

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

No. _____

Dated 6th December, 2013

DRAFT NOTIFICATION

In exercise of powers conferred under section 178 of the Electricity Act, 2003 (36 of 2003) read with section 61 thereof and all other powers enabling it in this behalf, and after previous publication, the Central Electricity Regulatory Commission hereby makes the following regulations, namely:

CHAPTER - 1

PRELIMINARY

1. Short title and commencement. (1) These regulations may be called the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014.

(2) These regulations shall come into force on 1.4.2014, and unless reviewed earlier or extended by the Commission, shall remain in force for a period of five years from 1.4.2014 to 31.3.2019:

Provided that where a project or a part thereof, has been declared under commercial operation before the date of commencement of these regulations and whose tariff has not been finally determined by the Commission till that date, tariff in respect of such project or such part thereof for the period ending 31.3.2014 shall be determined in accordance with the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 as amended from time to time.

2. Scope and extent of application. (1) These regulations shall apply in all cases where tariff of a generating station or a unit thereof and a transmission system or an element thereof including communication system used for inter-State transmission of electricity is required to be determined by the Commission under section 62 of the Act read with section 79 thereof.

(2) These regulations shall not apply for determination of tariff in case of the following:

(a) Generating stations or inter-State transmission systems whose tariff has been discovered through tariff based competitive bidding in accordance with the guidelines issued by the Central Government under Section 63 of the Act;

(b) Generating stations based on renewable sources of energy whose tariff is

determined in accordance with the Central Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2012, as amended from time to time or any subsequent enactment thereof.

3. Definitions and Interpretations.—In these regulations, unless the context otherwise requires-

- (1) **'Act'** means the Electricity Act, 2003 (36 of 2003);
- (2) **'additional capitalisation'** 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 14 of these regulations;
- (3) **'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;

(4) '**auditor**' means an auditor appointed by a generating company or a transmission licensee, as the case may be, 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 any other law for the time being in force;

(5) '**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 ;

(6) '**beneficiary**' in relation to a generating station means a distribution licensee who is purchasing electricity generated at such generating station through a long term 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;

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

(8) '**capital cost**' means the capital cost as determined in accordance with regulation 9 of these regulations;

(9) '**change in law**' means occurrence of any of the following events:

(a) enactment, bringing into effect or promulgation of any new Indian law;or

(b) adoption, amendment, modification, repeal or re-enactment of any existing Indian law; or

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

(d) change by any competent statutory authority in any consent or clearances or covenants, approval or licence available or obtained for the project;

(10) '**Commission**' means the Central Electricity Regulatory Commission referred to in sub-section (1) of section 76 of the Act;

(11) '**communication system**' includes communication system of Power Grid Corporation of India Ltd. covered under Unified Load Dispatch and Communication (ULD&C) scheme, SCADA, Wide Area Measurement (WAMS), Optical fibre etc. used for inter-state transmission of electricity;

(12) '**competitive bidding**' means a transparent process for procurement of equipments, services and works in which bids are invited by the project developer by open advertisement covering the scope and specifications of the equipment, services and works required for the project, and the terms and conditions of the proposed contract as well as the criteria by which bids shall be evaluated, and shall include domestic competitive bidding and international competitive bidding;

(13) '**cut-off date**' means 31st March of the year closing after two years of the year 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 cut-off date shall be 31st March of the year closing after three years of the year of commercial operation:

Provided that the cut off date may be extended by the Commission if it is proved on the basis of documentary evidence that the capitalisation could not be made within the cut off date for reasons beyond the control of the project developer;

(14) '**date of commercial operation**' or '**COD**' shall have the same meaning as defined in Regulation 4 of these regulations;

(15) '**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 fuel or water, and subject to further qualification in the relevant regulation;

(16) '**de-commissioning**' means removal from service of a generating station or a unit thereof or transmission system including communication system or element thereof, after it is certified by Central Electricity Authority or any other authorized agency, either on its own or on an application made by the project developer or the beneficiaries or both, that the project cannot be operated due to non performance of the assets on account of technological obsolescence or uneconomic operation or a combination of these factors;

(17) '**design energy**' means the quantum of energy which can be generated in a 90% dependable year with 95% installed capacity of the hydro generating station;

(18) '**day**' means a calendar day consisting of 24 hours period starting at 0000 hour;

(19) '**Designated ISTS Customers**' or '**DICs**' shall have the same meaning as defined in Central Electricity Regulatory Commission (Sharing of Inter State Transmission Charges and Losses) Regulations, 2010.

(20) '**existing project**' means a project which has been declared under commercial operation on a date prior to 1.4.2014;

(21) '**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;

(22) '**extended life**' means the life of a generating station or unit thereof or transmission system or element thereof beyond the period of useful life as may be determined by the Commission on case to case basis;

(23) '**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; and in relation to a hydro generating station means turbine-generator and its auxiliaries;

(23A) '**Indian Governmental Instrumentality**' means the Government of India, Governments of state(s) and any ministry, department, board, authority, agency, corporation, commission under the direct or indirect control of Government of India or any of the above state Government(s) or both, any political sub-division of any of them

including any court or Appropriate Commission(s) or tribunal or judicial or quasi-judicial body in India but excluding the Seller and the Procurer(s);

(24) **‘Grid Code’** means the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010 as amended from time to time or subsequent re-enactment thereof;

(25) **‘gross calorific value’ or ‘GCV’** in relation to a thermal generating station means the heat produced in kCal by complete combustion of one kilogram of solid fuel or one litre of liquid fuel or one standard cubic meter of gaseous fuel, as the case may be;

(26) **‘gross station heat rate’ or ‘GHR’** means the heat energy input in kCal required to generate one kWh of electrical energy at generator terminals of a thermal generating station;

(27) **‘Hydro Generating Station’** means a generating station or a unit thereof that generates electricity by water-power, and includes penstocks, head and tail works, main and regulating reservoirs, dams and other hydraulic works, but does not include sub-station;

(28) '**infirm power**' means electricity injected into the grid prior to the commercial operation of a unit or block of the generating station in accordance with Central Electricity Regulatory Commission (Grant of Connectivity, Long-term Access and Medium-term Open Access in inter-State Transmission and related matters) Regulations, 2009 as amended from time to time;

(29) '**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 may be approved by the Commission from time to time;

Provided that installed capacity in case of thermal generating stations before declaration of COD shall be schedule given by RLDC or SLDC as the case may be.

(30) '**implementation agreement**' means the agreement, contract or memorandum of understanding, or any such covenant entered into (i) between transmission licensee and generating station or (ii) between transmission licensee and developer of the associated transmission system for the execution of project in coordinated manner;

(31) '**inter-State generating station**' or '**ISGS**' has the meaning as assigned in the Grid Code;

(32) '**investment approval**' means approval by the Board of the generating company or the transmission licensee 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/competent authority or fifteen days from the date of sanction by the Board/competent authority whichever is earlier.

(33) '**kWh**' or '**kilowatt-hour**' means a unit of electrical energy, measured one kilowatt or one thousands watts of power produced or consumed over a period of one hour;

(34) '**long-term transmission customer**' means a person having a long term transmission service agreement with the transmission licensee including deemed transmission licensee for use of inter-State transmission system by paying transmission service charges and the term may be used interchangeably with the term Designated ISTS Customers (DICs);

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

(36) '**new project**' means the project commissioned or anticipated to be commissioned on or after 1.4.2014;

(37) '**normative annual plant availability factor**' or '**NAPAF**' in relation to a generating station means the availability factor as specified in Regulation 36 and 37 of these regulations for thermal generating station and hydro generating station respectively;

(38) **'operation and maintenance expenses'** or **'O&M expenses'** means the expenditure incurred for operation and maintenance of the project, or part thereof, and includes the expenditure on manpower, repairs, spares, consumables, insurance and overheads but excludes fuel expenses;

(39) **'original project cost'** means the capital expenditure incurred by the generating company or the transmission licensee, as the case may be, within the original scope of the project up to the cut-off date as admitted by the Commission;

(40) **'Plant Availability Factor (PAF)'** in relation to a generating station for any period means the average of the daily declared capacities (DCs) for all the days during that period expressed as a percentage of the installed capacity in MW reduced by the normative auxiliary energy consumption;

(41) **'Plant Load Factor (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

$$PLF = 10000 \times \sum_{i=1}^N SG_{i,k} / \{N \times IC \times (100 - AUX_n)\} \%$$

where,

IC = Installed Capacity of the generating station in MW,

SG_i = Scheduled Generation in MW for the ith time block of the period,

N = Number of time blocks during the period, and

AUX_n = Normative Auxiliary Energy Consumption as a percentage of gross generation;

(42) '**project**' means a generating station or a transmission system including communication system , as the case may be, and in case of a hydro generating station includes all components of generating facility such as dam, intake water conductor system, power generating station and generating units of the scheme, as apportioned to power generation but does not include mining if it is a pit head project and dedicated captive coal mine ;

(43) '**Procedure Regulations**' means the Central Electricity Regulatory Commission (Procedure for making of application for determination of tariff, publication of the

application and other related matters) Regulations, 2004, as amended from time to time or any statutory re-enactment thereof;

(44) **'pumped storage hydro generating station'** means a hydro station which generates power through energy stored in the form of water energy, pumped from a lower elevation reservoir to a higher elevation reservoir;

(45) **'run-of-river generating station'** means a hydro generating station which does not have upstream pondage;

(46) **'run-of-river generating station with pondage'** means a hydro generating station with sufficient pondage for meeting the diurnal variation of power demand;

(47) **'rated voltage'** means the manufacturer's design voltage at which the transmission system is designed to operate and includes such lower voltage at which any transmission line is charged or for the time being charged, in consultation with long-term transmission customers /DICs;

(48) '**regular service**' means putting into use a transmission system or element thereof after successful testing and charging for which it has been installed and a certificate to that effect has been issued by the concerned Regional Power Committee:

Provided that the transmission system or the element thereof after being put into regular service shall demonstrate availability of not less than the normative availability in the month following the date of declaration of commercial operation;

Provided further that where the transmission system or the element thereof is not able to demonstrate normative availability, except for the reasons beyond the control of transmission licensee, such transmission system or the element is said to be put into regular service from the month of demonstrating normative availability;

(49) '**scheduled commercial operation date or SCOD**' shall mean the date(s) of commercial operation of a generation or transmission project as indicated in the investment approval or as agreed in power purchase agreement or transmission service agreement as the case may be, whichever is earlier;

(49A) '**scheduled energy**' means the quantum of energy scheduled by the concerned Load Despatch Centre to be injected into the grid by a generating station over a day;

(50) '**scheduled generation or SG**' at any time or for any period or time block means schedule of ex-bus generation in MW or MWh, given by the concerned Load Despatch Centre;

Note

For the open cycle gas turbine generating station or a combined cycle generating station if the average frequency for any time-block, is below 49.52 Hz but not below 49.02 Hz and the scheduled generation is more than 98.5% of the declared capacity, the scheduled generation shall be deemed to have been reduced to 98.5% of the declared capacity, and if the average frequency for any time-block is below 49.02 Hz and the scheduled generation is more than 96.5% of the declared capacity, the scheduled generation shall be deemed to have been reduced to 96.5% of the declared capacity. In such an event of reduction of scheduled generation of gas turbine generating station, the corresponding drawl schedule of beneficiaries shall be corrected in proportion to their scheduled drawl with adjustment of transmission losses on post facto basis;

(51) '**small gas turbine generating station**' means and includes open cycle gas turbine or combined cycle generating station with gas turbines in the capacity range of 50 MW or below;

(52) **'start date or zero date'** means the date indicated in the investment approval from which the implementation of the project has commenced or is deemed to have been commenced;

(53) **'storage type generating station'** means a hydro generating station associated with large storage capacity to enable variation of generation of electricity according to demand;

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

(55) **'trial run' or 'trial operation'** in relation to transmission system shall have the same meaning as specified in Regulation 5 of these regulations;

(56) **'transmission service agreement'** means the agreement, contract, memorandum of understanding, or any such covenant, entered into between the transmission licensee and the long-term transmission customer /DICs and shall include the transmission

service agreement entered in accordance with the Central Electricity Regulatory Commission (Sharing of Transmission Charges and Losses in inter-State Transmission System) Regulations, 2010 as amended from time to time;

(57) '**transmission system**' means a line or a group of lines with or without associated sub-station, equipment associated with transmission lines and sub-stations';

(58) '**transmission line**' shall have the same meaning as defined sub-section (72) of section 2 of the Act;

(59) '**Sub-Station**' shall have the same meaning as defined in sub-section (69) of section 2 of the Act;

(60) '**Useful life**' in relation to a unit of a generating station and transmission system from the COD shall mean the following, namely:-

- | | |
|--|----------|
| (a) Coal/Lignite based thermal generating station | 25 years |
| (b) Gas/Liquid fuel based thermal generating station | 25 years |
| (c) AC and DC sub-station (including GIS) | 35 years |

- | | | |
|-----|--|----------|
| (d) | Hydro generating station including pumped
Storage hydro generating stations | 35 years |
| (e) | Transmission line (including HVAC & HVDC) | 35 years |
| (f) | Communication system | 15 years |

Provided that the useful life of the plant beyond the completion of above period shall be decided by the Commission in accordance with clause (22) of this regulation;

(61) **'Year'** means a financial year.

(62) The words and expressions used in these regulations and not defined herein but defined in the Act or any other regulation of the Commission shall have the meaning assigned to them under the Act or any other regulation of the Commission.

CHAPTER – 2

GENERAL

4. Date of Commercial Operation: The date of commercial operation of a generating station or generating unit or block thereof or a transmission system or element 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, 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 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 acceptance of the test results by the beneficiaries or within 48 hours after the trial run whichever is earlier:

Provided further that it shall be mandatory for the generating company to obtain a certificate from Central Electricity Authority or any agency designated by Authority to the effect that the generating station meets all the technical standards of Central

Electricity Authority (Technical Standards for Construction of Electrical plants and electric lines) Regulations, 2010 and Grid Code :

Provided also that the generating station or unit thereof after being put into commercial operation shall demonstrate the plant availability of not less than the normative plant availability in the month following the date of declaration of commercial operation. If the generating station or unit thereof is not able to demonstrate normative availability, except for the reason beyond the control of generating company, such generating station or the unit is said to be put into commercial service from the month of normative availability.

(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 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 acceptance of test results by the beneficiaries or within 48 hours after the trial run whichever is earlier:

Provided further that it shall be mandatory for the generating company to obtain a certificate from Central Electricity Authority or any agency designated by the Authority to the effect that the generating station meets all the technical standards of Central Electricity Authority (Technical Standards for Construction of Electrical plants and electric lines) Regulations, 2010 and Grid code:

Provided also that 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:

Provided also that if a purely 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) Date of commercial operation in relation to a transmission system shall mean the date declared by the transmission licensee from 0000 hour of which an element of the transmission system is in regular service after successful charging and trial operation for transmitting electricity and communication signal from sending end to receiving end:

Provided that where the transmission line or substation is dedicated for evacuation of power from a particular generating station, the generating company and transmission licensee shall endeavour to commission the generating station and the transmission system simultaneously as far as practicable and shall ensure the same through appropriate Implementation Agreement:

Provided further that in case a transmission system or an element thereof is prevented from regular service for reasons not attributable to the transmission

licensee or its supplier or its contractors but is on account of the delay in commissioning of the concerned generating station or in commissioning of the upstream or downstream transmission system, the transmission licensee shall approach the Commission through an appropriate application for approval of the date of commercial operation of such transmission system or an element thereof.

(4) Date of commercial operation in relation to a communication system or element thereof shall mean the date declared by the transmission licensee from 0000 hour of which a communication system or element is put in service after completion of site acceptance test including transfer of voice and data to respective control centre as certified by the respective Regional Load Dispatch Centre.

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.

Provided that the generating company shall obtain a certificate from Central Electricity Authority or any agency designated by the Authority to the effect that the generating station has all the auxiliaries in place to meet the technical standards of Central Electricity Authority (Technical Standards for Construction of Electrical plants and electric lines) Regulations, 2010 and Grid code.

(2) Trial operation in relation to a transmission system or an element thereof shall mean successful charging of the transmission system or an element thereof for 24 hours at continuous flow of active power, and communication signal from sending end to receiving end and with requisite metering system, telemetry and protection system in service enclosing certificate to that effect from concerned Regional Load Dispatch Centre.

CHAPTER - 3

PROCEDURE FOR TARIFF DETERMINATION

6. Tariff determination

(1) Tariff in respect of a generating station may be determined for the whole of the generating station or stage or generating unit or block thereof, and tariff in respect of a transmission system may be determined for the whole of the transmission system or transmission line or sub-station or communication system forming part of transmission system;

Provided that where all the generating units of a stage of generating station or all elements of a transmission system have been declared under commercial operation prior to 1.4.2014, the generating company or the transmission licensee, as the case may be, shall file consolidated petition in respect of the entire generating station or transmissions system for the purpose of determination of tariff for the period 2014-19;

Provided further that in case of commercial operation of the generating station or transmission system including communication system on or after 1.4.2014, the generating company or transmission licensee shall file a consolidated petition combining all the units of generating station or all elements of transmission system

which are likely to be commissioned during next six months from the date of application:

Provided also that the tariff of the existing communication system forming part of transmission system shall be as per the methodology followed by the Commission prior to 1.4.2014.

(2) For the purpose of determination of tariff, the capital cost of a project may be broken up into stages, distinct blocks, units, transmission lines and sub-systems forming part of the project, if required;

Provided that where the cost incurred on common facilities have not been proportionately apportioned between the units or elements of the project, the cost in respect of such common facilities shall be apportioned on the basis of the installed capacity of the units or line length and number of bays, as the case may be;

Provided further that where all the units of a generating station or elements of a transmission system including communication system or element thereof have not been declared under commercial operation as on the date of filing of the petition, the proportionate cost of common facilities shall be apportioned among the units of the generating station on the basis of their installed capacity or among the elements of the

transmission system on the basis of line length and number of bays which have been declared under commercial operation as on the date of filing of the petition.

(3) Where an existing transmission project has been granted licence under section 14 of the Act read with Regulation 6(c) of the Central Electricity Regulatory Commission (Terms and Conditions of grant of Transmission Licence for inter-State Transmission of electricity and related matters) Regulations, 2009, the tariff of such project shall be applicable from the date of grant of transmission licence or from the date as indicated in the transmission licence, as the case may be. In such cases, the applicant shall file petition as per **Annexure-I**, clearly demarcating the assets which form the part of regulated business of generation and transmission, the value of such assets, source of funding etc. duly certified by an auditor.

(4) In case of multi-purpose hydro generation scheme with irrigation, flood control and power components, the capital cost chargeable to the power component of the scheme only shall be considered for determination of tariff.

(5) Where only a part of the generation capacity of a generating station is tied up for supplying power to the beneficiaries through long term power purchase agreement and the generating units or stages for that part of the generation capacity have not been identified by the generating company, the tariff of the generating station shall be

determined with reference to the capital cost of the entire project, but the tariff so determined shall be applicable corresponding to capacity contracted for supply to the distribution licensees.

7. Application for determination of tariff:

(1) The generating company may make an application for determination of tariff for new generating station or unit thereof in accordance with Procedure Regulations, in respect of the generating station or generating units thereof within 120 days of the anticipated date of commercial operation.

(2) The transmission licensee may make an application for determination of tariff for new transmission system including communication system or element thereof as the case may be in accordance with the Procedure Regulations, in respect of the transmission system or elements thereof anticipated to be commissioned minimum 180 days from the date of filing the petition;

(3) In case of an existing generating station or transmission system including communication system or element thereof, the application shall be made not later than 120 days from the date of notification of these regulations based on admitted capital cost including any additional capital expenditure already admitted up to 31.3.2014

(either based on actual or projected additional capital expenditure) and estimated additional capital expenditure for the respective years of the tariff period 2014-19:

(4) The generating company or the transmission licensee, as the case may be, shall make an application as per **Annexure-I** of these regulations, for determination of tariff based on capital expenditure incurred duly certified by the auditors or projected to be incurred up to the date of commercial operation and additional capital expenditure incurred duly certified by the auditors or projected to be incurred during the tariff period of the generating station or the transmission system as the case may be:

Provided further that the petition shall contain details of underlying assumptions for the projected capital cost and additional capital expenditure, wherever applicable.

(5) If the petition is inadequate in any respect as required under **Annexure-I** of these regulations, the application shall be returned to the generating company or transmission licensee as the case may be, for resubmission of the petition within one month after rectifying the deficiencies as may be pointed out by the staff of the Commission.

(6) If the information furnished in the petition is in accordance with the regulations and is adequate for carrying out prudence check of the claims made, the Commission shall

consider the suggestions and objections, if any, received from the respondents within one month from the date of filing of the petition or any other person including the consumers or consumer association. The Commission shall issue the tariff order after hearing the petitioner, the respondents or any other person specifically permitted by the Commission.

(7) In case of the new projects, the generating company or the transmission licensee, as the case may be, may be allowed tariff by the Commission based on the projected capital expenditure from the anticipated COD in accordance with the Regulation 6 of these regulations:

Provided that if the date of commercial operation is delayed beyond 180 days from the date of issue of tariff order in terms of clause (6) of this regulation, the tariff granted shall be deemed to have been withdrawn and the generating company or the transmission licensee shall be required to file a fresh application for determination of tariff after the date of commercial operation of the project:

Provided further that where the capital cost considered in tariff by the Commission on the basis of projected capital cost as on COD or the projected additional capital expenditure exceeds the actual capital cost incurred on year to year basis by more than 5%, the generating company or the transmission licensee shall refund to the

beneficiaries or the long term transmission customers /DICs as the case may be, the excess tariff recovered corresponding to excess capital cost, as approved by the Commission along with interest at 1.20 times of the bank rate as prevalent on April 1 of respective year:

Provided also that where the capital cost considered in tariff by the Commission on the basis of projected capital cost as on COD or the projected additional capital expenditure falls short of the actual capital cost incurred on year to year basis by more than 5%, the generating company or the transmission licensee shall be entitled to recover from the beneficiaries or the long term transmission customers /DICs as the case may be , the shortfall in tariff corresponding to reduction in capital cost, as approved by the Commission along with interest at 0.80 times of bank rate as prevalent on April 1 of respective year.

(8) In case of the existing projects, the generating company or the transmission licensee, as the case may be, may be allowed tariff by the Commission based on the admitted capital cost as on 1.4.2014 and projected additional capital expenditure in accordance with the Regulation 6:

Provided that the generating company or the transmission licensee, as the case may be, shall continue to bill the beneficiaries or the transmission customers / DICs at

the tariff approved by the Commission and applicable as on 31.3.2014 for the period starting from 1.4.2014 till approval of tariff by the Commission in accordance with these regulations:

Provided further that where the capital cost considered in tariff by the Commission on the basis of projected capital cost as on COD or the projected additional capital expenditure submitted by the generating company or the transmission licensee, as the case may be, exceeds the actual capital cost incurred on year to year basis by more than 5%, the generating company or the transmission licensee shall refund to the beneficiaries or the long term transmission customers /DICs as the case may be, the excess tariff recovered corresponding to excess capital cost, , as approved by the Commission along with interest at 1.20 times of the bank rate as prevalent on April 1 of respective year:

Provided also that where the capital cost considered in tariff by the Commission on the basis of projected capital cost as on COD or the projected additional capital expenditure submitted by the generating company or the transmission licensee, as the case may be, falls short of the actual capital cost incurred on year to year basis by more than 5%, the generating company or the transmission licensee shall be entitled to recover from the beneficiaries or the long term transmission customers /DICs as the case may be ,the shortfall in tariff corresponding to reduction in capital cost, as

approved by the Commission along with interest at 0.80 times of bank rate as prevalent on April 1 of respective year.

8. Truing up

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

Provided that where the tariff of a new project has been approved by the Commission based on anticipated COD, the generating Company or the transmission licensee, as the case may be, shall file an application for interim true up of capital expenditure within 180 days of the commercial operation of the new project:

Provided further that the generating company or the transmission licensee, as the case may be, may at its discretion make an application before the Commission one more time prior to 31st March, 2019 for revision of tariff.

(1) The Commission shall further carry out truing up of tariff of generating station based on the performance of following parameters:

a) Controllable Parameters

- i) Station Heat Rate
- ii) Secondary Fuel Oil Consumption
- iii) Auxiliary Energy Consumption

b) Uncontrollable Parameters

- i) Force Majeure
- ii) Change in Law: and
- iii) Primary Fuel Cost

(2) The Commission shall further carry out truing up of tariff of transmission system based on the performance of following uncontrollable parameters:

- (a) Force Majeure; and
- (b) Change in Law

(3) The financial gains by a generating company on account of controllable parameters shall be shared between generating company and the beneficiaries on monthly basis, in the ratio of 3:1 as per the following formulae:

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

Where,

ECR_N - Normative Energy Charge Rate computed on the basis of norms specified for Station Heat Rate, Auxiliary Consumption and Secondary Fuel Oil

Consumption.

ECR_A – Actual Energy Charge Rate computed on the basis of actual SHR, Auxiliary Consumption and Secondary Fuel Oil Consumption for the month.

(4) The financial gains and losses by a generating company or the transmission licensee, as the case may be, on account of uncontrollable parameters shall be passed on to beneficiaries of the generating company or long term transmission customer/DICs of transmission system, as the case may be.

(5) The generating company or the transmission licensee, as the case may be, shall make an application, as per **Annexure-I** to these regulations, for carrying out truing up exercise in respect of the generating station a unit or block thereof or the transmission system or the transmission lines or sub-stations thereof by 31.10.2019.

(6) The generating company or the transmission licensee, as the case may be, shall submit for the purpose of truing up, details of actual capital expenditure and additional capital expenditure incurred for the period from 1.4.2014 to 31.3.2019, duly audited and certified by the auditors.

(7) Where after the truing up, the tariff recovered exceeds the tariff approved by the

Commission under these regulations, the generating company or the transmission licensee, as the case may be, shall refund to the beneficiaries or the transmission customers /DICs, as the case may be, the excess amount so recovered as specified in the clause 10 of this regulation.

(8) Where after the truing up, the tariff recovered is less than the tariff approved by the Commission under these regulations, the generating company or the transmission licensee, as the case may be, shall recover from the beneficiaries or the transmission customers /DICs, as the case may be, the under-recovered amount as specified in the clause 10 of this regulation.

(9) 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 or the transmission licensee, as the case may be, in six equal monthly instalments starting within three months from the date of the tariff order issued by the Commission.

CHAPTER - 4

COMPUTATION OF CAPITALCOST AND CAPITAL STRUCTURE

9. **Capital Cost:** (1)The Capital cost determined by the Commission after prudence check in accordance with this Regulation shall form the basis of determination of tariff for existing and new projects.
- (2) The Capital cost of a new project shall include the following:
- (a) the expenditure incurred or projected to be incurred up to the date of commercial operation of the project;
 - (b) Interest during construction, financing charges and any gain or loss on account of foreign exchange risk variation during construction period, 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) Interest during construction and incidental expenditure during construction as computed in accordance with Regulation 11 of these regulations;

- (d) capitalised Initial spares subject to the ceiling rates specified in Regulation 13 of these regulations;
 - (e) expenditure on account of additional capitalization and de-capitalisation determined in accordance with Regulation 14 of these regulations; and
 - (f) adjustment of revenue due to sale of infirm power prior to the schedule commissioning as specified under regulation 18 of this Regulation.
- (3) The Capital cost of an existing project shall include the following:
- (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 14; and
 - (c) expenditure on account of renovation and modernisation as admitted by this Commission in accordance with Regulation 15.

(4) The capital cost in case of existing/new hydro generating station shall also include:

- (a) cost of approved rehabilitation and resettlement (R&R) plan of the project in conformity with National R&R Policy and R&R package as approved; and
- (b) cost of the developer's 10% contribution towards Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) project in the affected area.

(5) The capital cost with respect to thermal generating station, incurred or projected to be 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) Sharing of the benefits accrued on account the PAT Scheme.

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

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

(c) Decapitalisation of Asset; and

(d) 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.

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

(1) In case of the thermal generating station and the transmission system, prudence check of capital cost may be carried out taking into consideration the benchmark norms specified/to be specified by the Commission from time to time:

Provided that in cases where benchmark norms have not been specified, prudence check may include scrutiny of the reasonableness of the capital expenditure, financing plan, interest during construction, incidental expenditure during construction, 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.

Provided further that in cases where benchmark norms have specified, the variation of capital cost from benchmark norms, the generating company or

transmission licensee shall submit the reason for exceeding the capital cost from benchmark norms to the satisfaction of the Commission for allowing cost above benchmark norms.

(2) The Commission may issue new guidelines or revise the existing guidelines 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.

(3) The Commission may issue new guidelines or revise the existing guidelines for scrutiny and commissioning schedule of the hydro-electric projects in accordance with the tariff policy issued by the Central Government under section 3 of the Act from time to time which shall be considered for prudence check.

(4) 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.

11. Interest during construction (IDC), Incidental Expenditure during Construction (IEDC)

(A) Interest during Construction (IDC):

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

(2) In case of additional costs on account of IDC due to delays in achieving the date of commercial operation on SCOD, the generating company or the transmission licensee as the case may be, 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 or the transmission licensee as the case may be, and is due to uncontrollable factors as specified in Regulation 12 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 found beyond the control of petitioner after due prudence and taking into account prudent phasing of funds.

(B) Incidental Expenditure during Construction (IEDC):

(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 date of commercial operation on SCOD, the generating company or the transmission licensee as the case may be, shall be required to furnish detailed justification with supporting documents for such delay including the details of incidental expenditure during delay period and liquidated damages recovered or recoverable corresponding to the delay:

Provided that if the delay is not attributable to the generating company or the transmission licensee, as the case may be, and is due to uncontrollable factors as specified in Regulation 12, IEDC may be allowed after due prudence check.

Provided further in case of delay on account of any agency or contractor or supplier of generating company or transmission licensee, the generating company or transmission licensee shall take into account the liquidated damages to the extent of the damages caused to generating company or transmission licensee on account of the delay.

(3) In case the time overrun beyond SCOD is not admissible after due prudence, the

increase of capital cost on account of cost variation corresponding to the period of time over run may be excluded from capitalization irrespective of price variation provisions in the contracts with supplier or contractor, if any.

12. Controllable and Uncontrollable factors: The following shall be considered as controllable and uncontrollable factors leading to cost escalation impacting IDC and IEDC:

- (1) The “controllable factors” shall include but shall not be limited to the following:
 - i. Variations in capital expenditure on account of time and/or cost overruns on account of land acquisition issues;
 - ii. 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
 - iii. Delay in execution of the project on account of contractor, supplier or agency of the generating company or transmission licensee.
- (2) The “uncontrollable factors” shall include but not limited to the following:
 - i. Force Majeure events, such as acts of war, fire, natural calamities, etc.; and
 - ii. Change in law.

Provided further that no additional impact of time overrun or cost overrun shall

be allowed on account of non-commissioning of the generating station or associated transmission system by SCOD, as the same should be recovered through Indemnification 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 by the Commission in accordance with second proviso of regulation 4(3) of these regulations till the generating station is commissioned;

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

13. Initial Spares: Initial spares shall be capitalised as a percentage of the Plant and Machinery cost upto cut-off date, subject to following ceiling norms:

- | | | |
|------|---|--------|
| (i) | Coal-based/lignite-fired thermal generating stations - | 3.0% |
| (ii) | Gas Turbine/Combined Cycle thermal
generating stations | - 3.0% |

(iii)	Hydro generating stations including pumped storage hydro generating station.	-	4.0%
(iv)	Transmission system		
(a)	Transmission line	-	1.00%
(b)	Transmission Sub-station	-	3.00%
(c)	Series Compensation devices and HVDC Station	-	4.50%
(d)	Gas insulated sub-station (GIS)	-	4.0%
(e)	Communication system	-	3.5%

Provided that where the benchmark norms for initial spares have been published as part of the benchmark norms for capital cost by the Commission, such norms shall apply to the exclusion of the norms specified above:

Provided further that where the generating station has any transmission equipment forming part of the generation project, the ceiling norms for initial spares for such equipments shall be as per the ceiling norms specified for transmission system under this regulations.

14. Additional Capitalisation and De-capitalisation:

(1) The capital expenditure in respect of the new project or an existing project incurred or projected to be incurred, on the following counts within the original scope

of work, after the date of commercial operation and up to the cut-off date may be admitted by the Commission, subject to prudence check:

- (i) Undischarged Liabilities recognized to be payable at a future date;
- (ii) Works deferred for execution;
- (iii) Procurement of initial capital spares within the original scope of work, in accordance with the provisions of regulation 13;
- (iv) Liabilities to meet award of arbitration or for compliance of the order or decree of a court of law; and
- (v) Change in law or compliance of any existing law:

Provided that the details of works asset wise/work wise included in the original scope of work along with estimates of expenditure, liabilities recognized to be payable at a future date and the works deferred for execution shall be submitted along with the application for determination of tariff.

(2) The capital expenditure incurred or projected to be incurred in respect of the new project on the following counts within the original scope of work after the cut-off

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 of law;
 - (ii) Change in law and Force Majeure events;
 - (iii) Deferred works relating to ash pond or ash handling system in the original scope of work;
 - (iv) Any liability for works executed prior to the cut-off date, after prudence check of the details of such undischarged liability, total estimated cost of package, reasons for such withholding of payment and release of such payments etc.
- (3) The capital expenditure, in respect of existing generating station or the transmission system including communication system, incurred or projected to be incurred on the following counts after the cut-off date may, in its discretion, be admitted by the Commission, subject to technical scrutiny and prudence check:

- (i) Liabilities to meet award of arbitration or for compliance of the order or decree of a court of law;

- (ii) Change in law;
- (iii) Deferred works relating to ash pond or ash handling system in the original scope of work;
- (iv) Any liability for works executed prior to the cut-off date, after prudence check of the details of such undischarged liability, total estimated cost of package, reasons for such withholding of payment and release of such payments etc.;
- (v) For any capital expenditure other than that of the nature specified above in (i) to (iv) in case of coal/lignite based station shall be met out of compensation allowance ;
- (vi) Any additional capital expenditure which has become necessary for efficient operation of thermal generating plant other than coal/lignite based stations or transmission system as the case may be. 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 Independent agency in case of damage caused by natural calamities, upgradation of capacity for the technical reason such as increase in fault level;

- (vii) 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) including due to geological reasons after adjusting for proceeds from any insurance scheme, and expenditure incurred due to any additional work which has become necessary for successful and efficient plant operation;
- (viii) In case of transmission system any additional expenditure on items such as relays, control and instrumentation, computer system, power line carrier communication, DC batteries, replacement due to obsolescence of technology, replacement of switchyard equipment due to increase of fault level, emergency restoration system, insulators cleaning infrastructure, replacement of porcelain insulator with polymer insulators, replacement of damaged equipment not covered by insurance and any other expenditure which has become necessary for successful and efficient operation of transmission system; and
- (ix) Any capital expenditure found justified after prudence check necessitated on account of modifications required or done in fuel receiving system arising due to non-materialisation 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:

Provided that any expenditure on acquiring the minor items or the assets including tools and tackles, furniture, air-conditioners, voltage stabilizers, refrigerators, coolers, fans, washing machines, heat convectors, mattresses, carpets etc. brought after the cut-off date shall not be considered for additional capitalization for determination of tariff w.e.f. 1.4.2014:

Provided 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 generating company or a transmission licensee, as the case may be, 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.

15. Renovation and Modernisation: (1) The generating company or the transmission licensee, as the case may be, for meeting the expenditure on renovation and modernization (R&M) for the purpose of extension of life beyond the originally

recognised useful life for the purpose of tariff of the generating station or a unit thereof or the transmission system or an element 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, and any other information considered to be relevant by the generating company or the transmission licensee.

(2) Where the generating company or the transmission licensee, as the case may be, makes an application for approval of its proposal for renovation and modernisation, 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.

(3) In case of gas/ liquid fuel based open/ combined cycle thermal generating station, any expenditure which has become necessary for renovation of gas turbines after 25 years of operation from its COD and an expenditure necessary due to obsolesce or non-availability of spares for efficient operation of the stations shall be allowed :

Provided that any expenditure included in the R&M on consumables and cost of components and spares which is generally covered in the O&M expenses during the major overhaul of gas turbine shall be suitably deducted after due prudence from the R&M expenditure to be allowed.

(4) 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.

16. Special Allowance for Coal-based/Lignite fired Thermal Generating station:

(1) In case of coal-based/lignite fired thermal generating station, the generating company, instead of R&M may opt to, avail of a 'special allowance' in accordance with the norms specified in this regulation, as compensation for meeting the requirement of expenses including renovation and modernisation 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 allowed 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 or operating under relaxed operational and performance norms.

(2) The Special Allowance shall be @ Rs. 7.5 lakh/MW/year for the year 2014-15 and thereafter escalated @ 6.35% every year during the tariff period 2014-19, 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:

Provided that in respect of a unit in commercial operation for more than 25 years as on 1.4.2014, this allowance shall be admissible from the year 2014-15:

Provided also that the special allowance for the generating stations, who, in its discretion, has already availed of a 'special allowance' in accordance with the norms specified in clause (4) of Regulations 10 of Central Electricity Regulatory Commission (Terms and Conditions of Tariff Determination) Regulations, 2009, shall be allowed by escalating the special allowance allowed for 2013-14 @ 6.35% every year during the tariff period 2014-19.

- (3) In the event of granting special allowance by the Commission, the expenditure incurred or utilized from special allowance shall be maintain separately by the generating station and details of same shall be made available to the Commission as and when directed to furnish such expenditure.

17. Compensation Allowance:

- (1) In case of coal-based or lignite-fired thermal generating station, or a unit thereof, a separate compensation allowance shall be admissible to meet expenses on new assets of capital nature (including in the nature of minor assets) of the generating station or a unit thereof, 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 included in the annual fixed cost.
- (2) The Compensation Allowance shall be allowed 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

18. Sale of Infirm Power: Supply of infirm power shall be accounted as Unscheduled Interchange (UI) and paid for from the regional or State UI pool accounts in accordance with the Central Electricity Regulatory Commission (Unscheduled Interchange Charges and Related matters) Regulations, 2009, as amended from time to time or any subsequent re-enactment thereof:

Provided that any revenue earned by the generating company from supply of infirm power after accounting for the fuel expenses shall be applied in adjusting the capital cost accordingly.

19. Debt-Equity Ratio: (1) For a project declared under commercial operation on or after 1.4.2014, if the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan:

Provided that where equity actually deployed is less than 30% of the capital cost, actual equity shall be considered for determination of tariff:

Provided further that the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment:

Provided also that any grant obtained for the execution of the project shall not be considered as a part of capital structure for the purpose of tariff determination.

Explanation.-The premium, if any, raised by the generating company or the transmission licensee, as the case may be, while issuing share capital and investment of internal resources created out of its free reserve, for the funding of the project, shall be reckoned as paid up capital for the purpose of computing return on equity:

Provided that such premium amount and internal resources are actually utilised for meeting the capital expenditure of the generating station or the transmission system.

(2) The generating company or the transmission licensee shall submit the resolution of the Board of the company for infusion of fund from internal resources in support of the utilization being made to meet the capital expenditure of the generating station or the transmission system as the case may be.

(3) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2014, debt-equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2014 shall be considered.

(4) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2014, but where debt: equity ratio has not been determined by the Commission for determination of tariff for the period ending 31.3.2014, the Commission shall approve the debt:equity ratio based on actual information provided by the generating company or the transmission licensee as the case may be.

(5) 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.

CHAPTER – 5

TARIFF STRUCTURE

20. Components of Tariff: (1) The tariff for supply of electricity from a thermal generating station shall comprise two parts, namely, capacity charge (for recovery of annual fixed cost consisting of the components specified in Regulation 21) and energy charge (for recovery of primary fuel cost and limestone cost where applicable).

(2) The tariff for supply of electricity from a hydro generating station shall comprise capacity charge and energy charge to be derived in the manner specified in regulation 31, for recovery of annual fixed cost (consisting of the components referred to in regulation 21) through the two charges.

(3) The tariff for transmission of electricity on inter-State transmission system shall comprise transmission charge for recovery of annual fixed cost consisting of the components specified in regulation 21.

21. Capacity Charges: The Capacity charges shall be derived on the basis of annual fixed cost. The annual fixed cost (AFC) of a generating station or a transmission system including communication system shall consist of the following components:

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

Provided that special allowance in lieu of R&M where opted in accordance to Regulation 16 and/or separate compensation allowance in accordance to Regulation 17, wherever applicable shall be recovered separately and shall not be considered for computation of working capital.

22. Energy Charges: Energy charges shall be derived on the basis of the landed fuel cost (LFC) of a generating station (excluding hydro) and shall consist of the following cost:

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

Provided that taxes, duties and amount received on account of penalties received from fuel supplier shall have to be adjusted in landed fuel cost:

23. Landed Fuel Cost for Tariff Determination: The landed fuel cost of primary fuel and secondary fuel for tariff determination shall be based on actual of the 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 year.

CHAPTER – 6

COMPUTATION OF ANNUAL FIXED COST

24. Return on Equity: (1) Return on equity shall be computed in rupee terms, on the equity base determined in accordance with regulation 19.

(2) Return on equity shall be computed at the base rate of 15.50% for thermal generating stations, transmission system including communication system and run of the river hydro generating station, and at the base rate of 16.50% for the storage type generating stations including pumped storage hydro generating stations and run of river generating station with pondage:

Provided that in case of projects commissioned on or after 1st April, 2014, an additional return of **0.50 %** shall be allowed if such projects are completed within the timeline specified in **Appendix-I**:

Provided further that the additional return of 0.5% shall not be admissible if the project is not completed within the timeline specified above for reasons whatsoever:

Provided further that the rate of return of new project shall be reduced by 1%, if the generating station or transmission system is declared commercial operation without

commissioning of RGMO/FGMO, data telemetry and communication system up to load dispatch centre and protection system.

25. Tax on Return on Equity:

(1) Tax on the income corresponding to Return on Equity approved by the Commission for the generating company or the transmission licensee, as the case may be, shall be directly recovered from the beneficiaries or the long term transmission customers /DICs, as the case may be. Tax on the income shall be computed with reference to the total actual income tax paid by the generating company or the transmission licensee as the case may be, on pro-rata basis with respect to return on equity. The tax on any other income stream (including efficiency gains, incentive, etc) other than Return on Equity shall not be recovered from beneficiaries or the long term transmission customers /DICs, as the case may be, and tax on such other income shall be payable by the generating company or transmission licensee, as the case may be.

(2) In case the profit before tax for a particular year is higher than the effective income tax on Return on Equity as approved by the Commission for any year, the Income Tax on Return on Equity to be recovered from the beneficiaries or the long term transmission customers /DICs, as the case may be, on pro-rata basis in the following manner:

$$\text{Income Tax to be recovered} = \text{Total Income Tax Paid} \times \text{RoE approved by the Commission/Profit before Tax}$$

In case the Profit before Tax for a particular year is lower than the tax on Return on Equity as approved by the Commission for any year, the actual Income Tax paid by the Generating Company or Transmission Licensee shall be recovered from beneficiaries or the long term transmission customers /DICs, as the case may be.

(3) Any under-recovery or over-recovery 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 auditor:

Provided that income-tax allocated to the thermal generating station shall be charged to the beneficiaries in the same proportion as annual fixed charges, and the income-tax allocated to the hydro generating station shall be charged to the beneficiaries in the same proportion as annual capacity charges, and in case of inter-State transmission system, the sharing of income-tax shall be in the same proportion as annual transmission charges:

Provided further that the generating company and transmission licensee shall bill the Income Tax under a separate head called 'Income Tax Reimbursement' in their respective bills.

(4) The tax computation on ROE as approved by the Commission may be made based on advance tax assessed or deposited subject to adjustment on actual at the end of the year. The recovery or refund of tax, if any, in comparison with actual tax shall be made along with interest as determined by the assessing officer of Income Tax department. The penalty, if any, arising on account of delay in deposit of tax or short deposit of tax amount shall not be claimed by the generating company or the transmission licensee as the case may be.

Provided that the deferred tax liability before 1.4.2009 shall be recovered from the beneficiaries as and when the same gets finalized. No claim on account of deferred tax liability arising after 1.4.2009 shall be made from the beneficiaries.

26. Interest on loan capital: (1) The loans arrived at in the manner indicated in regulation 19 shall be considered as gross normative loan for calculation of interest on loan.

(2) The normative loan outstanding as on 1.4.2014 shall be worked out by deducting

the cumulative repayment as admitted by the Commission up to 31.3.2014 from the gross normative loan.

(3) The repayment for each of the year of the tariff period 2014-19 shall be deemed to be equal to the depreciation allowed for the corresponding year. In case of de-capitalization of assets, the repayment shall be adjusted by taking into account cumulative repayment made to the extent of de-capitalization.

(4) Notwithstanding any moratorium period availed by the generating company or the transmission licensee, as the case may be, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the depreciation allowed for the year or part of the year .

(5) The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio after accounting for interest capitalized:

Provided that if there is no actual loan for a particular year but normative loan is still outstanding, the last available weighted average rate of interest shall be considered:

Provided further that if the generating station or the transmission system, as the case may be, does not have actual loan, then the weighted average rate of interest of the

generating company or the transmission licensee as a whole shall be considered.

(6) The interest on loan shall be calculated on the normative average loan of the year by applying the weighted average rate of interest.

(7) The generating company or the transmission licensee, as the case may be, shall make every effort to re-finance the loan as long as it results in net savings on interest and in that event 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 or the transmission licensee, as the case may be, in the ratio of 2:1.

(8) The changes to the terms and conditions of the loans shall be reflected from the date of such re-financing.

(9) In case of dispute, any of the parties may make an application in accordance with the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999, as amended from time to time, including statutory re-enactment thereof for settlement of the dispute:

Provided that the beneficiaries or the long term transmission customers /DICs shall not withhold any payment on account of the interest claimed by the generating company or the transmission licensee during the pendency of any dispute arising out of

re-financing of loan.

27. Depreciation: (1) Depreciation shall be computed from the date of commercial operation of generating station or unit thereof or transmissions system including communication system or element thereof. In case of the tariff of all the units of generating station or all elements of transmission system including communication system for which a single tariff needs to be determined, the depreciation shall be computed from the effective date of commercial operation 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 date of commercial operation and installed capacity of all the units of generating station or capital cost of all elements of transmission system, for which single tariff needs to be determined.

(2) The value base for the purpose of depreciation shall be the capital cost of the asset admitted by the Commission. In case of multiple units in a generating station, weighted average life for the station shall be applied. Depreciation shall be chargeable from the first year of commercial operation. In case of commercial operation of the asset for part of the year, depreciation shall be charged on *pro rata* basis.

(3) The salvage value of the asset shall be considered as 10% and depreciation shall

be allowed up to maximum of 90% of the capital cost of the asset:

Provided that in case of hydro generating stations, 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:

Provided further that any depreciation disallowed on account of lower availability of the generating station or generating unit or transmission system, as the case may, be shall not be allowed to be recovered at a later stage during the useful life and the extended life.

(4) 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 the asset.

(5) Depreciation shall be calculated annually based on Straight Line Method and at rates specified in **Appendix-II** to these regulations for the assets of the generating station and transmission system:

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

(6) 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.

(7) The generating company or the transmission license, as the case may be, shall submit the details of proposed capital expenditure during the fag end of the project (beyond 20 years from COD for thermal generating station and beyond 30 years for hydro generating station and transmission system) 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.

(8) In case of de-capitalization of assets in respect of generating station or unit thereof or transmission system or element thereof, the depreciation shall be adjusted by taking into account of cumulative depreciation to the extent of de-capitalization.

28. Interest on Working Capital :(1) The working capital shall cover:

(a) Coal-based/lignite-fired thermal generating stations

(i) Cost of coal or lignite and limestone towards stock, if applicable, for 15 days for pit-head generating stations and 30 days for non-pit-head generating stations for generation corresponding to the normative annual plant availability factor or the maximum coal/lignite stock storage capacity whichever is lower;

(ii) Cost of coal or lignite and limestone for 30 days for generation corresponding to the normative annual plant availability factor

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

(iv) Maintenance spares @ 20% of operation and maintenance expenses specified in regulation 29;

(v) Receivables equivalent to two months of capacity charges and energy charges for sale of electricity calculated on the normative annual plant availability factor, and

(vi) Operation and maintenance expenses for one month.

(b) Open-cycle Gas Turbine/Combined Cycle thermal generating stations

(i) Fuel cost for 30 days corresponding to the normative annual plant availability factor, duly taking into account mode of operation of the generating station on gas fuel and liquid fuel;

(ii) Liquid fuel stock for 15 days corresponding to the normative annual plant availability factor, and in case of use of more than one liquid fuel, cost of main liquid fuel duly taking in to account mode of operation of the generating stations of gas fuel and liquid fuel and in case of use of more than one liquid fuel, cost of main liquid fuel;

(iii) Maintenance spares @ 30% of operation and maintenance expenses specified in Regulation 29;

(iv) Receivables equivalent to two months of capacity charge and energy charge for sale of electricity calculated on normative plant availability factor, duly taking into account mode of operation of the generating station on gas fuel and liquid fuel; and

(v) Operation and maintenance expenses for one month.

(c) Hydro generating station including pumped storage hydro electric generating

station and transmission system including communication system:

- (i) Receivables equivalent to two months of fixed cost:
 - (ii) Maintenance spares @ 15% of operation and maintenance expenses specified in regulation 29; and
 - (iii) Operation and maintenance expenses for one month.
- (2) The cost of fuel in cases covered under sub-clauses (a) and (b) of clause (1) 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 as per actual for the three months preceding the first month for which tariff is to be determined and no fuel price escalation shall be provided during the tariff period.
- (3) 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 2014-19 in which the generating station or a unit thereof or the transmission system including communication system or element thereof, as the case may be, is declared under commercial operation, whichever is later.
- (4) Interest on working capital shall be payable on normative basis notwithstanding that the generating company or the transmission licensee has not taken loan for working capital from any outside agency.

29. Operation and Maintenance Expenses:

- (1) Normative Operation and Maintenance expenses of thermal generating stations shall be as follows:

(a) Coal based and lignite fired (including those based on CFBC technology) generating stations, other than the generating stations/units referred to in clauses (b) and (d):

(₹ in Lakh/MW)

Year	200/210/250 MW Sets	300/330/350 MW Sets	500 MW Sets	600 MW Sets and above
FY 2014-15	24.07	20.19	16.32	14.68
FY 2015-16	25.60	21.47	17.35	15.61
FY 2016-17	27.22	22.84	18.45	16.60
FY 2017-18	28.95	24.29	19.63	17.66
FY 2018-19	30.79	25.83	20.87	18.78

Provided that the norms shall be multiplied by the following factors for arriving at norms of O&M expenses for additional units in respective unit sizes for the units whose COD occurs on or after 1.4.2014 in the same station:

200/210/250 MW	Additional 5 th & 6 th units	0.90
	Additional 7 th & more units	0.85
300/330/350 MW	Additional 4 th & 5 th units	0.90
	Additional 6 th & more units	0.85
500 MW and above	Additional 3 rd & 4 th units	0.90
	Additional 5 th & above units	0.85

(b) Talcher Thermal Power Station(TPS), Tanda TPS, Badarpur TPS Unit 1 to 3 of NTPC and Chandrapura TPS Unit 1 to 3 and Durgapur TPS Unit 1 of DVC:

(₹ in Lakh/MW)

Year	Talcher TPS	Chandrapura TPS (Units 1 to 3), Tanda TPS, Badarpur (Unit 1 to 3) , Durgapur TPS (Unit 1)
2014-15	44.37	36.68
2015-16	47.18	39.01
2016-17	50.18	41.49
2017-18	53.37	44.12
2018-19	56.75	46.92

(c) Open Cycle Gas Turbine/Combined Cycle generating stations.

(₹ in Lakh/MW)

Year	Gas Turbine/ Combined Cycle generating stations other than small gas turbine power generating stations	Small gas turbine power generating stations	Agartala GPS	Advance F Class Machines
2014-15	16.77	33.33	41.20	25.72
2015-16	17.83	35.44	43.82	27.36
2016-17	18.97	37.69	46.60	29.09
2017-18	20.17	40.09	49.56	30.94
2018-19	21.45	42.63	52.70	32.91

(d) Lignite-fired generating stations

(₹ in Lakh/MW)

Year	125 MW Sets	TPS-I of NLC
2014-15	29.12	38.14
2015-16	30.97	40.56
2016-17	32.94	43.14
2017-18	35.03	45.88
2018-19	37.25	48.79

(e) Generating Stations based on coal rejects

Year	O&M Expenses (₹ in Lakh/MW)
2014-15	29.12
2015-16	30.97
2016-17	32.94
2017-18	35.03
2018-19	37.25

(2) Hydro Generating Station

- (a) Following operations and maintenance norms shall be applicable for hydro generating stations which have been operational for three or more years as on March 31, 2013:

(₹ in Lakh/MW)

Sr. No	Name of Station	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19
A. NHPC						
1	Bairasul Power Station	49.07	52.18	55.50	59.02	62.77
2	Loktak Power Station	93.41	99.34	105.65	112.36	119.49
3	Salal Power Station	21.12	22.46	23.88	25.40	27.01
4	Tanakpur Power Station	62.46	66.43	70.64	75.13	79.90
5	Chamera - I Power Station	20.88	22.20	23.61	25.11	26.70
6	Uri Power Station	16.96	18.04	19.18	20.40	21.70
7	Rangit Power Station	77.94	82.89	88.15	93.75	99.70
8	Chamera - II Power Station	27.51	29.26	31.12	33.09	35.19
9	Dhauliganga Power Station	25.90	27.54	29.29	31.15	33.13
10	Dulhasti Power Station	35.29	37.53	39.91	42.45	45.14

Sr. No	Name of Station	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19
11	Teesta- V Power Station	16.47	17.52	18.63	19.81	21.07
12	Sewa-II Power Station	55.45	58.97	62.71	66.69	70.93
B.	THDC	21.12	22.46	23.88	25.40	27.01
C.	SJVNL	17.08	18.16	19.32	20.54	21.85
D. NHDC						
1	Indira Sagar Power Station	14.81	15.75	16.75	17.82	18.95
2	Omkareshwar Power Station	10.10	10.74	11.42	12.15	12.92
E. NEEPCO						
1	KHEP	29.69	31.58	33.58	35.71	37.98
2	Rangadi HEP	16.58	17.63	18.75	19.94	21.21
3	Doyang HEP	55.72	59.26	63.03	67.03	71.28
4	Khadong	55.72	59.26	63.03	67.03	71.28

(b) In case of the hydro generating stations, which have not been in commercial operation for a period of three years as on 1.4.2013, operation and maintenance expenses shall be fixed at 2% of the original project cost (excluding cost of rehabilitation & resettlement works) for the first year of commercial operation. Further, in such case, operation and maintenance expenses in first year of commercial operation shall be escalated @ 6.04% per annum up to the year 2013-14 and then averaged to arrive at the O&M expenses at 2013-14 price level. It shall be thereafter escalated @ 6.35 %per annum to arrive at operation and maintenance expenses in respective year of the tariff period.

(c) In case of the hydro generating stations declared under commercial operation on or after 1.4.2014, operation and maintenance expenses shall be fixed at 2% of the original project cost (excluding cost of rehabilitation & resettlement works) for first year of commercial operation and shall be subject to annual escalation of 6.35% per annum

for the subsequent years.

The above norms of O&M expenses for thermal and hydro generating stations are excluding Water Charges. Water charges as applicable shall be allowed separately.

(3) Transmission system

(a) The following normative operation and maintenance expenses shall be admissible for the transmission system :

Norms for sub-stations (₹ in Lakh per bay)	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19
765 kV	77.22	80.41	83.74	87.21	90.82
400 kV	55.16	57.44	59.82	62.29	64.87
220 kV	38.61	40.21	41.87	43.61	45.41
132 kV and below	27.58	28.72	29.91	31.15	32.44
400 kV Gas Insulated Substation	46.99	48.94	50.96	53.07	55.27
Norms for AC and HVDC lines (Rs Lakh per km)					
Single Circuit (Bundled Conductor with six or more sub-conductors)	0.694	0.723	0.753	0.784	0.816
Single Circuit (Bundled Conductor with four sub-conductors)	0.595	0.619	0.645	0.672	0.700
Single Circuit (Twin & Triple Conductor)	0.397	0.413	0.430	0.448	0.466
Single Circuit (Single	0.198	0.206	0.215	0.224	0.233

Norms for sub-stations (₹ in Lakh per bay)	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19
Conductor)					
Double Circuit (Bundled conductor with four or more sub-conductors)	1.041	1.084	1.129	1.176	1.225
Double Circuit (Twin & Triple Conductor)	0.694	0.723	0.753	0.784	0.816
Double Circuit (Single Conductor)	0.297	0.310	0.323	0.336	0.350
Multi Circuit (Bundled conductor with four or more sub-conductors)	1.827	1.903	1.982	2.064	2.149
Multi Circuit (Twin & Triple Conductor)	1.217	1.267	1.319	1.374	1.431
Norms for HVDC Stations					
HVDC Back-to-back stations (Rs. Lakh per 500 MW)	497	518	539	561	585
Rihand-Dadri HVDC bi-pole scheme (Rs. Lakh)	1295	1349	1405	1463	1524
Talcher- Kolar HVDC bi-pole scheme (Rs. Lakh)	1007	1049	1092	1137	1184
Balia-Bhiwadi HVDC bi-pole scheme (Rs. Lakh)	1450	1510	1572	1638	1705

Provided that operation and maintenance expenses for new HVDC bi-pole scheme for a particular year shall be allowed pro-rata on the basis of normative rate of operation and maintenance expense for 2000 MW, Talcher-Kolar HVDC bi-pole

scheme for the respective year.

(b) The total allowable operation and maintenance expenses for the transmission system shall be calculated by multiplying the number of bays and kms of line length with the applicable norms for the operation and maintenance expenses per bay and per km respectively.

(c) The operation and maintenance expenses of communication system forming part of of inter-state transmission system shall be derived on the basis of the actual O&M expenses for the period of 2008-09 to 2012-13 based on audited accounts excluding abnormal variations if any after prudence check by the Commission.

(4) The impact of wage revision if any, during the tariff period shall be allowed in due consideration of Government of India, Department of Public Enterprise guidelines and considering following percentage of O&M as employee cost:

Coal/Lignite based Stations:	40%
Gas/liquid fuel based stations:	32%
Hydro Generating Stations:	46%
Transmission system:	40%

CHAPTER - 7

COMPUTATION OF CAPACITY CHARGES AND ENERGY CHARGES

30. Computation and Payment of Capacity Charge and Energy Charge for Thermal Generating Stations:

(1) The fixed cost of a thermal generating station shall be computed on annual basis, based on norms specified under these regulations, and recovered on monthly basis under capacity charge. 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.

(2) The capacity charge payable to a thermal generating station for a calendar month shall be calculated in accordance with the following formulae:

$$CC_1 = (AFC/12)(PAF_1 / NPAF) \text{ subject to ceiling of } (AFC/12)$$

$$CC_2 = ((AFC/6)(PAF_2 / NPAF) \text{ subject to ceiling of } (AFC/6)) - CC_1$$

$$CC_3 = ((AFC/4)(PAF_3 / NPAF) \text{ subject to ceiling of } (AFC/4)) - (CC_1 + CC_2)$$

$$CC_4 = ((AFC/3)(PAF_4 / NPAF) \text{ subject to ceiling of } (AFC/3)) - (CC_1 + CC_2 + CC_3)$$

$$CC_5 = ((AFC \times 5/12)(PAF_5 / NPAF) \text{ subject to ceiling of } (AFC \times 5/12)) - (CC_1 + CC_2 + CC_3 + CC_4)$$

$$CC_6 = ((AFC/2)(PAF_6 / NPAF) \text{ subject to ceiling of } (AFC/2)) - (CC_1 + CC_2 + CC_3 + CC_4 + CC_5)$$

$$CC_7 = ((AFC \times 7/12) (PAF_7 / NPAF) \text{ subject to ceiling of } (AFC \times 7/12)) - (CC_1 + CC_2 + CC_3 + CC_4 + CC_5 + CC_6)$$

$$CC_8 = ((AFC \times 2/3) (PAF_8 / NPAF) \text{ subject to ceiling of } (AFC \times 2/3)) - (CC_1 + CC_2 + CC_3 + CC_4 + CC_5 + CC_6 + CC_7)$$

$$CC_9 = ((AFC \times 3/4) (PAF_9 / NPAF) \text{ subject to ceiling of } (AFC \times 3/4)) - (CC_1 + CC_2 + CC_3 + CC_4 + CC_5 + CC_6 + CC_7 + CC_8)$$

$$CC_{10} = ((AFC \times 5/6) (PAF_{10} / NPAF) \text{ subject to ceiling of } (AFC \times 5/6)) - (CC_1 + CC_2 + CC_3 + CC_4 + CC_5 + CC_6 + CC_7 + CC_8 + CC_9)$$

$$CC_{11} = ((AFC \times 11/12) (PAF_{11} / NPAF) \text{ subject to ceiling of } (AFC \times 11/12)) - (CC_1 + CC_2 + CC_3 + CC_4 + CC_5 + CC_6 + CC_7 + CC_8 + CC_9 + CC_{10})$$

$$CC_{12} = ((AFC) (PAF_Y / NPAF) \text{ subject to ceiling of } (AFC)) - (CC_1 + CC_2 + CC_3 + CC_4 + CC_5 + CC_6 + CC_7 + CC_8 + CC_9 + CC_{10} + CC_{11})$$

Provided further that in case of generating station or unit thereof or transmission system or an element thereof as the case may be, under shutdown due to Renovation and Modernisation, the generating company or the transmission licensee 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

PAFM= percent:

Plant availability factor achieved during the year, in

PAFY = percent

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.

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

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

Where,

AUX=Normative auxiliary energy consumption in percentage.

DC_i = 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 i.e. the month or the year as the case may be.

Note: DC_i 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.

(4) **Incentive:** Incentive to a generating station or unit thereof 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 Normative Annual Plant Load Factor (NAPLF).

(5) The energy charge shall cover the primary and secondary fuel cost and limestone consumption cost (where applicable), and shall be payable by every beneficiary for the total energy scheduled to be supplied to such beneficiary during the calendar month on ex-power plant basis, at the energy charge rate of the month (with fuel and limestone price adjustment). Total Energy charge payable to the generating company for a month shall be:

$(\text{Energy charge rate in Rs./kWh}) \times \{\text{Scheduled energy (ex-bus) for the month in}$

kWh.}

(6) 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 :

(a) For coal based and lignite fired stations

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

(b) For gas and liquid fuel based stations

$$ECR = GHR \times LPPF \times 100 / \{CVPF \times (100 - AUX)\}$$

Where,

AUX = Normative auxiliary energy consumption in percentage.

CVPF = Weighted Average Gross calorific value of primary fuel as fired, in kCal per kg, per litre or per standard cubic meter, as applicable. (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.

GHR = 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, per litre or per standard cubic metre, as applicable, 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

(6) 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, lignite, natural gas, RLNG, liquid fuel etc., as per the Form 15 of **Annexure-I** to these regulations:

Provided further 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, natural gas, RLNG,

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.

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

Pithead generating stations	:	0.2%
Non-pithead generating stations	:	0.8%

Provided that in case of pit head stations if coal or lignite 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%.

(8) The landed price of limestone shall be taken based on procurement price of limestone for the generating station, inclusive of royalty, taxes and duties as applicable and transportation cost for the month.

(9) 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 that in such case, prior permission from beneficiaries shall not be a precondition, unless otherwise agreed specifically in their power purchase agreement;

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 (10) of this regulation:

Provided also that where the weighted average price of use of alternative source of fuel exceed 30% of base price of fuel computed as per clause(10) of this regulation or 20% of fuel price for the previous month, whichever is lower, prior consultation with

beneficiary shall be made not later than three days in advance.

(10) The Commission through the specific tariff orders to be issued for each generating station shall approve the fuel price for the FY 2014-15. The fuel price so approved shall be the base price of fuel and shall be applicable for the month of notification of such tariff orders. For subsequent months, the base price of fuel shall be escalated by escalation rates as notified by the Commission from time to time for bidding purpose.

(11) The tariff structure as provided in this regulation may be adopted by the Department of Atomic Energy, Government of India for the nuclear generating stations by specifying annual fixed cost (AFC), normative annual plant availability factor (NAPAF), installed capacity (IC), normative auxiliary power consumption (AUX) and energy charge rate (ECR) for such stations.

31. Computation and Payment of Capacity charge and Energy Charge for Hydro Generating Stations:

(1) 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, that is to say, in the capacity excluding the free power to the home State:

Provided that during the period between the date of commercial operation of the first unit of the generating station and the date of commercial operation of the generating station, the annual fixed cost shall provisionally be worked out based on the latest estimate of the completion cost for the generating station, for the purpose of determining the capacity charge and energy charge payment during such period.

(2) The capacity charge (inclusive of incentive) payable to a hydro generating station for a calendar month shall be

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

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

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

N

$$PAFM = \frac{10000 \times \sum_{i=1} DC_i}{\{ N \times IC \times (100 - AUX) \}} \%$$

Where

AUX = Normative auxiliary energy consumption in percentage

DC_i = Declared capacity (in ex-bus MW) for the ith 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

(4) 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

$$\text{kWh} \} \times (100 - \text{FEHS}) / 100$$

(5) 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 (7):

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

Where,

DE = Annual design energy specified for the hydro generating station, In MWh, subject to the provision in clause (6) below.

FEHS = Free energy for home State, in per cent, as defined in regulation 42.

(6) In case 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 company, the following treatment shall be applied on a rolling basis on 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 (5) 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 previous

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

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

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 (5) of this Regulation 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 $100 / (100 - AUX)$.

(7) In case the energy charge rate (ECR) for a hydro generating station, computed as per clause (5) 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.

(8) In case of the hydro generating stations located in the State of Jammu and Kashmir, any expenditure incurred for payment of water usage charges to the State Water Resources Development Authority, Jammu under Jammu & Kashmir Water Resources (Regulations and Management) Act, 2010 shall be payable by the beneficiaries as additional energy charge in proportion of the supply of power from the generating stations on month to month basis:

Provided that the generating company shall be entitled to recover the additional energy charges for the payment already made to State Water Resources Authority, Jammu as water usage charges as on the date of notification of these regulations along with interest at the prevailing State Bank of India base rate in six equal monthly instalments:

Provided further that the provisions of this clause shall be subject to the decision of the Hon'ble High Court of Jammu & Kashmir in OWP No. 604/2011 and shall stand modified in accordance with the decision of the High Court.

32. Pumped Storage Hydro Generating Stations:

(1) The fixed cost of a pumped storage hydro generating station shall be computed on annual basis, based on norms specified under these regulations, and recovered on monthly basis as capacity charge. The capacity charge shall be payable by the beneficiaries in proportion to their respective allocation in the saleable capacity of the generating station, that is to say, in the capacity excluding the free power to the home State:

Provided that during the period between the date of commercial operation of the first unit of the generating station and the date of commercial operation of the generating station, the annual fixed cost shall be worked out provisionally based on the latest estimate of the completion cost for the generating station, for the purpose of determining the capacity charge payment during such period.

(2) The capacity charge payable to a pumped storage hydro generating station for a calendar month shall be:

$(AFC \times NDM / NDY)$ (in Rupees), if actual Generation during the month is ≥ 75 % of the Pumping Energy consumed by the station during the month and

$\{(AFC \times NDM / NDY) \times (\text{Actual Generation during the month during peak hours} / 75\% \text{ of the Pumping Energy consumed by the station during the month})\}$

(in Rupees)}, if actual Generation during the month is < 75 % of the Pumping Energy consumed by the station during the month.

Where,

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

NDM = Number of days in the month

NDY = Number of days in the year

(3) The energy charge shall be payable by every beneficiary for the total energy scheduled to be supplied to the beneficiary in excess of the design energy plus 75% of the energy utilized in pumping the water from the lower elevation reservoir to the higher elevation reservoir, at a flat rate equal to the average energy charge rate of 20 paise per kWh, excluding free energy, if any, during the calendar month, on ex power plant basis.

(4) Energy charge payable to the generating company for a month shall be:
$$= 0.20 \times \{ \text{Scheduled energy (ex-bus) for the month in kWh} - (\text{Design Energy for the month} + 75\% \text{ of the energy utilized in pumping the water from the lower elevation reservoir to the higher elevation reservoir of the month}) \} \times (100 - \text{FEHS}) / 100.$$

Where,

DEm = Design energy for the month specified for the hydro generating station,
in MWh, subject to the provision in clause (6) below.

FEHS = Free energy for home State, in per cent, as defined in regulation 42, if
any.

Provided further that in case the Scheduled energy in a month is less than the Design Energy for the month plus 75% of the energy utilized in pumping the water from the lower elevation reservoir to the higher elevation reservoir of the month, then the energy charges payable by the beneficiaries shall be zero.

(5) The generating company shall maintain the record of daily inflows of natural water into the upper elevation reservoir and the reservoir levels of upper elevation reservoir and lower elevation reservoir on hourly basis. The generator shall be required to maximize the peak hour supplies with the available water including the natural flow of water. In case it is established that generator is deliberately or otherwise without any valid reason, is not pumping water from lower elevation reservoir to the higher elevation during off-peak period or not generating power to its potential or wasting natural flow of water, the capacity charges of the day shall not be payable by the beneficiary. For this purpose, outages of the unit(s)/station including planned outages and the forced outages up to the 15% in a year shall be construed as the valid reason for not pumping water from lower elevation reservoir to the higher elevation during off-

peak period or not generating power using energy of pumped water or natural flow of water:

Provided further that the total capacity charges recovered during the year shall be adjusted on pro-rata basis in the following manner in the event of total machine outages in a year exceeds 15%:

$$(ACC)_{adj} = (ACC) R \times (100 - ATO) / 85$$

Where,

(ACC)_{adj} – Adjusted Annual capacity Charges

(ACC) R – Annual capacity Charges recovered

ATO - Total Outages in percentage for the year including forced and planned outages

Provided further that the generating station shall be required to declare its machine availability daily on day ahead basis for all the time blocks of the day in line with the scheduling procedure of Grid Code.

(6) The concerned Load Despatch Centre shall finalise the schedules for the hydro generating stations, in consultation with the beneficiaries, for optimal utilization of all the energy declared to be available, which shall be scheduled for all beneficiaries in proportion to their respective allocations in the generating station.

33. Computation and Payment of Transmission Charge for Inter-State Transmission System:

(1) The fixed cost of the transmission system or communication system forming part of transmission system shall be computed on annual basis, in accordance with norms contained in these regulations, aggregated as appropriate, and recovered on monthly basis as transmission charge from the users, who shall share these charges in the manner specified in Regulation 43.

(2) The Transmission charge (inclusive of incentive) payable for a calendar month for transmission system or part shall be

$$\text{AFC} \times (\text{NDM}/\text{NDY}) \times (\text{TAFM}/\text{NATAF})$$

Where,

AFC = Annual Fixed Cost specified for the year in Rupees

NATAF = Normative annual Transmission availability factor, in per cent

NDM = Number of days in the month

NDY = Number of days in the year

TAFM = Transmission System availability factor for the month, in percent computed in accordance with Appendix III.

(3) The transmission charges shall be calculated separately for part of the transmission system having differing NATAF, and aggregated thereafter, according to

their sharing by the beneficiaries.

(4) The transmission licensee shall raise the bill for the transmission charge (inclusive of incentive) for a month based on its estimate of TAFM. Adjustments, if any, shall be made on the basis of the TAFM to be certified by the Member-Secretary of the Regional Power Committee of the concerned region within 30 days from the last day of the relevant month.

34. Unscheduled Interchange (UI) Charges: (1) All variations between actual net injection and scheduled net injection for the generating stations, and all variations between actual net drawal and scheduled net drawal for the beneficiaries shall be treated as their respective Unscheduled Interchanges (UI), charges which shall be governed by the relevant regulations specified by the Commission from time to time.

(2) Actual net unscheduled interchange of every inter-State entity shall be metered on its periphery through special energy meters (SEMs) installed by the Central Transmission Utility (CTU), and computed in MWh for each 15-minute time block by the concerned Regional Load Despatch Centre.

NORMS OF OPERATION

35. (1) Recovery of capacity charge, energy charge, transmission charge and incentive by the generating company and the transmission licensee shall be based on the achievement of the operational norms specified in the Regulations 36 to 39.

(2) The Commission may on its own revise the norms of Station Heat Rate specified in Regulation 36 in respect of any of the generating stations for which relaxed norms have been provided.

Norms of operation for thermal generating station

36. The norms of operation as given hereunder shall apply to thermal generating station:

(A) Normative Annual Plant Availability Factor (NAPAF)

(a) All thermal generating stations, except those covered under clauses (b), (c), (d), &(e) - 85%

(b) Following Lignite-fired Thermal generating stations of Neyveli Lignite Corporation Ltd:

TPS-I	72%
TPS-II Stage I & II	75%
TPS-I (Expansion)	80%

(c) Following Thermal Generating Stations of DVC :

Bokaro TPS	75%
Chandrapura TPS	75%
Durgapur TPS	74%

(d) Following Gas based Thermal Generating Stations of NEEPCO :

Assam GPS	72%
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(e) Lignite fired Generating Stations using Circulatory Fluidized Bed Combustion (CFBC) Technology and Generating stations based on coal rejects

1. First Three years from COD – 75%
2. For next year after completion of three years of COD – 80%

(B) Normative Annual Plant Load Factor (NAPLF) for Incentive

- (a) All thermal generating stations, except those covered under clauses (b), (c) - 85%
- (b) Following Lignite-fired Thermal generating stations of Neyveli Lignite Corporation Ltd :

TPS -I	75%
TPS - II Stage I &II	80%
TPS- I (Expansion)	80%

- (c) Following Thermal Generating Stations of Damodar Valley Corporation (DVC):

Bokaro TPS	80%
Chandrapur TPS	80%
Durgapur TPS	80%

(C) Gross Station Heat Rate

(a) Existing Thermal Generating Station

- (i) Existing Coal-based Thermal Generating Stations, other than those covered under clauses (b) and (c) below :

200/210/250 MW Sets	500 MW Sets (Sub-critical)
2425kCal/kWh	2375 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 40 kCal/kWh lower than the gross station heat rate specified above.

Note 2

For the generating stations having combination of 200/210/250 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.

(ii) Following Thermal generating stations of NTPC Ltd:

Badarpur TPS	2750kCal/kWh
Talcher TPS	2850kCal/kWh
Tanda TPS	2750kCal/kWh

(iii) Thermal Generating Stations of Damodar Valley Corporation (DVC):

Bokaro TPS	2700kCal/kWh
Chandrapura TPS (Unit 1 to 3)	3100 kCal/kWh
Durgapur TPS	2820 kCal/kWh

(iv) Lignite-fired Thermal Generating Stations :

For lignite-fired thermal generating stations, except for TPS-I and TPS-II (Stage I & II) of Neyveli Lignite Corporation Ltd, the gross station heat rates specified under sub-clause (i) for coal-based thermal generating stations shall be applied with correction, using multiplying factors as given below:

- (a) For lignite having 50% moisture: 1.10
- (b) For lignite having 40% moisture: 1.07
- (c) For lignite having 30% moisture: 1.04
- (d) For other values of moisture content, multiplying factor shall be pro-rated

for moisture content between 30-40% and 40-50% depending upon the rated values of multiplying factor for the respective range given under sub-clauses (a) to (c) above.

- (v) TPS-I and TPS-II (Stage I & II) of Neyveli Lignite Corporation Ltd :

TPS-I 4000 kCal/kWh

TPS-II 2900 kCal/kWh

TPS- I (Expansion) 2750 kCal/kWh

- (vi) Open Cycle Gas Turbine/ Combined Cycle generating stations :

Existing generating stations of NTPC Ltd and NEEPCO

Name of generating station	Combined cycle (kCal/kWh)	Open Cycle (kCal/kWh)
Gandhar GPS	2040	2960
Kawas GPS	2050	3010
Anta GPS	2075	3010
Dadri GPS	2000	3010
Auraiya GPS	2100	3045
Faridabad GPS	1975	2900
Kayamkulam GPS	2000	2900
Assam GPS	2500	3440
Agartala GPS	-	3700
Sugen	1850	2685
Ratnagiri	1850	2685

(b) New Thermal Generating Station achieving COD on or after 1.4.2014

(a) Coal-based and lignite-fired Thermal Generating Stations

$$= 1.045 \times \text{Design Heat Rate (kCal/kWh)}$$

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:

Pressure Rating (Kg/cm ²)	150	170	170	247
SHT/RHT (0C)	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	1830
Min. Boiler Efficiency				
Sub-Bituminous Indian Coal	0.87	0.87	0.87	0.87
Bituminous Imported Coal	0.89	0.89	0.89	0.89
Max Design Unit Heat Rate (kCal/kWh)				
Sub-Bituminous Indian Coal	2247	2241	2224	2103
Bituminous Imported Coal	2197	2191	2174	2056

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 further, wherein the boiler efficiency is below 87% for Sub-bituminous Indian coal and 89% for bituminous imported coal the same shall be considered as 87% and 89% respectively for Sub-bituminous Indian coal and bituminous imported coal for computation of station heat rate:

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 36(C)(a)(i):

Provided also that in case of lignite-fired generating stations (including stations

based on CFBC technology), maximum design heat rates shall be increased using factor for moisture content given in Regulation sub-clause (C)(a)(iv) of this regulation:

Provided also that for Generating stations based on coal rejects, the Commission will approve the Design Heat Rate on case to case basis.

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.

(b) Gas-based / Liquid-based thermal generating unit(s)/ block(s)

= 1.05 X Design Heat Rate of the unit/block for Natural Gas and
RLNG (kCal/kWh)

= 1.071 X Design Heat Rate of the unit/block for Liquid Fuel (kCal/kWh)

Where the Design Heat Rate of a unit shall mean the guaranteed heat rate for a unit at 100% MCR and at site ambient conditions; and the Design Heat Rate of a block shall mean the guaranteed heat rate for a block at 100% MCR, site ambient conditions, zero percent make up, design cooling water temperature/back pressure.

(D) Secondary fuel oil consumption

(a) Coal-based generating stations other than at (c) below :

Pit Head Stations – 0.50 ml/kWh

Non-Pit Head Stations – 1.00 ml/kWh

- (b) (i) Lignite-fired generating stations except stations based on CFBC technology and TPS-I 2ml/kWh
- (ii) TPS-I 1.5ml/kWh
- (iii) Lignite-fired generating stations based on CFBC Technology 1.00 ml/kWh

- (c) Coal-based generating stations of DVC :

Mejia TPS Unit - I to IV	1.0 ml/kWh
Bokaro TPS	1.5 ml/kWh
Chandrapur TPS	1.5 ml/kWh
Durgapur TPS	2.4 ml/kWh

- (d) Generating Stations based on Coal Rejects : 2 ml/kWh

(E) Auxiliary Energy Consumption :

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

		With Natural Draft cooling tower or without cooling tower	
(i)	200 MW series	-	8.5%
(ii)	300/330/350/500 MW and above		
	Steam driven boiler feed pumps	-	6.0%
	Electrically driven boiler feed pumps	-	8.5%

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

(b) Other Coal-based generating stations:

(i)	Talcher Thermal Power Station	:	10.50%
(ii)	Tanda Thermal Power Station	:	12.00%
(iii)	Badarpur Thermal Power Station	:	8.50%
(iv)	Bokaro Thermal Power Station	:	10.25%
(v)	Chandrapur Thermal Power Station	:	9.50%
(vi)	Durgapur Thermal Power Station	:	10.50%

(c) Gas Turbine /Combined Cycle generating stations:

(i)	Combined Cycle	:	2.5%
(ii)	Open Cycle	:	1.0%

(d) Lignite-fired thermal generating stations:

(i) All generating stations with 200 MW sets and above:

The auxiliary energy consumption norms shall be 0.5 percentage point more than the auxiliary energy consumption norms of coal-based generating stations at (v) (a) above.

Provided that for the lignite fired stations using CFBC technology, the auxiliary energy consumption norms shall be 1.5 percentage point more than the auxiliary energy consumption norms of coal-based generating stations at (v) (a) above.

- (ii) Barsingsar Generating station of NLC using CFBC technology: 11.50%
- (iii) TPS-I, TPS-I (Expansion) and TPS-II Stage-I&II of Neyveli Lignite Corporation Ltd.:

TPS-I	12.00%
TPS-II	10.00%
TPS-I (Expansion)	8.50%

- (iv) Lime stone consumption for lignite-based generating station using CFBC technology:

Barsingsar : 0.056 kg/kWh

TPS-II (Expansion) : 0.046 kg/kWh

- (e) Generating Stations based on coal rejects : 10%

37. Norms of operation for hydro generating stations: (1) The following Normative annual plant availability factor (NAPAF) shall apply to hydro generating station:

- (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 moth 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.
- (2) In case of Pumped storage hydro generating stations, the quantum of electricity required for pumping water from down-stream reservoir to up-stream reservoir shall be arranged by the beneficiaries duly taking into account the transmission and distribution losses etc. up to the bus bar of the generating station. In return beneficiaries will be entitled to equivalent energy of 75% of the energy utilized in pumping the water from the lower elevation reservoir to the higher elevation reservoir from the generating station during peak hours and the generating station shall be under obligation to supply such quantum of electricity during peak hours:

Provided that in the event of the beneficiaries failing to supply the desired level of energy during off-peak hours, there will be pro-rata reduction in their energy entitlement from the station during peak hours:

Provided further that the beneficiaries may assign or surrender their share of capacity in the generating station, in part or full, or the capacity may be reallocated by the Central Government, and in that event the owner or assignee of the capacity share shall be responsible for arranging the equivalent energy to the generating station in off-peak hours, and be entitled to corresponding energy during peak hours in the same way as the original beneficiary was entitled.

(3) A further allowance may be made by the Commission in NAPAF determination under special circumstances, e.g. abnormal silt problem or other operating conditions, and known plant limitations.

(4) A further allowance of 5% may be allowed for difficulties in North East Region.

(5) Based on the above, the Normative annual plant availability factor (NAPAF) of the hydro generating stations already in operation shall be as follows :-

Station	Type of Plant	Plant Capacity No. of Units x MW	NAPAF (%)
NHPC			
Chamera - 1	Pondage	3 x 180	90
Biarasiul	Pondage	3 x 60	90
Loktak	Storage	3 x 35	85
Chamera-II	Pondage	3 x 100	90
Chamera - III	Pondage	3X77	85
Rangit	Pondage	3 x 20	90
Dhauliganga	Pondage	4 x 70	90
Teesta - V	Pondage	3 x 170	85

Dulhasti	Pondage	3 x 130	90
Salal	ROR	6 x 115	60
Gewa-II	Pondage	3 X 40	80
Uri	ROR	4 x 120	70
Tanakpur	ROR	3 x 31.4	55
NHDC			
Indirasagar	Storage	8 x 125	85
Omkareshwar	Pondage	8 x 65	90
THDC			
TehriStg - 1	Storage	4 x 250	77
SJVNL			
NathpaJhakri	Pondage	6 x 250	90
NEEPCO			
KopiliStg - 1	Storage	4 x 50	79
Khandong	Storage	3 x 25	69
Kopili Stg. - 2	Storage	1 x 25	69
Doyang	Storage	3 x 25	73
Ranganadi	Pondage	3 x 135	85
DVC			
Panchet	Storage	2 x 40	80
Tilaiya	Storage	2 x 2	80
Maithon	Storage	3 x 20	80

(6) Auxiliary Energy Consumption (AUX):

(a) Surface hydro generating stations

- (i) with rotating exciters mounted on the generator shaft : 0.7%
- (ii) with static excitation system : 0.5%

(b) Underground hydro generating stations

- (i) with rotating exciters mounted on the generator shaft : 0.9%
- (ii) with static excitation system : 1.0%

Norms of operation for transmission system

38. Normative Annual Transmission System Availability Factor (NATAF):

shall be as under:

For incentive consideration

- (1) AC system : 99%
- (2) HVDC bi-pole links and HVDC back-to-back Stations : 98%

Provided that for recovery of Annual Fixed Charges, NATAF in case of AC system and HVDC bi-pole links and HVDC back-to-back stations shall be considered as 98% and 95% respectively.

39. Auxiliary Energy Consumption in the sub-station:

(a) AC System

The charges for auxiliary energy consumption in the AC sub-station for the purpose of air-conditioning, lighting and consumption in other equipment shall be borne by the transmission licensee and included in the normative operation and maintenance expenses.

(b) HVDC sub-station

For auxiliary energy consumption in HVDC sub-stations, the Central Government may allocate an appropriate share from one or more ISGS . The charges for such power shall be borne by the transmission licensee and are included in the normative operation and maintenance expenses

CHAPTER - 9
SCHEDULING, ACCOUNTING AND BILLING

40. Scheduling: The methodology for scheduling and dispatch for the generating station shall be as specified in the Indian Electricity Grid Code, 2010 as amended from time to time.

41. Metering and Accounting: The provisions of the Indian Electricity Grid Code, 2010 as amended from time to time shall be applicable.

42. Billing and Payment of charges: (1) Bills shall be raised for capacity charge, energy charge and the transmission charge on monthly basis by the generating company and the transmission licensee in accordance with these regulations, and payments shall be made by the beneficiaries or the long term transmission customers /DICs directly to the generating company or the transmission licensee, as the case may be.

(2) Payment of the capacity charge for a thermal generating station shall be shared by the beneficiaries of the generating station as per their percentage shares for the month (inclusive of any allocation out of the unallocated capacity) in the installed capacity of the generating station. Payment of capacity charge and energy charge for a hydro generating station shall be shared by the beneficiaries of the generating station

in proportion to their shares (inclusive of any allocation out of the unallocated capacity) in the saleable capacity (to be determined after deducting the capacity corresponding to free energy to home State as per Note 3 herein.

Note 1

Shares / allocations of each beneficiary in the total capacity of Central sector generating stations shall be as determined by the Central Government, inclusive of any allocation made out of the unallocated capacity. The shares shall be applied in percentages of installed capacity and shall normally remain constant during a month. Based on the decision of the Central Government the changes in allocation shall be communicated by the Member-Secretary, Regional Power Committee in advance, at least three days prior to beginning of a calendar month, except in case of an emergency calling for an urgent change in allocations out of unallocated capacity. The total capacity share of a beneficiary would be sum of its capacity share plus allocation out of the unallocated portion. In the absence of any specific allocation of unallocated power by the Central Government, the unallocated power shall be added to the allocated shares in the same proportion as the allocated shares.

Note 2

The beneficiaries may propose surrendering part of their allocated firm share to other States within / outside the region. 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 prospectively re-allocated by the Central Government for a specific period (in complete months) from the beginning of a calendar month. 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 capacity charges as per allocated capacity shares. Any such reallocation and its reversion shall be communicated to all concerned by the Member Secretary, Regional Power Committee in advance, at least three days prior to such reallocation or reversion taking effect.

Note 3

FEHS = Free energy for home State, in percent and shall be taken as 12%

Provided that in cases where the site of a hydro project is awarded to a developer, by a State Government by following a two stage transparent process of bidding, the 'free energy' shall be taken as 13%, in addition to energy corresponding to 100 units of electricity to be provided free of cost every month to every project affected family for a period of 10 years from the date of commercial operation of the generating station.

Provided further that the generating company shall submit detail quantification of energy corresponding to 100 units of electricity to be provided free of cost every month to every month to every project affected family for a period of 10 years from the date of commercial operation.

43. Sharing of Transmission Charges: (1) The sharing of transmission charges shall be governed by the Central Electricity Regulatory Commission (Sharing of inter-state transmission charges and losses) Regulations, 2010 from the date of coming into effect of the said regulations.

(2) The charges determined in this regulation in relation to communication system forming part of transmission system shall be shared by the beneficiaries or long term transmission customers in proportion to their allocated capacity from the inter-state generating stations or as may be decided by the Commission:

Provided that charges determined in this regulation in relation to communication system under ULD&C other than central transmission system shall be shared by the beneficiaries in proportion to the capital cost belongs to respective beneficiaries.

44. Rebate. (1) For payment of bills of the generating company and the transmission licensee through letter of credit on presentation, a rebate of 2% shall be allowed.

(2) Where payments are made other than through letter of credit on any day within a period of 30 days of presentation of bills by the generating company or the transmission licensee, a rebate of 1% shall be allowed.

45. Late payment surcharge: In case the payment of any bill for charges payable under these regulations is delayed by a beneficiary beyond a period of 60 days from the date of billing a late payment surcharge at the rate of 1.50% per month shall be levied by the generating company or the transmission licensee, as the case may be.

CHAPTER - 10

MISCELLANEOUS PROVISIONS

46. Sharing of CDM Benefits: 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 or the transmission system, as the case may be;

(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%, whereafter the proceeds shall be shared in equal proportion, by the generating company or the transmission licensee, as the case may be, and the beneficiaries.

47. Norms to be ceiling norms: Norms specified in these regulations are the ceiling norms and shall not preclude the generating company or the transmission licensee, as the case may be, and the beneficiaries and the long-term transmission customers /DICs from agreeing to the improved norms and in case the improved norms are agreed to, such improved norms shall be applicable for determination of tariff.

48. Deviation from norms:(1) Tariff for sale of electricity by the generating company or for transmission charges of the transmission licensee, as the case may be, may also be determined in deviation of the norms specified in these regulations subject to the conditions that :

- (a) The levelled tariff over the useful life of the project on the basis of the norms in deviation does not exceed the levelled 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 deviation shall come into effect only after approval by the Commission, for which an application shall be made by the generating company or the transmission licensee, as the case may be.

Explanation.- For the purpose of calculating the levelled tariff referred to in sub-clause(a) of clause (1), the discounting factor shall be as notified by the Commission from time to time.

- (2) The tariff of the existing generating stations of Neyveli Lignite Corporation Ltd, namely, TPS-I and TPS-II (Stage I & II) and TPS-I(Expansion) and Badarpur TPS of NTPC Ltd., whose tariff for the tariff periods 2004-09 and 2009-14 has been determined

by following the Net Fixed Assets approach, shall continue to be determined by adopting Net Fixed Assets approach.

49. Deferred Tax liability with respect to previous tariff period: The deferred tax liability/tax credit, excluding Fringe Benefit Tax, for the period up to 31st March, 2009 whenever it materializes, shall be recoverable directly from the beneficiaries and the long-term customers /DICs:

50. Foreign Exchange Rate Variation:

(1) The generating company or the transmission licensee, as the case may be, may hedge foreign exchange exposure in respect of the interest on foreign currency loan and repayment of foreign loan acquired for the generating station or the transmission system, in part or full in the discretion of the generating company or the transmission licensee.

(2) As and when the petitioner enters into any hedging based on its approved hedging policy, the petitioner should communicate to the beneficiaries concerned about its hedging decision within thirty days of entering into such hedging transaction/s.

(3) Every generating company and transmission licensee shall recover the cost of hedging of foreign exchange rate variation corresponding to the normative foreign debt, in the relevant year on year-to-year basis as expense in the period in which it arises and

extra rupee liability corresponding to such foreign exchange rate variation shall not be allowed against the hedged foreign debt.

(4) To the extent the generating company or the transmission licensee is not able to hedge the foreign exchange exposure, the extra rupee liability towards interest payment and loan repayment corresponding to the normative foreign currency loan in the relevant year shall be permissible provided it is not attributable to the generating company or the transmission licensee or its suppliers or contractors.

(5) The petitioner shall furnish certificate along with claim on this count indicating the reasons for its inability or for its decision for not hedging the foreign exchange exposure in respect of payment of interest or repayment of loans.

(6) Every generating company and the transmission licensee shall recover the cost of hedging and foreign exchange rate variation on year-to-year basis as income or expense in the period in which it arises.

51. Recovery of cost of hedging or Foreign Exchange Rate Variation:

(1) Recovery of cost of hedging or foreign exchange rate variation shall be made directly by the generating company or the transmission licensee, as the case may be, from the beneficiaries or the long term transmission customers /DICs, as the case may

be, without making any application before the Commission:

Provided that in case of any objections by the beneficiaries or the long term transmission customers /DICs, as the case may be, to the amounts claimed on account of cost of hedging or foreign exchange rate variation, the generating company or the transmission licensee, as the case may be, may make an appropriate application before the Commission for its decision.

52. Application fee and the publication expenses: The following fees, charges and expenses shall be reimbursed directly by the beneficiary in the manner specified herein:

(1) The application filing fee and the expenses incurred on publication of notices in the application for approval of tariff, may in the discretion of the Commission, be allowed to be recovered by the generating company or the transmission licensee, as the case may be, directly from the beneficiaries or the long term transmission customers /DICs, as the case may be:

(2) The following fees and charges shall be reimbursed directly by the beneficiaries in proportion of their allocation in the generating stations or by the long term transmission customers /DICs in proportion to their share in the inter-State transmission systems determined in accordance with the Central Electricity Regulatory

Commission (Sharing of inter-State Transmission Charges and Losses) Regulations, 2010 as amended from time to time;

(a) Fees and charges paid by the generating companies and inter-State transmission licensees (including deemed inter-State transmission licensee) under Central Electricity Regulatory Commission (Fees and Charges of Regional Load Despatch Centre and other related matters) Regulations, 2009, as amended from time to time;

(b) Licence fees paid by the inter-State transmission licensees (including the deemed inter-State transmission licensee) in terms of the Central Electricity Regulatory Commission (Payment of Fees) Regulations, 2008 and Central Electricity Regulatory Commission (Payment of Fees) Regulations 2012 or any subsequent amendment or re-enactment thereof;

(c) Licence fees paid by NHPC Ltd to the State Water Resources Development Authority, Jammu in accordance with the provisions of Jammu & Kashmir Water Resources (Regulations and Management) Act, 2010.

(3) The generating companies and inter-State transmission licensees (including deemed inter-State transmission licensee) shall be entitled to recover the fees and charges as mentioned in clause (1) of this regulation which have been paid till the notification of these regulations.

(4) The Commission may, in its discretion and for the reasons to be recorded in writing and after hearing the affected parties, allow reimbursement of any fee or expenses as may be considered necessary.

53. Special Provisions relating to Damodar Valley Corporation: (1) Subject to clause (2) this regulation shall apply to determination of tariff of the projects owned by Damodar Valley Corporation (DVC).

(2) The following special provisions shall apply for determination of tariff of the projects owned by DVC:

(i) **Capital Cost:** The expenditure allocated to the object 'power', in terms of sections 32 and 33 of the Damodar Valley Corporation Act, 1948, to the extent of its apportionment to generation and inter-state transmission, shall form the basis of capital cost for the purpose of determination of tariff:

Provided that the capital expenditure incurred on head office, regional offices, administrative and technical centers of DVC, after due prudence check, shall also form part of the capital cost.

(ii) Debt Equity Ratio: The debt equity ratio of all projects of DVC commissioned prior to 01.01.1992 shall be 50:50 and that of the projects commissioned thereafter shall be 70:30.

(iii) Depreciation: The depreciation rate stipulated by the Comptroller and Auditor General of India in terms of section 40 of the Damodar Valley Corporation Act, 1948 shall be applied for computation of depreciation of projects of DVC.

(iii) Funds under section 40 of the Damodar Valley Corporation Act, 1948: The Fund(s) established in terms of section 40 of the Damodar Valley Corporation Act, 1948 shall be considered as items of expenditure to be recovered through tariff.

(4) The provisions in clause (2) of this regulation shall be subject to the decision of the Hon'ble Supreme Court in Civil Appeal No 4289 of 2008 and other related appeals pending in the Hon'ble Court and shall stand modified to the extent they are inconsistent with the decision.

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

55. Power to Remove Difficulty:

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

(M.K.Anand)
Chief (Finance)