M cost based on the percentage of Capital Expenditure for new hydro projects. Alternatives to develop O&M Cost norms for the Hydro generating stations? Should O&M expenses for new hydro power stations be graded with the size of the power stations i.e. the level of O&M expenses allowed/ MW be different for power stations of lower and higher capacities.*

### **Stakeholder's Responses**

Most of the stakeholders have suggested that for hydro projects methodology of specifying O&M expenses may be continued as per UPERC Regulation 2009 on the basis of percentage of admitted capital cost.

### **Commission's view**

The Commission proposes to continue to specify O&M expenses as percentage of capital cost in line with the methodology adopted by several SERCs as well as the Central Commission in CERC Tariff Regulations, 2014 for hydro generation projects.

## **2.11. Stabilization Period**

### **Background**

The Commission in UPERC Generation Tariff Regulations, 2009 in relation to a unit identified the stabilisation period as a) 180 days from the COD for a coal based generating station b) 90 days from the COD for a gas based generating station.

### **Existing Provisions of UPERC Generation Tariff Regulations, 2009**

*In respect of **thermal generating stations** the existing provisions in UPERC Generation Tariff Regulations, 2009 are as follows:*

16. (vi) *Stabilization period:*

*In relation to a unit, stabilization period shall be reckoned commencing from the date of commercial operation of that unit as follows, namely:*

(a) *Coal-based generating stations - 180 days*

(b) *Gas turbine/combined cycle generating stations - 90 days*

## ***Issues raised, stakeholder's response and Commission's view***

The Commission in its Discussion Paper brought out certain issues inviting comments/ suggestions from the stakeholders. In response, the stakeholders made their submissions on various issues. The summary of comments/suggestions as submitted by the stakeholders and the Commission's view thereof is discussed below.

### ***Issues raised in the Discussion Paper:***

*The Commission in its Discussion Paper invited comments/ suggestions from the stakeholders regarding the need for stabilisation period in view of the CEA's advice and provisions of CERC Tariff Regulations 2014.*

### ***Stakeholder's response:***

1. The licensee state that since the utilities required demonstration of very high PLF during trial operation there appears no need for the finding relaxed norms during stabilization period. Therefore the concept of stabilization period may be discontinued.
2. During initial year of operation of a new plant, frequent teething troubles are obvious which require to be addressed. The CEA observations/ CERC tariff regulation 2014 appears to be based on operation of 200-500 MW plants which are in operation since long. As is evident from statement of reasons relating CERC regulation 2014, the CEA in its recommendation has mentioned that Sipat TPS has shown Heat Rate Deviation in 2011-12 and 2012-13 mainly because the new units commissioned there were Super Critical Units of 660 MW which appear to be facing initial stabilizing problem and based on this ground Sipat, Rhilai and Indira Gandhi Thermal Projects have not been considered for the analysis of parameters. Thus the experiences of 660 MW super Critical Based Technology plants and 45 MW CFBC technology based plants have been excluded. It is also pertinent that various State Regulators have provision for stabilization period latest being West Bengal ERC. Existing provision of stabilization therefore needs to be continued and specific relaxation in SHR, Auxiliary Consumption and Secondary Fuel Oil Consumption should be incorporated for 660 MW Super Critical and 45 MW CFBC Thermal Power Plants.
3. It is practical requirement of any power station that certain time is required to achieve stabilization of operations, during which various teething issues are resolved by the Gencos. Stabilization period should be provided and separate norms during stabilization period must be established as this period entails higher normative norms.

### ***Commission's view***

The Central Electricity Authority (CEA) in its advice to the Central Commission on "Norms of operation for the tariff period 2009-14" had stated that:

*"The present norms provide for stabilization period of 180 days for coal/lignite fired units. As the commissioning procedures have been significantly improved and very high PLF are being sought by the utilities to be demonstrated during the trial operation by the suppliers, there appears to be no need of such a stabilization period. Further, the CERC tariff notification of 2004 also stipulated that the stabilization period and relaxed norms applicable during the stabilization period shall cease to apply from 1.4.2006. In view of the above the provision of stabilization period existing in the present norms may be withdrawn and the usual norms be made applicable from the date of commissioning (completion of trial operation) of the unit."*

The Central Commission following the recommendation of CEA discontinued with the provision of stabilization period from 2009 onwards. The Commission notes that several other State Commissions including DERC, JSERC, CSERC, MERC, GERC etc. have also discontinued with this provision. The Commission in line with the CEA's advisory and the Central Commission's practise proposes to withdraw the present norms of stabilisation period.

## 3. Operational Norms

### 3.1. Gross Station Heat Rate

#### Background

Along with the price and gross calorific value (GCV) of the fuel, Gross Station Heat rate (GSHR) has an important impact on computation of energy charges. In UPERC Generation Tariff Regulations, 2009 norms for GSHR were prescribed for power plants in the state based on performance of the plants during 2004-05 to 2007-08 and the norms approved by the Central Commission for similar stations.

#### Existing Provisions of UPERC Generation Tariff Regulations, 2009

##### 16. (iii) Gross Station Heat Rate

(a) Coal-based thermal power generating stations, other than those covered under clauses (b) below:

	200/210/250/300 MW set		500 MW and above sets:	
	Indian coal	Imported coal	Indian coal	Imported coal
During stabilization	2600	2500	2550	2450
Subsequent period	2500	2400	2450	2350

**Note 1:** In respect of 500 MW and above units where the boiler feed pumps are electrically operated, the gross station heat rate shall be 40kCal/kWh lower than the station heat rate indicated above.

	Upto 50 MW (kCal/kWh)	
	Indian Coal	Imported Coal
GSHR only for projects whose PPA is executed on or after 1-4-2009	2900	2800

## ***Issues raised, stakeholder's response and Commission's view***

The Commission in its Discussion Paper brought out certain issues inviting comments/ suggestions from the stakeholders. In response, the stakeholders made their submissions on various issues. The summary of comments/suggestions as submitted by the stakeholders and the Commission's view thereof is discussed below.

### ***Issues raised in the Discussion Paper:***

*Whether the existing norms of gross station heat rate are required to be strengthened? Alternative methodology for arriving at revised norms, if any, and present level of station heat rate based on the technological improvement that may also be specified. Is there need for continuation of relaxed norms for specific stations? Changes required in the existing norms given in UPERC Generation Tariff Regulations 2009 may be commented duly supported with authentic data if any. The need for examining the impact of use of imported coal on the gross station heat rate of generation plants may be discussed.*

### ***Stakeholder's response:***

1. One of the stakeholders has stated that in UPERC Regulations 2004 & 2009, SHR had not been changed but now due to efficient technology there is scope for strengthening SHR which may be modelled along the norms specified as per CERC except for those plants which are quite old. Additionally it has also suggested that any benefit on account of use of imported coal must be passed onto the beneficiary.
2. Another stakeholder has suggested that the norms for 660 MW units already decided through first amendment should be applicable while the norms for 45 MW units should be reviewed on actual basis. Additionally operational margin over the design heat rate should be increased by at least 1% from the existing norms of 6.5% on account of different operating conditions and variation in fuel quality.
3. Another stakeholder has stated that operating norms should be based on the average performance of units in the country. Operating norms should be based on past performance of units in the country including State Utilities / IPPs of relevant vintage and should factor in operating constraints, like, partial loading due to erratic load pattern of the beneficiaries and lower operating load factor due to shortfall of quantity and quality of fuel which is expected to continue in future.
4. In addition to the above another suggestion was that a mechanism needs to be developed for Heat Rate compensation due to reasons beyond the control of generator, such as non-approval of alternate coal procurement, non-availability of schedule from procurers, etc. There should be suitable correction in Heat Rate in case of plants operating on blended coal.

## **Commission's view**

CEA in its Recommendations on Operation Norms for Thermal Power Stations for Tariff Period - 2014-19 has stipulated that

*"The normative Gross Operating heat rate (GHR) allowed for units installed after 2009, may be taken as about 3 % (three percentage points) higher than Design Heat rate (DHR). Considering the operating heat rate of stations, it is felt that the existing single value heat rate norms for 500 and 200/210/250 MW units may also be reduced by 50 kcal/kWh."*

Considering the recommendations of CEA, CERC, in its Tariff Regulations, 2014, has reduced the heat rate norms for 500 and 200/210/250/MW units by 50 kCal/kWh. The normative Gross Operating heat rate (GHR) allowed for units installed after 2009, has been taken at 4.5% higher than Design Heat rate (DHR).

With regards to operating norms Clause 5.3(f) of the Tariff Policy stipulates that:

### *"Operating Norms*

*Suitable performance norms of operations together with incentives and dis-incentives would need be evolved along with appropriate arrangement for sharing the gains of efficient operations with the consumers. Except for the cases referred to in para 5.3 (h)(2), the operating parameters in tariffs should be at "normative levels" only and not at "lower of normative and actuals". This is essential to encourage better operating performance. The norms should be efficient, relatable to past performance, capable of achievement and progressively reflecting increased efficiencies and may also take into consideration the latest technological advancements, fuel, vintage of equipment, nature of operations, level of service to be provided to consumers etc. Continued and proven inefficiency must be controlled and penalized.*

***The Central Commission would, in consultation with the Central Electricity Authority, notify operating norms from time to time for generation and transmission. The SERC would adopt these norms. In cases where operations have been much below the norms for many previous years, the SERCs may fix relaxed norms suitably and draw a transition path over the time for achieving the norms notified by the Central Commission."***

In line with the recommendations of CEA, during the previous control period, relaxed norms for Station Heat Rate were approved for certain generating stations viz. Obra-A, Obra-B, Panki TPS, Harduaganj TPS and Parichha considering their performance and high vintage. The Commission has examined the actual performance of these stations during 2009-14. Among the five stations Obra A has been able to meet the norm specified for it towards the end of the control period while Obra B has consistently met the target specified from FY 2010-11 onwards. None of the other three stations have met the norms specified in the previous control period. The table below shows the actual performance of these stations:

**Table 4: SHR for select stations of UPRUVNL for FY 2009-10 to FY 2013-14**

Power Station	Actual Performance				
	2009-10	2010-11	2011-12	2012-13	2013-14
Obra-A	3195	3111	3124	2945	2892
Obra-B	3138	2787	2700	2609	2537
Panki TPS	3320	3243	3335	3381	3409
Harduaganj TPS	4119	4706	4561	4645	3675
Parichha	3063	3099	3259	3388	3117

Keeping view of the above facts the Commission has specified revised norms for Obra A and Obra B at 2890 kCal/kWh and 2530 kCal/kWh for 2014-19. For the other three stations viz. Panki TPS, Harduaganj TPS and Parichha, the Commission had specified a trajectory for improvement in GSHR in the previous Control Period with the norm for FY 2013-14 being more stringent as compared to the norm for FY 2009-10. While the actual performance of these stations has been worse compared to even the norm specified for FY 2009-10, the Commission believes that there is no merit in allowing any further relaxation of norms than that approved for FY 2013-14. The Commission has therefore decided to continue with the norms allowed for FY 2013-14 for these stations during 2014-19.

Among the other generating stations in the state, Anpara A and Anpara B have been able to meet the norms specified for them in the previous Control Period. Harduaganj Extension and Parichha Extension 2<sup>nd</sup> stage have also met the normative levels specified towards the end of the control period while Rosa was able to achieve the meet the norm specified for it only in FY 2010-11.

**Table 5: SHR for generating stations in the state for FY 2009-10 to FY 2013-14**

Power Station	Actual Performance				
	2009-10	2010-11	2011-12	2012-13	2013-14
Anpara A	2374	2231	2390	2286	2204
Anpara B	2289	2263	2280	2274	2274
Harduaganj Extn	-	-	3486	3436	2463
Parichha Extn	2976	2758	2916	2999	2660
Parichha Extn 2nd stage	-	-	-	2642	2460
Rosa	-	2480	2597	2574	2520
Kundarkhi	-	-	-	3079	3106
Utraula	-	-	-	3198	3107
Maqsoodapur	-	-	-	3079	3093
Barkhera	-	-	-	3077	3091
Khamberkhera	-	-	-	3104	3134

The Commission observes that the performance of the generating stations in the state has been uneven. While some stations are already operating at levels prescribed by the Central Commission for the next Control Period, other stations, especially those commissioned after 2009, have not been able to meet the norm specified for them even in the previous Control Period. Keeping a balanced view of the situation and to incentivize higher operational efficiency, the Commission proposes to specify the station heat rate for all the existing stations of 200/210/250/300/330/350 MW capacity at 2475 kCal/kWh and for the existing stations of 500 MW and above capacity at 2410 kCal/kWh for the next Control Period. The Commission believes that while the norms prescribed are more stringent than the norms prescribed for the respective stations in the previous control period, if adequate efforts are made by the generators these norms are achievable during the next Control Period.

For stations with capacity less than 50 MW, it is noted that none of the generating stations have been able to meet the norms specified in the previous Control Period. The generator has even requested for relaxation of the norm during the next Control Period based on actual performance. The Commission notes that the norm of 2900 kCal/kWh, specified in the previous Control Period for these stations, is close to the design heat rate of these stations plus a margin of 6.5%. The Commission thus finds no merit in any further relaxation of norms for these stations. In fact the Commission believes that since plant operations have stabilised there is scope for some improvement and the Commission proposes to marginally reduce the station heat rate to 2890 kCal/kWh during 2014-19.

The norms for power stations achieving COD after 1.4.2014 have been prescribed in line with the norms prescribed by the Central Commission. The norm for GSHR for such generating stations is as follows:

**Gross Station Heat Rate = 1.045 X Design Heat Rate (kCal/kWh)**

## ***3.2. Secondary Fuel Oil Consumption***

### ***Background***

Secondary fuel oil consumption is important parameters governing the operational performance of a power plant. Higher SFOC leads to higher variable cost of the energy produced by a power plant.

### ***Existing Provisions of UPERC Generation Tariff Regulations, 2009***

*In respect of thermal generating stations the existing provisions in UPERC Generation Tariff Regulations, 2009 are as follows:*

**16. (iv) Secondary fuel oil consumption**

(a) All coal-based thermal power generating stations except those covered under sub-clauses below

<i>During</i>	<i>Stabilization period</i>	<i>Subsequent period</i>
<i>(i) existing on or before 31.3.09</i>	<i>4.5 ml/kWh</i>	<i>2.0 ml/kWh</i>
<i>(ii) commissioned on or after 1.4.09</i>	<i>2.5 ml/kWh</i>	<i>1.0 ml/kWh</i>

## **Issues raised, stakeholder's response and Commission's view**

The Commission in its Discussion Paper brought out certain issues inviting comments/ suggestions from the stakeholders. In response, the stakeholders made their submissions on various issues. The summary of comments/suggestions as submitted by the stakeholders and the Commission's view thereof is discussed below.

### **Issues raised in the Discussion Paper:**

*In view of the above, stakeholders are requested to share their experiences with the supporting data to assess if there is a scope for revision of the existing norms of secondary fuel oil consumption.*

### **Stakeholder's response:**

1. The licensee has stated that lesser startups as a result of improved technology will result in lower consumption of secondary oil and has thus suggested that normative consumption must be scaled down.
2. State owned generating company has stated that existing provisions may be continued with special emphasis on norms for vintage stations. RPSCL has also stated that the current provisions may be retained.

### **Commission's view**

The existing norms post the initial stabilisation period are in line with the norms that were adopted by CERC in the previous control period. The Central Electricity Authority, in its report to the Central Commission, has stated that the proposed norm of 1 ml/kWh is too liberal and has recommended that the norms should be fixed at 0.25 ml/kWh, which shall include seven start-ups per Unit per year. The Central Commission, based on the recommendations of CEA, has prescribed tighter norms for SFOC at 0.50 ml/kWh during 2014-19. The Commission proposes to adopt the same for the next Control Period so as to maintain uniformity with the norms prescribed by CERC. The Commission also notes that the secondary fuel oil consumption is high for the generating stations in the state due to very high number of start-up and tripping. In this regard, the Commission is of the view that generating stations of the state may reduce their oil consumption through sustained efforts. The Commission, has therefore, specified Secondary Fuel Oil Consumption norm of 0.75 ml/kWh for the generating stations in the state.

However, for certain stations of UPRUVNL of high vintage the Commission had already specified relaxed norms in the previous Control Period and had also specified a trajectory for improvement with the norm for FY 2013-14 being more stringent as compared to the norm for FY 2009-10. While the actual performance of these stations has been worse compared to even the norm specified for FY 2009-10, the Commission believes that there is no merit in allowing any further relaxation of norms than that approved for FY 2013-14. The Commission has therefore decided to continue with the norms allowed for FY 2013-14 for these stations during 2014-19.

### **3.3. Auxiliary Energy Consumption**

#### **Background**

The existing norms of auxiliary consumption for coal based generating stations vary from 6.0% (for unit size of 500 MW and above) to 9.0% (for 200 MW series units with steam driven boiler feed pumps and electrically driven boiler feed pumps). The Commission had also specified relaxed norms for certain existing generating stations of high vintage.

#### **Existing Provisions of UPERC Generation Tariff Regulations, 2009**

##### *16. (v) Auxiliary energy consumption*

*(a) Coal-based generating stations except for those specified below:*

	<i>With cooling tower</i>	<i>Without cooling tower</i>
<i>(i) 200/300 MW series</i>	<i>9.0%</i>	<i>8.5%</i>
<i>(ii) 500 MW series</i>		
<i>Steam driven boiler feed pumps:</i>		
<i>existing on or before 31.3.09;</i>	<i>7.5%</i>	<i>7.0%</i>
<i>commissioned on or after 1.4.09;</i>	<i>6.0%</i>	<i>5.5%</i>
<i>Electrically driven boiler feed pumps:</i>		
<i>existing on or before 31.3.09;</i>	<i>9.0%</i>	<i>8.5%</i>
<i>commissioned on or after 1.4.09;</i>	<i>8.5%</i>	<i>8.0%</i>

## ***Issues raised, stakeholder's response and Commission's view***

The Commission in its Discussion Paper brought out certain issues inviting comments/ suggestions from the stakeholders. In response, the stakeholders made their submissions on various issues. The summary of comments/suggestions as submitted by the stakeholders and the Commission's view thereof is discussed below.

### ***Issues raised in the Discussion Paper:***

*In view of the above, the stakeholders are requested to share their experiences to assess if there is scope for improvement in the norms for auxiliary consumption. Further, the norm for 45 MW/ 250 MW/ 660 MW units may have to be specified separately for which suggestions/comments are invited along with authentic support data available, if any.*

### ***Stakeholder's response:***

1. The licensee has stated that there is scope for improvement in terms of normative levels of auxiliary consumption and the new norms should be line with those adopted by the Central Commission where housing colony and other facilities are not included in auxiliary energy consumption.
2. One of the stakeholders has suggested that since data is now available for 2 years for 45 MW units norms may be prescribed giving due consideration to the actual performance.
3. Some of the other stakeholders are of the view that the current norms may be retained

### ***Commission's view***

The existing norms are in line with the norms that were adopted by the Central Commission for the previous control period i.e. 2009-14. The Central Commission, based on the recommendations of CEA, has prescribed tighter norms during 2014-19. The Commission proposes to adopt the same for the next Control Period so as to maintain uniformity with the norms prescribed by CERC.

However, for certain stations of UPRUVNL of high vintage the Commission had already specified relaxed norms in the previous Control Period and had also specified a trajectory for improvement with the norm for FY 2013-14 being more stringent as compared to the norm for FY 2009-10. While the actual performance of these stations has been worse compared to even the norm specified for FY 2009-10, the Commission believes that there is no merit in allowing any further relaxation of norms than that approved for FY 2013-14. The Commission has therefore decided to continue with the norms allowed for FY 2013-14 for these stations during 2014-19.

Further, the Commission clarifies that auxiliary energy consumption shall not include energy consumed for supply of power to housing colony and other facilities at the generating station and the power consumed for construction works at the generating station.

### **3.4. Target Availability**

#### **Background**

In control period 2009-14, the target availability was kept at 85% for generating stations commissioned on or after 1.4.09 and 80% for generating stations existing on or before 31.3.09. The Commission had also specified relaxed norms for certain existing generating stations.

#### **Existing Provisions of UPERC Generation Tariff Regulations, 2009**

16. (i) Target Availability for recovery of full Capacity (Fixed) charges

(a) All thermal power generating stations except for specific stations:

(i) existing on or before 31.3.09 - 80%

(ii) commissioned on or after 1.4.09 - 85%

#### **Issues raised, stakeholder's response and Commission's view**

The Commission in its Discussion Paper brought out certain issues inviting comments/ suggestions from the stakeholders. In response, the stakeholders made their submissions on various issues. The summary of comments/suggestions as submitted by the stakeholders and the Commission's view thereof is discussed below.

##### **Issues raised in the Discussion Paper:**

*Whether the existing norms of annual plant availability should be reviewed for thermal generating stations? What should be the treatment of normative availability in the event of fuel shortages and of procuring alternative fuel in case of shortage condition?*

##### **Stakeholder's response:**

1. One of the stakeholder has stated that in case of short materialization of linkage coal, it may however be considered to scale down only the normative annual availability for recovery of AFC marginally and not to pay AFC against the deemed generation.
2. Other stakeholders have suggested that in view of the supply shortfall from CIL and plant load not being dispatched by Discoms/LDC the generation company should be entitled to receive full amount of fixed charges if normative availability cannot be achieved due to non-availability of coal.
3. The state owned generating company has suggested lower normative levels of 70% for new plants and 60% for vintage plants for recovery of annual fixed costs.

### **Commission's view**

The Central Commission in CERC Tariff Regulations, 2014 has specified the Normative Plant Availability Factor at 85% for all the generating stations in the country. The Commission proposes to adopt the target availability for all the generating stations of the state at 85% in line with the norms prescribed by CERC.

However, for certain stations of UPRUVNL of high vintage the Commission had already specified relaxed norms in the previous Control Period and had also specified a trajectory for improvement with the norm for FY 2013-14 being more stringent as compared to the norm for FY 2009-10. While the actual performance of these stations has been worse compared to even the norm specified for FY 2009-10, the Commission believes that there is no merit in allowing any further relaxation of norms than that approved for FY 2013-14. The Commission has therefore decided to continue with the norms allowed for FY 2013-14 for these stations during 2014-19.

## **3.5. Transit & Handling losses**

### **Background**

The Commission in UPERC Generation Tariff Regulations, 2009 has specified a norm of 0.2% for transit losses in case of pit head stations and 0.8% in case of non- pithead stations in line with the norm prescribed by CERC. The same may have to be reviewed based on the past data in this regard.

### **Existing Provisions of UPERC Generation Tariff Regulations, 2009**

#### *22. (iii) Landed cost of coal*

*... And for the purpose of computation of energy charges, quantity of coal shall be arrived at after considering normative transit and handling losses as percentage of the quantity of coal dispatched by the coal supply company during the month as given below:*

*Pit head generating stations : 0.2%*

*Non-Pit head generating stations : 0.8%*

*Any other charges incurred by the generating company in handling of coal at generating station shall be deemed to have been included in O&M expenses.*

### **Issues raised, stakeholder's response and Commission's view**

The Commission in its Discussion Paper brought out certain issues inviting comments/ suggestions from the stakeholders. In response, the stakeholders made their submissions on various issues. The summary of comments/suggestions as submitted by the stakeholders and the Commission's view thereof is discussed below.

**Issues raised in the Discussion Paper:**

*In view of the above, stakeholders are requested to share their experiences with the supporting data to assess if there is a scope for revision of the existing norms.*

**Stakeholder's response:**

1. Some of the stakeholders have suggested that current norms of transit losses are sufficient and must be retained.
2. Some stakeholders have suggested that transit and handling losses must be linked to the distance coal has travelled, multiple handlings involved and the mode of transport of coal.

**Commission's view**

The Commission proposes to continue with the existing norms of transit and handling losses as follows:

1. Pithead generating stations: 0.2%
2. Non-pithead generating stations: 0.8%

Further, in case of imported coal the Central Commission has stipulated that there is some loss during transportation and the Commission also proposes to adopt similar provision for Uttar Pradesh generating stations, i.e. in case of imported coal the transit and handling losses shall be 0.20%.

**3.6. Operating Norms for Hydro Stations****Background**

The existing operational norms for hydro power generating stations include norms for normative capacity index, auxiliary consumption, and transformation losses. Capacity index as a measure of plant availability was implemented by the Commission in continuation with the approach followed by it during previous tariff periods. The norms of auxiliary power consumption of hydro generating stations vary from 0.7% to 1.2% (based on the technical configuration of the plants). The transformation losses from generation voltage to transmission voltage equivalent to 0.5% of energy generated were also allowed. The same may have to be reviewed based on the past data in this regard.

**Existing Provisions of UPERC Generation Tariff Regulations, 2009**

32. (i) Normative capacity index for recovery of full capacity charges

(a) During first year of commercial operation of the generating station

Purely Run-of-river power stations - 85%

Storage type and Run-of-river power stations with pondage - 80%

After first year of commercial operation of the generating station

Purely Run-of-river power stations - 90%

*Storage type and Run-of-river power stations with pondage* - 85%

*Note-1 : There shall be pro rata recovery of capacity charges in case the generating station achieves capacity index below the prescribed normative levels. At Zero capacity index, no capacity charges shall be payable to the generating station.*

*Note-2: In case of non-availability of unit (s) due to Renovation and Modernization, the effective capacity left after discounting such capacity, shall be considered for the purpose of calculation of capacity index. The depreciation and interest on working capital in the annual fixed charge shall only be prorated to such effective capacity. The return on equity shall be utilized for repayment of loan.*

*(ii) Auxiliary Energy Consumption :*

*Surface hydroelectric power generating stations with rotating exciters mounted on the generator shaft - 0.7% of energy generated*

*Surface hydroelectric power generating stations with static excitation system - 1.0% of energy generated*

*Underground hydroelectric power generating stations with rotating exciters mounted on the generator shaft - 0.9% of energy generated*

*Underground hydroelectric power generating stations with static excitation system - 1.2% of energy generated*

*(iii) Transformation losses:*

*From generation voltage to transmission voltage - 0.5% of energy generated*

## ***Issues raised, stakeholder's response and Commission's view***

The Commission in its Discussion Paper brought out certain issues inviting comments/ suggestions from the stakeholders. In response, the stakeholders made their submissions on various issues. The summary of comments/suggestions as submitted by the stakeholders and the Commission's view thereof is discussed below.

### ***Issues raised in the Discussion Paper:***

*In view of the above, comments/suggestions are invited from the stakeholders regarding any need for revision of the above norms.*

### ***Stakeholder's response:***

In line with CERC norms 2014-19 provision of 0.5% transformation losses may be deleted. Other norms as per UPERC generation tariff regulation tariff 2009 may be retained.

## **Commission's view**

There are currently no large hydro generating stations operating in the State. The Central Commission in CERC Tariff Regulations, 2014 has specified norms, namely, Normative Plant Availability Factor and auxiliary consumption for hydro generating stations for 2014-19. The Commission proposes to adopt the same for the new large hydro generating stations that may be commissioned during 2014-19.

## **3.7. Incentive**

### **Background**

The UPERC Generation Tariff Regulations, 2009 provide for incentive to all thermal power stations (except certain plants), at 25 paise per kWh for energy corresponding to scheduled generation in excess of energy corresponding to target plant load factor.

In the UPERC Generation Tariff Regulations, 2009 generating companies are eligible for an incentive equivalent to reduction of interest during construction (IDC) as a result of commissioning of the plant/unit ahead of schedule under the PPA. The Commission has also provided for an additional return on equity of 0.5% as incentive in case of timely commissioning of projects in absence of any provision made in the PPA.

### **Existing Provisions of UPERC Generation Tariff Regulations, 2009**

In respect of **thermal generating stations** the existing provisions in UPERC Generation Tariff Regulations, 2009 are as follows:

#### *23. Incentive:*

*(1) Incentive to all power stations, except those specified at (2) below, shall be payable at a flat rate of 25 paise per KWH for ex-bus scheduled energy corresponding to scheduled generation in excess of ex-bus energy corresponding to target plant load factor.*

*(2) Incentive to Obra-A, Obra-B, Panki, Harduaganj and Parichha Thermal Power Stations shall be payable at a rate of 15 paise/kWh for energy generated above the target plant load factor and up to the plant load factor equal to the target availability specified for each of these power stations. In case achieved plant load factor exceeds the target availability, specified for each of these power stations, incentive shall be payable at the rate specified in regulation 23(1).*

*(3) In case of commissioning of a thermal power station or part thereof ahead of schedule, as set out in the approval of Commission, the generating stations shall be eligible for incentive of an amount equivalent to reduction of interest during construction. However actual interest during construction shall be considered for calculation of final and completed project cost for tariff determination. The incentive shall be recovered through tariff in twelve equal monthly installments during first year of operation of generating station. In case of delay in commissioning, as set out by the Commission, interest during construction for the period of*

*delay shall not be allowed to be capitalized for determination of tariff, unless it is shown that the delay is on account of force majeure conditions.*

In respect of **hydro generating stations** the existing provisions in UPERC Generation Tariff Regulations, 2009 are as follows:

*(1) Incentive shall be payable in case of all the generating stations, including in case of new generating stations in the first year of operation, when the capacity index (CI) exceeds 90% for purely run-of-river power generating stations and 85% for run-of-river power station with pondage or storage type power generating stations and incentive shall accrue up to a maximum capacity index of 100%.*

*(2) Annual incentive shall be payable to the generating company in accordance with the following formula:*

$$\text{Incentive} = 0.65 \times \text{Annual Fixed Charge} \times (\text{CIA} - \text{CIN})/100$$

*(If incentive is negative, it shall be set to zero.)*

*Where, CIA is the Capacity Index achieved and CIN is the normative capacity index whose values are 90% for purely run of the river hydro stations and 85% for pondage/storage type hydro generating stations.*

*(3) The incentives on account of capacity index and payment for secondary energy shall be payable on monthly basis, subject to cumulative adjustment in each month of the financial year, separately in respect of each item, and final adjustment shall be made at the end of the financial year.*

*(4) The total incentive payment calculated on annual basis shall be shared by the beneficiaries based on the allocated capacity.*

*(5) In case of commissioning of a hydro power station or part thereof ahead of schedule, as set out in the approval of Commission, the generating stations shall be eligible for incentive of an amount equivalent to reduction of interest during construction. However actual interest during construction shall be considered for calculation of final and completed project cost for tariff determination. The incentive shall be recovered through tariff in twelve equal monthly installments during first year of operation of generating station. In case of delay in commissioning, as set out by the Commission, interest during construction for the period of delay shall not be allowed to be capitalized for determination of tariff, unless it is shown that the delay is on account of force majeure conditions.*

## ***Issues raised, stakeholder's response and Commission's view***

The Commission in its Discussion Paper brought out certain issues inviting comments/ suggestions from the stakeholders. In response, the stakeholders made their submissions on various issues. The summary of comments/suggestions as submitted by the stakeholders and the Commission's view thereof is discussed below.

## *Incentive for generation*

### **Issues raised in the Discussion Paper:**

*Should incentive of old and new stations be at same level or differentiated based on vintage? Suggestions are invited on differential incentive for off peak and peak period for thermal and hydro generating stations. Similarly, comments for differential incentive mechanism for storage and pondage type hydro generating stations. Should the incentive continue at the current levels or is there a need to take a fresh look at the incentive available to generating stations?*

### **Stakeholder's response:**

1. The licensee has stated that criterion for achievement of capacity index more than the normative capacity index irrespective of vintage, the same may be continued. It has further stated that peak and off peak differential mechanism is not needed and is taken care of by the UI settlement mechanism and the current levels of incentive may be continued.
2. One of the stakeholder has suggested the following methodology: incentive could be for improved performance on: (a) incentive for generation higher than annual norm (b) incentive on reliability of generation schedule (c) incentive for less oil consumption than the norms (d) incentive for better gross station heat rate than the norms (e) incentive for sustainable evening generation (f) incentive for early COD with full load operation by coal based TPP. Incentive on (a), (d) & (e) may be differential based on vintage while incentive on (b), (c) & (f) should be same level for old & new plant.
3. The response also stated that differential incentive for off peak & peak period as suggested above should be provisioned based on vintage for thermal power stations on the lines of W.B. Regulation Kolkata gazette 29- April -2011 and the current incentive levels may be increased to a minimum of Rs 0.50/kWh.

### **Commission's view**

The incentive mechanism is aimed at encouraging better performance in terms of achieving higher levels of generation from the existing generating stations. CERC and other SERCs have specified incentive for generation beyond the normative level of plant load factor as specified in the regulations due to the fact that it is a simple procedure and also it results in uniform incentive to all generating stations. Also incentive linked to PLF also provides the generating companies the opportunity to lower their variable cost and rank higher in merit order dispatch. In light of the above the Commission proposes to continue with the existing practice of incentivisation of thermal generating stations.

Additionally in line with the methodology approved by the Central Commission, and in order to incentivise efficiency in the sector the Commission proposes to increase the incentive to a flat rate of 50 paise/kWh from the current level of 25 paise/kWh for ex-bus scheduled energy corresponding to scheduled generation in excess of ex-bus energy corresponding to target plant load factor.

## *Incentive for early commissioning*

### **Issues raised in the Discussion Paper:**

*Comments/suggestions are invited from the stakeholders on the need for abolishing additional incentive amount equivalent to interest during construction keeping in mind the double incentivisation that would result because of an additional 0.5% ROE.*

### **Stakeholder's response:**

1. One of the stakeholder has suggested that since, the generating companies are getting additional incentive @0.5% towards early/timely commissioning of the plant, they should not be doubly incentivized and in case of early commissioning.
2. Another suggestion was that the provision for incentive amount equivalent to interest saved during construction period on account of early COD should not be misinterpreted with 0.5% additional ROE and must be continued as per the existing provisions.

### **Commission's view**

The Central Commission and other SERCs incentivize generating companies to the tune of an additional return of 0.5% RoE in case of commissioning before schedule. The Commission had also adopted this approach which was valid in case there was no specific clause in the PPA between the two parties in question. The Commission had also provided an additional incentive equivalent to saving in IDC under the Regulation/PPA which may lead to double incentivization. The Commission thus believes that there is no requirement to continue with this provision and proposes to remove this clause. Any generating company that is able to achieve commissioning before the scheduled COD shall be eligible for an additional incentive of 0.5% RoE.

## **3.8. Additional Issues - Availability of Domestic Coal**

### **Background**

The shortage of fuel (Coal) has a potential to make existing operational capacity remaining stranded. The Coal India Ltd. has not been able to supply committed quantity of coal as per Fuel Supply Agreement. The uncertainty with respect to gas supply also continues.

### **Issues raised, stakeholder's response and Commission's view**

The Commission in its Discussion Paper brought out certain issues inviting comments/ suggestions from the stakeholders. In response, the stakeholders made their submissions on various issues. The summary of comments/suggestions as submitted by the stakeholders and the Commission's view thereof is discussed below.

### **Issues raised in the Discussion Paper:**

*Should normative or agreed blending ratio be specified for the existing plants and new plants separately in consultation with the beneficiaries? What should be the methodology to work out normative/agreed blending ratio for existing and new projects?*

*Is it necessary and practical to take prior consent of beneficiaries for blending the imported coal with domestic coal? If the beneficiaries do not provide consent, can plant/machine be considered as deemed available to the extent of normative/agreed blending ratio for the purpose of recovery of fixed charges? How to deal with the scheduling aspect if beneficiaries are not ready for blending of imported coal.*

*How to ensure procurement of fuel by the generator namely e-auction coal or imported coal, at reasonable and competitive prices. Should there be need to seek explanation for any variation beyond a pre-specified indexation.*

### **Stakeholder's response:**

1. The licensee suggested that normative blending ratio on the basis of design consideration of boiler as given by the manufacturer including giving the due consideration to the auxiliaries; ash handling facilities may be fixed separately for existing /future plants and in order to control the energy charges the generating company should be also advised to actually blend minimum coal subject to ceiling of decided normative level.
2. The response also stated that based on the decided blending ratio, the generating companies may provide Annual Imported Coal purchase plan along with associated parameters to ascertain the energy charge in the beginning of financial year which may be approved by the commission and a ceiling on the basis of coal indexation be provided applicable for that year as also conceptualized by the Central Commission in CERC Tariff Regulations, 2014. The generating companies should submit the linkage coal rates and its GCV, Imported coal rates and its GCV, blending ratio adopted in the month and documentary proof in the form of suppliers bills etc. along with their energy bills. These all information should also be certified by the statutory auditor and be available on their web site regularly. In the end of financial year true up of energy cost will be done.
3. Most of the other stakeholders have suggested that blending of imported coal should be left to the generators to decide depending on the situations such as the GCV of the domestic coal, GCV of the imported coal (low GCV or high GCV), shortfall in supply of domestic coal from linked mines etc. The blending may be allowed to a limit of 30% as recommended by CEA in its report on blending of coal.
4. In terms of approval for alternative procurement a from the beneficiary stakeholders have suggested that approval at every instance should not be made mandatory and some limit beyond which the generator should obtain consent before blending of coal may be fixed in terms of increase in blended coal price in Rs/Kcal of the base price of fuel or in terms of increase over fuel price of previous month.
5. Further the generating companies must procure CIL coal via e-auction and provide the invoice as proof along with their energy bills. For procurement of open market domestic coal as well as the imported coal the generating companies should purchase this coal after conducting the

transparent competitive bidding process and the reasonableness of such discovered prices should be justifiable if the variation in the coal cost occurs beyond the pre-specified indexation.

### ***Commission's view***

Fuel availability has been a cause of concern and has led to generating assets being left stranded for want of fuel supply all over the country. The Commission believes that to address this challenge the generators may have to resort to procuring fuel from alternate sources such as e-auction of CIL and other domestic & imported coal sources. In line with the comments received from different stakeholders the Commission proposes to allow the use of alternative coal through blending of domestic and imported coal. The Commission has currently not specified any normative ratio for blending of imported and domestic coal. This provision may however be reviewed by the Commission if necessary.

The Commission also proposed that prior permission of beneficiary for use of blended coal will not be necessary subject to certain limits. The weighted average cost of such coal should not increase to more than 30% of base price as specified under these regulations and permission of beneficiary will only be required in case weighted average fuel price increases beyond this limit. Permission will be necessary also if fuel purchase price increases to more than 20% of cost based on weighted average fuel price for the previous month.

The Commission also believes that the generating companies must exhibit prudence in procuring coal from such alternate sources and in order to ensure the reasonableness of price of such coal the Commission is of the view that any alternate fuel supply must be done only through e-auction or via a transparent competitive bidding mechanism.