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**JHARKHAND STATE ELECTRICITY REGULATORY COMMISSION,
RANCHI**

JSERC (Terms and Conditions for Determination of Generation Tariff)
Regulations, 2010

NOTIFICATION
The 27th October, 2010

No.34-- The Purpose of these Regulations is to define the terms and conditions under which the tariff and related charges for generation of electricity is determined. These regulations shall be the guiding principles for each Generation company of the State of Jharkhand and are developed to ensure rationalization of tariffs, promoting competition, protecting interest of consumers and overall development of the electricity sector in the State.

CHAPTER I - SCOPE, EXTENT AND DEFINITIONS

A1: SHORT TITLE, COMMENCEMENT AND EXTENT

- 1.1 These Regulations shall be called “Jharkhand State Electricity Regulatory Commission (Terms and Conditions for Determination of Generation Tariff) Regulations, 2010”.
- 1.2 These Regulations shall extend to the entire state of Jharkhand.
- 1.3 These Regulations shall come into force from the date of their publication in the Official Gazette of the Government of Jharkhand.

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- 1.4 These Regulations shall be applicable from the date of issue of these Regulations and up to 31st March 2016

Provided that where a Project, including 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 Jharkhand State Electricity Regulatory Commission till that date, tariff in respect of such Project or such part thereof, as the case may be, for the period ending 31.3.2011 shall be determined in accordance with the JSERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2004.

A2 : DEFINITIONS AND INTERPRETATION

- 2.1 In these Regulations, unless the context otherwise requires-

- 1) “**Act**” means the Electricity Act, 2003 (36 of 2003), including amendments thereto;
- 2) “**Accounting Statement**” means for each financial year the following statements, namely-
 - (i) Balance sheet, prepared in accordance with the form contained in Part I of Schedule VI to the Companies Act, 1956; together with notes thereto, and such other supporting statements and information as the Commission may direct from time to time;
 - (ii) Profit and loss account, complying with the requirements contained in Part II of Schedule VI to the Companies Act, 1956;
 - (iii) Cash flow statement, prepared in accordance with the Accounting Standard on Cash Flow Statement (AS-3) of the Institute of Chartered Accountants of India;
 - (iv) Report of the statutory auditor(s) of the Generating Company;
 - (v) Directors’ report and accounting policies; and
 - (vi) Cost records if any, prescribed by the Central Government under Section 209(1) (d) of the Companies Act, 1956.
- 3) “**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, subject to provisions of clause 7.5, 7.6 of these Regulations ;
- 4) “**Aggregate Revenue Requirement or ARR**” means for each Financial Year, the costs pertaining to the Generating Company which are permitted, in accordance

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with these Regulations, to be recovered from the tariffs and charges determined by the Commission;

- 5) “**Applicant**” means a Generating Company who has made an application for determination of tariff or an application for annual performance review in accordance with the Act and these Regulations and includes a Generating Company whose tariff is the subject of a review by the Commission either suo motu or on a petition filed by any interested or affected person or as part of an annual performance review;
- 6) “**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, and 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;
- 7) “**Auditor**” means an auditor appointed by the generating company, as the case may be, in accordance with the provisions of Sections 224, and 619 of the Companies Act, 1956 (1 of 1956), or any other law for the time being in force;
- 8) “**Base Year**” means the Financial Year immediately preceding the first year of the Control Period, and used for the purposes of these Regulations;
- 9) “**Beneficiary**” in relation to a generating station means the person purchasing electricity generated at such a generating station whose tariff is determined under these Regulations;
- 10) “**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;
- 11) “**Capital cost**” means the capital cost as defined in clause 7.3, 7.4 of these Regulations;
- 12) “**CERC**” or “**Central Commission** ” means the Central Electricity Regulatory Commission;
- 13) “**Change in Law**” means occurrence of any of the following events:
 - (i) the enactment, bringing into effect, adoption, promulgation, amendment, modification or repeal of any law; or
 - (ii) change in interpretation of any law by a competent court, Tribunal or Indian Governmental Instrumentality which is the final authority under law for such interpretation; or
 - (iii) change by any competent statutory authority, in any consent, approval or licence available or obtained for the project.

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- 14) “**Commission**” means the Jharkhand State Electricity Regulatory Commission (JSERC);
- 14) “**Conduct of Business Regulations**” means the JSERC (Conduct of Business) Order 2003, as amended from time to time;
- 15) “**Control Period**” means a multi-year period fixed by the Commission, from 1st April 2012 and up to 31st March 2016;
- 16) “**Cut off Date**” means 31st March of the year closing after two years of the year of commercial operation of the project, and in case 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;
- 17) “**Date of Commercial Operation**” or ‘**COD**’ means:
- (i) in relation to a unit or block of the thermal generating station, the date declared by the generating company after demonstrating the maximum continuous rating (MCR) or the installed capacity (IC) through a successful trial run after notice to the beneficiaries, from 0000 hour of which scheduling process as per the Indian Electricity Grid Code (IEGC) is fully implemented, and in relation to the generation station as a whole, the date of commercial operation of the last unit or block of the generating station;
 - (ii) in relation to a unit of hydro generating station, the date declared by the generating company from 0000 hour of which, after notice to the beneficiaries, scheduling process in accordance with the Indian Electricity 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, after notice to the beneficiaries;

Note

1. In case the 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, provided that 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.
2. In case of purely run-of-river hydro generating station if the unit or the generating station is declared under commercial operation during lean inflows period when the water is not sufficient for such demonstration, it shall be mandatory for such hydro generating station or unit to demonstrate peaking

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capability equivalent to installed capacity as and when sufficient inflow is available,

- 18) “**Day**” means the 24 hour period starting at 0000 hour;
- 19) “**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 or whole of the day, duly taking into account the availability of fuel or water, and subject to further qualification in the relevant regulation;
- 20) “**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;
- 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) “**Existing generating station**” means a generating station declared under commercial operation from a date prior to 1.04.2011;
- 23) “**Existing project**” means the project declared under commercial operation from a date prior to 1.04.2011;
- 24) “**Financial Year**” means a period commencing on 1st April of a calendar year and ending on 31st March of the subsequent calendar year;
- 25) “**Generating Company**” means any Company or body corporate or association or body of individuals, whether incorporated or not, or artificial juridical person, which owns or operates or maintains a generating station;
- 26) “**Grid Code**” means the JSERC (Grid Code) Regulations, 2008, and its amendments from time to time;
- 27) “**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;
- 28) “**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;
- 29) “**Infirm Power**” means electricity injected into the grid prior to the commercial operation of a unit or block of the generating station;

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- 30) “**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), approved by the Commission from time to time;
- 31) “**Licensee**” means a person who has been granted licence under Section 14 of the Act;
- 32) “**Maximum Continuous Rating**” or ‘**MCR**’ in relation to a 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/steam injection (if applicable) and corrected to 50 Hz grid frequency and specified site conditions;
- 33) “**Normative Annual Plant Availability Factor**” or ‘**NAPAF**’ in relation to a generating station means the availability factor specified in clause 8.4,8.6 of these Regulations for thermal generating station and in clause 9.3, 9.7 of these Regulations for hydro generating station;
- 34) “**Operation and Maintenance Expenses**” or ‘**O&M expenses**’ means the expenditure incurred on operation and maintenance of the project, or part thereof, and includes the expenditure on manpower, repairs, spares, consumables, insurance and overheads;
- 35) “**Original Project Cost**” means the capital expenditure incurred by the generating company, within the original scope of the project up to the cut-off date as admitted by the Commission;
- 36) “**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;
- 37) “**Project**” means a generating station, 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;
- 38) “**Run-of-river generating station**” means a hydro generating station which does not have upstream pondage;
- 39) “**Run-of-river generating station with pondage**” means a hydro generating station with sufficient pondage for meeting the diurnal variation of power demand;
- 40) “**Scheduled Energy**” means the quantum of energy scheduled by the State Load Despatch Centre to be injected into the grid by a generating station over a day;

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- 41) “**Scheduled Generation**” or ‘**SG**’ at any time or for any period or time-block means schedule of generation in MW or MWh ex-bus, given by the State Load Despatch Centre;

Note

- a. 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.
- 40) “**Small Gas Turbine Generating Station**” means and includes open cycle gas turbine or combined cycle generating stations with gas turbines in the capacity range of 50 MW or below;
- 41) “**State**” means the Jharkhand state;
- 42) “**State Load Dispatch Centre**” or ‘**SLDC**’ means the centre established by the State Government for purposes of exercising the powers and discharging the functions under Section 31 of the Act;
- 40) “**Storage type generating station**” means a hydro generating station associated with large storage capacity to enable variation of generation of electricity according to demand;
- 41) “**Tariff**” shall mean the schedule of charges for generation and bulk supply of electricity together with terms and conditions applicable thereof;
- 42) “**Tariff Period**” shall mean the period from 1st April 2011 and up to 31st March 2016 for which Tariff is determined by the Commission under these Regulations;
- 43) “**Transition Period**” means the period of determination of tariff on annual basis which shall be from 1st April 2011 and up to 31st March 2012;
- 44) “**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;
- 45) “**Useful life**” in relation to a unit of a generating station from the COD shall mean the following, namely:-
- (i) Coal/Lignite based thermal generating station - 25 years;

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- (ii) Gas/Liquid fuel based thermal generating station - 25 years; and
 - (iii) Hydro generating station – 35 years.
- 45) **“Year”** means financial year.
- 46) Words and expressions used respectively and not defined in these Regulations but defined in the Act shall have the meanings respectively assigned to them in the Act.
- 47) All proceedings under these Regulations shall be governed by the Conduct of Business Regulations.

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A3: SCOPE OF REGULATIONS AND EXTENT OF APPLICATION

- 3.1 These Regulations shall apply in all cases of determination of generation tariff under Section 62 of the Act, for supply of electricity to a distribution licensee, but shall not apply where tariff has been determined through the transparent process of bidding in accordance with the guidelines issued by the Central Government as per the provisions of Section 63 of the Act.

A4: NORMS OF OPERATION TO BE THRESHOLD NORMS

- 4.1 For removal of doubts, it is clarified that the norms of operation specified under these Regulations are the threshold norms and this shall not preclude the Generating Company and Beneficiaries from agreeing to improved norms of operation and in such case the improved norms shall be applicable for the determination of tariff.

Provided if Power Purchase Agreement between Generating Company and the Beneficiary stipulates better norms of operation then such norms provided in the Power Purchase Agreement shall be considered for the determination of tariff

CHAPTER II: TARIFF FRAMEWORK AND GUIDING PRINCIPLES FOR MULTI YEAR TARIFF (MYT)

A5: TARIFF FRAMEWORK

- 5.1 The Commission shall continue with the Annual Tariff Framework for approval of ARR and Tariff of the Generating Company during the **Transition Period**.
- 5.2 Accordingly, the Transition period shall commence from April 1, 2011 and shall extend till March 31, 2012. ARR filing for the Transition Period shall be done in accordance with the Annual Tariff framework contained in these Regulations;
- 5.3 The Commission shall adopt Multi Year Tariff framework for approval of ARR and Tariff during the **Control Period**.
- 5.4 Accordingly, the **Control Period** shall commence from 1st April 2012 and shall extend till 31st March 2016. ARR filings for the Control Period shall be done in accordance with the MYT framework contained in these Regulations;

Annual Tariff Framework for the Transition Period (FY 2011-12)

- 5.5 Each Generating Company shall file Annual Tariff Application with the Commission as per the timelines specified in Section A18: of these Regulations.
- 5.6 The Application shall include statements containing Aggregate Revenue Requirement (ARR) during the Previous Year, Current Year and Ensuing Year. The information for the Previous Year should be based on audited accounts;

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- 5.7 The principles for determination of ARR for the Transition Period are described in Chapter III of these Regulations and the procedure for annual filing during the Transition period is described in Chapter IV of these Regulations.

Multi Year Tariff (MYT) Framework for the Control Period (FY 2012-13, FY 2013-14, FY 2014-15 and FY 2015-16)

- 5.8 Each Generating Company shall file MYT Application and other documents with the Commission as per the timelines specified in Section A18: of these Regulations.

The Application shall include statements containing Aggregate Revenue Requirement (ARR) for the Previous Year, Base Year and the projections for Control Period. The information for the Previous Year should be based on audited accounts.

- 5.9 The Guiding Principles for MYT framework are described in Section A6: of these Regulations.
- 5.10 The principles for determination of ARR for the Control Period is described in Chapter III of these Regulations and the procedure for annual filing during the control period is described in Chapter IV of these Regulations.

A6: GUIDING PRINCIPLES FOR MYT FRAMEWORK

- 6.1 The Commission in specifying these Regulations shall be guided by the principles contained in Sections 61 and 62 of the Act to encourage competition, efficiency, economical use of resources, good performance and optimum investments.
- 6.2 The Commission shall adopt Multi Year Tariff Framework for determination of tariff for each year of the Control Period.
- 6.3 The Multi Year Tariff framework shall be based on the following:
- (a) Business Plan of the Generating Company (plant wise separately) for the entire Control Period to be submitted to the Commission for approval, prior to the start of the Control Period;
 - (b) Applicant's forecast of expected tariff for sale of power for each year of the Control Period, based on reasonable assumptions of the underlying financial and operational parameters, as submitted in the Business Plan;
 - (c) Trajectory for specific parameters stipulated by the Commission, where the performance of the Applicant is sought to be improved through incentives and disincentives;
 - (d) Annual review of performance which shall be conducted vis-à-vis the approved forecast;

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Base Year

- 6.4 The values for the Base Year of the Control Period will be determined based on the audited accounts available, best estimate for the relevant years and other factors considered relevant by the Commission, and after applying the tests for determining the controllable or uncontrollable nature of various items.
- 6.5 The Commission shall normally not revisit the performance targets even if the targets are fixed on the basis of base values of un-audited accounts.

Business Plan

- 6.6 The Generating Company shall file for the Commission's approval, a Business Plan approved by the Board of Directors as per the timelines specified in Section A18: of these Regulations. The Business Plan shall be for the entire Control Period and shall, interalia, contain:
- (a) **Capital Investment Plan:** This shall include details of the investments planned by the Generating Company, along with the corresponding capitalisation schedule and financing plan. This plan shall be commensurate with capacity enhancement and proposed efficiency improvements for various plants of the Company and shall include cost benefit analysis;
 - (b) **Capital Structure:** The Generating Company shall submit plant-wise details of the capital structure and cost of financing (interest on debt) and return on equity, after considering the existing market conditions, terms of the existing loan agreements, risks associated in generation business and creditworthiness;
 - (c) **Operation and Maintenance (O&M) expenses:** This shall include the costs estimated for the Base Year, the actual expenses incurred in the previous two years and the projected values for each year of the Control Period based on the proposed norms for O&M cost, including indexation and other appropriate mechanisms;
 - (d) **Depreciation:** This shall include details of depreciation based on the fair life of the asset and capitalisation schedules for each year of the Control Period;
 - (e) **Performance Targets:** A set of targets proposed for other controllable items such as NAPAF, Station Heat Rate, Secondary Fuel Oil Consumption, and Auxiliary Power Consumption. The targets shall be consistent with the Capital Investment Plan proposed by the Generating Company;
 - (f) **Other Information:** This shall include any other details considered appropriate by the Generating Company for consideration during determination of tariff.

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Capital Investment Plan

- 6.7 Subject to the provisions of Act, Rules and Policies, the Commission shall approve capital investment plan of the Generating Company for the Control Period commensurate with generation capacity growth. The investment plan shall also include corresponding capitalisation schedule and financing plan.
- 6.8 The Commission shall review the actual capital investment at the end of each year of the Control Period as a part of the Annual Performance Review of the Generating Company. The Generating Company shall submit the actual capital expenditure incurred along with the Annual Performance Review Filing
- 6.9 The Commission shall not revisit the approved Capital Investment Plan during the Control Period and any adjustment to depreciation, interest on working capital and return on equity for the actual capital investment undertaken vis-à-vis approved capital investment shall be done at the end of the Control Period.
- 6.10 The Commission shall also conduct a mid term review at the end of second year of the Control Period. In case, the cumulative incurred capital expenditure and/or capitalisation deviates from the approved capital expenditure / capitalisation by more than 20% (cumulative), the Commission will make necessary changes to capital investment plan for the Control Period after consultation with Generation Company and adjust depreciation and financing cost, which includes cost of debt (interest), working capital interest, cost of equity (return) based on the actual capital expenditure and/or capitalisation vis-à-vis approved capital expenditure / capitalisation;
- 6.11 In case the capital expenditure is required for emergency work which has not been approved in the Capital Investment Plan, the Generation Company shall submit an application (containing all relevant information along with reasons justifying emergency nature of the proposed work seeking approval by the Commission. The Licensee shall take up the work prior to the approval of the Commission provided that the emergency nature of the scheme has been certified by the Board of Directors.

Provided that for the purpose of the clause 6.11 above, such approved capital expenditure shall be treated as a part of actual capital expenditure incurred to the Generation Company as well as the approved capital expenditure by the Commission.

Performance Targets

- 6.12 The Commission shall set targets for each year of the Control Period for the items or parameters that are deemed to be “controllable” and which includes:
- (a) Gross Station Heat Rate;
 - (b) Normative Annual Plant Availability Factor;
 - (c) Auxiliary Energy Consumption;

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- (d) Secondary Fuel Oil Consumption;
- (e) Operation and Maintenance Expenses;
- (f) Financing Cost which includes cost of debt (interest), cost of equity (return);
and
- (g) Depreciation.

6.13 Any financial loss on account of underperformance on targets for parameters specified in clause 6.12 (a) to (e) of these Regulations is not recoverable through tariffs. Similarly, any financial gain on account of over-performance with respect to these parameters is to the Generating Company's benefit and shall not be adjusted in tariffs.

True Up during Control period

6.14 The true up across various controllable parameters shall be conducted as per principles stated below: -

- (a) any surplus and deficit on account of O&M expenses shall be to the account of the generating company and shall not be trued up in ARR; and
- (b) at the end of the control period –
 - i. the Commission shall review actual capital investment vis-à-vis approved capital investment.
 - ii. depreciation and financing cost, which includes cost of debt including working capital (interest), cost of equity (return) shall be trued up on the basis of actual/audited information and prudence check by the Commission.

6.15 Notwithstanding anything contained in these Regulations, the gains or losses in the controllable items of ARR on account of *force majeure* factors shall be passed on as an additional charge or rebate in ARR over such period as may be laid down in the order of the Commission.

Refund of Excess Amount

6.16 If the Tariff already recovered is more than the Tariff determined after true up, the Generating Company shall refund to the Beneficiaries the excess amount so recovered along with simple interest at the rate equal to short term prime lending rate of State Bank of India as on 1st April of the respective Year.

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- 6.17 Similarly, in case the Tariff already recovered is less than the Tariff determined after true up, the Generating Company shall recover from the Beneficiaries, the less recovered amount along with simple interest at the rate equal to short term prime lending rate of State Bank of India as on 1st April of the respective Year/Years subject to adhering to the timelines specified by the Commission for filling of True-up application. In case, it is found that the filling of True-up is delayed due to the reasons attributable to the Generating Company, the under recovery shall not bear any interest expenses.
- 6.18 The amount under-recovered or over-recovered, along with simple interest, shall be recovered or refunded by the Generating Company, in six equal monthly instalments starting within three months from the date of the tariff order issued by the Commission after the truing up exercise.

CHAPTER III: DETERMINATION OF TARIFF

A7: PRINCIPLES FOR DETERMINATION OF TARIFF

7.1 Existing Generating Station:

Where the Commission has, at any time prior to the notification of these Regulations, adopted or approved the tariff contained therein for supply of electricity from an existing generating station on the basis of a Power Purchase Agreement or arrangement, the tariff for the supply of electricity by the Generating Company to the Beneficiary shall henceforth, in the Transition Period and Control Period, be decided in accordance with these Regulations.

Provided that where the Commission has approved a Power Purchase Agreement (PPA) or arrangement between a Generating Company and a Beneficiary, the supply of electricity by the Generating Company to the Beneficiary shall be decided in accordance with such PPA or arrangement for such a period as may be approved or adopted by the Commission, to the extent of existing installed Capacity as contained in the PPA or arrangement.

Provided further that the clause or provisions stated in this section is in line with the clause and provisions of Clause A4: of these Regulations.

7.2 New Generating Station:

Where the generating station has been declared under commercial operation from the date of issue of these Regulations or on or after April 1, 2011, the tariff for supply of electricity by the Generating Company shall be decided in accordance with these Regulations.

Capital Cost of the Project

- 7.3 Capital cost for a Project shall include :

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(a) the expenditure incurred or projected to be incurred, including interest during construction and financing charges, any gain or loss on account of foreign exchange risk variation during construction on the loan - (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, - up to the date of commercial operation of the project, as admitted by the Commission, as admitted by the Commission after prudence check shall form the basis for determination of tariff;

(b) capitalised initial spares subject to the ceiling norms specified as under:

- i. Coal-based/lignite fired thermal generating stations – 2.5 % of original project cost
- ii. Gas Turbine/Combined Cycle thermal generating stations- 4.0% of original project cost
- iii. Hydro Generating stations – 1.50% of the original project cost

Provided that where the benchmark norms for initial spares have been published as part of the benchmark norms for capital cost under first proviso to clause 7.4 of these Regulations, such norms shall apply to the exclusion of the norms specified herein.

(c) additional capital expenditure determined under clause 7.5 and 7.6 of these Regulation

Provided that the assets forming part of the Project, but not in use shall be taken out of the capital cost:

7.4 The capital cost admitted by the Commission after prudence check shall form the basis for determination of tariff:

Provided that in case of the thermal generating station prudence check of capital cost may be carried out based on the benchmark norms to be specified by the Central Commission from time to time:

Provided further that in cases where benchmark norms have not been specified by the Central Commission, the Commission may specify the benchmark norms or allow the capital cost on the basis of a prudence check which shall include scrutiny of the reasonableness of the capital expenditure, financing plan, interest during construction, use of efficient technology, cost over-run and time over-run, and such other matters as may be considered appropriate by the Commission for determination of tariff:

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Provided also that the Commission may issue guidelines for vetting of capital cost of hydro-electric projects by independent agency or 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:

Provided also that the Commission may issue guidelines for scrutiny and approval of commissioning schedule of the hydro-electric projects of a developer, not being a state controlled or owned company as envisaged in the Tariff policy as amended vide Government of India Resolution No 23/2/2005- R&R (Vol. IV) dated March 31, 2008:

Provided also that in case the site of a hydro generating station is awarded to a developer (not being a State controlled or owned company), by a State Government by following a two stage transparent process of bidding, any Expenditure Incurred or committed to be incurred by the project developer for getting the project site allotted shall not be included in the capital cost:

Provided also that the capital cost in case of such hydro generating station shall 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:

Provided also that where the power purchase agreement entered into between the Generating Company and the Beneficiaries, provide for a ceiling of actual expenditure, the capital expenditure admitted the Commission shall take into consideration such ceiling for determination of tariff:

Provided also that in case of the existing projects, (i) during Transition period the capital cost admitted by the Commission prior to 1.04.2011 and the additional capital expenditure projected to be incurred for the ensuing year shall form the basis for determination of tariff (ii) during Control period the capital cost admitted by the Commission prior to 1.04.2012 and the additional capital expenditure projected to be incurred for respective year of the control period, as may be admitted by the Commission, shall form the basis for determination of tariff.

Additional Capitalisation

7.5 The capital expenditure 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;
- (ii) Works deferred for execution;

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- (iii) Procurement of initial capital spares within the original scope of work, subject to the provisions under clause 7.3,7.4 of these Regulations;
- (iv) Liabilities to meet award of arbitration or for compliance of the order or decree of a court; and
- (v) Change in law.

Provided that the details of works included in the original scope of work along with estimates of expenditure, undischarged liabilities and the works deferred for execution shall be submitted along with the application for determination of tariff.

7.6 The capital expenditure incurred on the following counts after the cut-off date may, in its discretion, be admitted by the Commission, subject to prudence check:

- (i) Liabilities to meet award of arbitration or for compliance of the order or decree of a court;
- (ii) Change in law;
- (iii) Deferred works relating to ash pond or ash handling system in the original scope of work;
- (iv) Any additional works/services which have become necessary for efficient and successful operation of the generating station, but not included in the original project cost;
- (v) 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 ecological 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 plan operation; and

Provided that in respect sub-clauses (v) above, any expenditure on acquiring the minor items or the assets like tools and tackles, furniture air conditioners, voltage stabilizers, refrigerators, coolers, fans, washing machine, 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. 1.04.2012 for the Control period.

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Renovation and Modernisation

- 7.7 The Generating Company, for meeting the expenditure on Renovation and Modernization (R&M) for the purpose of extension of life beyond the useful life of the generating station or a unit thereof, shall make an application before the Commission for approval of the proposal with a Detailed Project Report giving complete scope, justification, cost-benefit analysis, estimated life extension from a reference date, financial package, phasing of expenditure, schedule of completion, reference price level, estimated completion cost including foreign exchange component, if any, record of consultation with Beneficiaries and any other information considered to be relevant by the Generating Company.
- 7.8 Where the Generating Company, makes an application for approval of R&M proposal, 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.
- 7.9 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.
- 7.10 The Generating Company in case of thermal generating station, may, in its discretion, avail of a special allowance either for a Unit or a group of Units as compensation for meeting the requirement of expenses including Renovation and Modernization beyond the Useful life of the generating station or a Unit thereof, and in such an event revision of the capital cost shall not be considered and the applicable operational norms shall not be relaxed but the special allowance shall be included in the annual fixed cost.

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

- 7.11 A Generating Company (coal-based/lignite fired thermal generating station) on opting for the alternative in the clause 7.10 of these Regulations, shall be allowed special allowance @ Rs. 5.59 lakh/MW/year in 2011-12 and thereafter escalated @ 5.72% every year during the tariff period FY 2012 to FY2016, 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 1.4.2012, this allowance shall be admissible from the year 2011-12;

Generation Tariff Regulations

Sale of Infirm Power

- 7.12 Supply of infirm power shall be accounted as Unscheduled Interchange (UI) and paid for from the regional or State UI pool account at the applicable frequency-linked UI rate.

Provided that any revenue earned by the Generating Company from sale of infirm power after accounting for the fuel expenses shall be applied for reduction in capital cost.

Debt-Equity Ratio

- 7.13 In case of the generating station declared under commercial operation prior to 1.4.2011, debt-equity ratio allowed by the Commission for determination of Tariff for the period ending 31.3.2011 shall be considered for determination of tariff for the Transition period.

During the control period, debt-equity ratio allowed by the Commission for determination of Tariff for the period ending 31.3.2012 shall be considered for determination of tariff.

- 7.14 For the project declared under commercial operation on or after 1.04.2011, 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 deployed is less than 30% of capital cost, the actual equity shall be considered for determination of tariff:

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

Explanation:-

- i. The premium, if any, raised by the Generating Company, 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 such premium amount and internal resources are actually utilized for meeting the capital expenditure of the generating station.
- ii. Any expenditure incurred or projected to be incurred on or after 1.04.2011 as may be admitted by the Commission as additional capital expenditure for determination of tariff, and renovation and modernization expenditure for life extension shall be serviced in the manner specified in clause 7.14 of this Regulation.

Generation Tariff Regulations

Return on Equity

- 7.15 Return on equity shall be computed in rupee terms, on the equity base determined in accordance with clause 7.13, 7.14 of these Regulations.
- 7.16 Return on equity shall be computed on pre-tax basis at the base rate of 15.50%, to be grossed up as per clause 7.17 of these Regulations.

Provided that (i) return on equity with respect to the actual base rate applicable to the Generating Company, in line with the performance of the respective generating station for the respective year during the Transition period shall be trued up separately during True up for Transition Period (ii) return on equity with respect to the actual base rate applicable to the Generating Company, in line with the performance of the respective generating station for the respective year during the Control period shall be trued up separately for each year of the Control period along with the tariff petition filed for the next Control period.

Provided that in case of Projects commissioned on or after 1st April, 2011, an additional return of 0.5% shall be allowed if such Projects are completed within the timeline specified in **Appendix-II** to these Regulations:

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:

- 7.17 The rate of return on equity shall be computed by grossing up the base rate with the normal tax rate applicable to the Generating Company as per details shown as under :
- (i) **Transition period:** Base rate to be grossed by the applicable tax rate for the Year 2010-11 for filing of ARR in FY2011-12.
 - (ii) **MYT period:** Base rate to be grossed by the applicable tax rate for the Year 2011-12

Provided that return on equity with respect to the actual tax rate applicable to the Generating Company, in line with the provisions of the relevant Finance Acts of the respective year during the Control period shall be trued up separately for each year of the Control period along with the tariff petition filed for the next Control period.

- 7.18 Rate of return on equity shall be rounded off to three decimal points and be computed as per the formula given below:

Rate of pre-tax return on equity = Base rate / (1-t)

Where 't' is the applicable tax rate in accordance with clause 7.17 of these Regulations

Illustration-

Generation Tariff Regulations

- (i) In case of Generating Company paying Minimum Alternate Tax (MAT) @ 19.931% including surcharge and cess:

Rate of pre-tax return on equity = $15.50 / (1 - 0.19931) = 19.358\%$

- (ii) In case of Generating Company paying normal corporate tax @ 33.99% including surcharge and cess:

Rate of pre-tax return on equity = $15.50 / (1 - 0.3399) = 23.481\%$.

Interest and Finance Charges

7.19 The loans arrived at in the manner indicated in clause 7.13, 7.14 of these Regulations shall be considered as gross normative loan for calculation of interest on loan.

7.20 The normative loan outstanding as on 1.4.2011 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2011 from the gross normative loan for the Transition period.

During Control Period, the normative loan outstanding as on 1.4.2012 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2012 from the gross normative loan

7.21 The repayment for any year during the Tariff Period shall be deemed to be equal to the depreciation allowed for that Year.

7.22 Notwithstanding any moratorium period availed by the Generating Company, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the annual depreciation allowed.

7.23 The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year applicable to the Project:

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 does not have actual loan, then the weighted average rate of interest of the Generating Company as a whole shall be considered

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

Generation Tariff Regulations

7.25 The Generating Company shall make every effort to re-finance the loan as long as it results in net savings on interest and in that event there is costs associated with such refinancing, such cost shall be pass through to the Beneficiaries and the net savings shall be shared between the Beneficiaries and the Generating Company, in the ratio of 2:1.

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

7.27 In case of dispute, any of the parties may make an application in accordance with the Conduct of Business Regulation:

Provided that the Beneficiaries shall not withhold any payment on account of the interest claimed by the Generating Company during the pendency of any dispute arising out of re-financing of loan:

Depreciation

7.28 Depreciation shall be calculated for each year of the tariff period, on the amount of Capital Cost of the assets admitted by the Commission;

Provided that depreciation shall not be allowed on assets funded by any capital subsidy / grant

7.29 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 creation of the site:

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

7.30 Land other than 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.

7.31 Depreciation shall be calculated annually based on 'Straight Line Method' and at rates specified in **Appendix-I** to these Regulations for the assets of the generating station:

Provided that, the remaining depreciable value as on 31st March of the Year closing after a period of 12 Years from the Date of Commercial operation shall be spread over the balance Useful life of the assets.

Generation Tariff Regulations

7.32 In case of the existing Projects, during Transition period the balance depreciable value as on 1.4.2011 shall be worked out by deducting the cumulative depreciation including Advance Against Depreciation as admitted by the Commission upto 31.3.2011 from the gross depreciable value of the assets.

During Control period the balance depreciable value as on 1.4.2012 shall be worked out by deducting the cumulative depreciation as admitted by the Commission upto 31.3.2012 from the gross depreciable value of the assets.

The rate of depreciation shall be continued to be charged at the rate specified in **Appendix-I** till cumulative depreciation reaches 70%. Thereafter the remaining depreciable value shall be spread over the remaining life of the asset such that the maximum depreciation does not exceed 90%.

7.33 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.

Working Capital

7.34 The Commission shall determine the Working Capital requirement for coal-based generating stations containing the following components:

- (a) Cost of Coal for 1.5 months for pithead generating stations and for 2 months in non-pithead generating stations for generation corresponding to the Normative Annual Plant Availability Factor;
- (b) 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;
- (c) Maintenance spares @ 20% of operation and maintenance expenses specified in clauses 7.40- 7.47 of these Regulations;
- (d) Operation and Maintenance expenses for 1 month; and
- (e) Receivables equivalent to 2 months of capacity charges and energy charges for sale of electricity calculated on the Normative Annual Plant Availability Factor.

7.35 For the gas based generating stations, the working capital requirement shall be determined using the following components:

- (a) Fuel expenses for 1 month 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;

Generation Tariff Regulations

- (b) Liquid fuel stock for ½ month corresponding to the Normative Annual Plant Availability Factor, and in case of use of more than one liquid fuel, cost of main liquid fuel;
 - (c) Maintenance spares @ 30% of operation and maintenance expenses specified in clauses 7.40- 7.47 of these Regulations;
 - (d) Operation and Maintenance expenses for 1 month; and
 - (e) Receivables equivalent to two months of capacity charge and energy charge for sale of electricity calculated on Normative Annual Plant Availability factor, duly taking into account mode of operation of the generating station on gas fuel and liquid fuel
- 7.36 For hydro generating station, the working capital requirements shall be determined using the following components:
- (a) Receivables equivalent to two months of fixed cost; and
 - (b) Maintenance spares @ 15% of operation and maintenance expenses specified in clause 7.40- 7.47 of these Regulations; and
 - (c) Operation and Maintenance expenses for 1 month
- 7.37 The cost of fuel in cases covered under clause 7.34 and 7.35 of these Regulations 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.

Interest on Working Capital

- 7.38 Rate of interest on working capital shall be on normative basis and shall be equal to the short-term Prime Lending Rate of State Bank of India as on April 1, 2011 or April 1 of the year in which the generating station or a unit thereof, is declared under commercial operation, whichever is later during Transition period.
- During Control Period rate of interest on working capital shall be on normative basis and shall be equal to the short-term Prime Lending Rate of State Bank of India as on April 1, 2012 or April 1 of the year in which the generating station or a unit thereof, is declared under commercial operation.
- 7.39 The interest on working capital shall be payable on normative basis notwithstanding that the generating company has not taken working capital loan from any outside agency or has exceeded the working capital loan based on the normative figures.

Generation Tariff Regulations

Operation and Maintenance (O&M) expenses

7.40 Operation and Maintenance (O&M) expenses shall comprise of the following:

- (a) Salaries, wages, pension contribution and other employee costs;
- (b) Administrative and General costs;
- (c) Repairs and maintenance expenses; and
- (d) Other miscellaneous expenses statutory levies and taxes (except corporate income tax).

7.41 Existing Thermal Generating Stations:

- (a) The O&M expenses for the Transition Period shall be approved by the Commission as per the JSERC (Terms and condition of Determination of Generation Tariff) Regulations, 2004.
- (b) The Applicant shall submit details on O&M expenses as required by the Commission. The O&M expenses excluding terminal liabilities for the Base Year shall be determined based on latest accounting statements, estimates of the Generating Company for relevant years and other factors considered relevant.
- (c) The O&M expenses excluding terminal liabilities permissible towards determination of tariff for each year of the Control Period shall be determined after a prudency check by the Commission based on submissions of the Generating Company, previous years' actual expenses and any other factor considered relevant.
- (d) Terminal Liabilities will be approved as per actual submitted by the Generating Company or be established through actuarial studies.
- (e) Increase in O&M charges on account of war, insurgency or changes in laws, or like eventualities where the Commission is of the opinion that an increase in O&M charges is justified, may be considered by the Commission for a specified period.

7.42 Existing Hydro generating stations

- (a) Operation and maintenance expenses excluding terminal liabilities, for the existing generating stations which have been in operation for 5 years or more as on 1.04.2011, shall be derived on the basis of actual operation and maintenance expenses for the financial years 2005-06 to 2009-10, based on the audited balance sheets, excluding abnormal operation and maintenance expenses, if any, after prudence check by the Commission.

Generation Tariff Regulations

- (b) The normalised operation and maintenance expenses excluding terminal liabilities after prudence check, for the financial years 2005-06 to 2009-10, shall be escalated at the rate of 6.60% to arrive at the normalised operation and maintenance expenses at the 2009-10 price level respectively and then averaged to arrive at normalized average operation and maintenance expenses for financial years 2005-06 to 2009-10 at 2009-10 price level. The averaged normalized operation and maintenance expenses at 2009-10 price level shall be escalated at the rate of 6.60% to arrive at the operation and maintenance expenses for year 2011-12. The escalation factor of 6.60% considered is based on the average escalation during last five years (2005-06 to 2009-10) considering 60% weightage for WPI and 40% for CPI:

Provided that operation and maintenance expenses for the financial year 2009-10 shall further be rationalized considering an increase in employee cost on the basis of pay revision of the employees on account of Pay Commission to arrive at permissible operation and maintenance expenses for the financial year 2009-10

- (c) The operation and maintenance expenses for the financial year 2009-10 shall be escalated further at the rate of 6.60% per annum to arrive at permissible operation and maintenance expenses for subsequent years of the Tariff Period.

Terminal Liabilities will be approved as per actual submitted by the Generating Company or be established through actuarial studies.

- (d) In case of the hydro generating stations, which have not been in commercial operation for a period of five years as on 1.4.2011, operation and maintenance expenses shall be fixed at 2% of the original project cost (excluding cost of rehabilitation & resettlement works). Further, in such case, operation and maintenance expenses in first year of commercial operation shall be escalated @ 6.60% per annum upto the financial year 2009-10 and then averaged to arrive at the O&M expenses at financial year 2009-10 price level. It shall be thereafter escalated @6.60% per annum to arrive at operation and maintenance expenses in respective year of the Tariff Period.

7.43 New Generating Stations:

- 7.44 The O&M expenses (in Rs lakhs/ MW) permissible towards determination of tariff for Coal and Lignite fired (including those based on CFBC technology) shall be as follows:

Year	200/ 210/ 250 MW sets	300/330/350 MW sets	500 MW sets	500 MW and above sets
2011-12	20.34	17.88	14.53	13.08
2012-13	21.51	18.91	15.36	13.82
2013-14	22.74	19.99	16.24	14.62
2014-15	24.04	21.13	17.17	15.46

Generation Tariff Regulations

Year	200/ 210/ 250 MW sets	300/330/350 MW sets	500 MW sets	500 MW and above sets
2015-16	25.42	22.34	18.15	16.34

Provided that the above norms shall be multiplied by the following factors for additional units in respective unit sizes for the units whose COD occurs on or after 1.4.2011 in the same station:

200/210/250 MW	Additional 5th & 6th units	0.9
	Additional 7th & more units	0.85
300/330/350 MW	Additional 4th & 5th units	0.9
	Additional 6th & more units	0.85
500 MW and above	Additional 3rd & 4th units	0.9
	Additional 5th & above units	0.85

7.45 Open Cycle Gas Turbine / Combined Cycle generating Stations (Rs in lakh/MW):

Year	Gas Turbine/ Combined Cycle generating stations other than small gas turbine power generating stations	Small gas turbine power generating stations
2011-12	16.54	22.90
2012-13	17.49	27.06
2013-14	18.49	28.61
2014-15	19.55	30.25
2015-16	20.67	31.98

7.46 In case of coal-based or lignite-fired thermal generating station a separate compensation allowance unit-wise shall be admissible to meet expenses on new assets of capital nature including in the nature of minor assets, 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	0.15
16-20	0.35
21-25	0.65

7.47 In case of the hydro generating stations declared under commercial operation on or after 1.4.2011, operation and maintenance expenses shall be fixed at 2% of the original project cost (excluding cost of rehabilitation and resettlement works) and shall be subject to annual escalation of 6.60% per annum for the subsequent years.

Generation Tariff Regulations

Tax on Income

- 7.48 Tax on the income streams of the Generating Company shall not be recovered from the Beneficiaries.

Provided that the deferred tax liability, excluding Fringe Benefit Tax, for the period up to 31st March, 2011 whenever it materializes, shall be recoverable directly from the beneficiaries and the long-term customers;

Provided further that any tax liability on incentives and savings due to improved performance on any parameter, if any, shall be considered for passing onto the Beneficiaries in the ratio of the sharing of the gains as prescribed under these Regulations:

Expenses on secondary fuel oil consumption

- 7.49 Expenses on secondary fuel oil in Rupees shall be computed corresponding to normative secondary fuel oil consumption (SFC) specified in clause 8.4, 8.6 of these Regulations, in accordance with the following formula:

$$= \text{SFC} \times \text{LPSF}_i \times \text{NAPAF} \times 24 \times \text{NDY} \times \text{IC} \times 10$$

Where,

SFC – Normative Specific Fuel Oil consumption in ml/kWh

LPSF_i – Weighted Average Landed Price of Secondary Fuel in Rs./ml considered initially

NAPAF – Normative Annual Plant Availability Factor in percentage

NDY – Number of days in a year

IC - Installed Capacity in MW

- 7.50 Initially, the landed cost incurred by the Generating Company on secondary fuel oil shall be taken based on actuals of the weighted average price of the three preceding months and in the absence of landed costs for the three preceding months, latest procurement price for the generating station, before the start of the year.

- 7.51 The secondary fuel oil expenses shall be subject to fuel price adjustment at the end of the each year of Control period as per following formula:

$$= \text{SFC} \times \text{NAPAF} \times 24 \times \text{NDY} \times \text{IC} \times 10 \times (\text{LPSF}_y - \text{LPSF}_i)$$

Where,

LPSF_y - Weighted average landed price of secondary fuel oil for the year in Rs. /ml

Generation Tariff Regulations

7.52 The savings on account of secondary fuel oil consumption in relation to norms specified in clause 8.4, 8.6 of these Regulations, shall be shared with Beneficiaries in the ratio of 50:50, in accordance with the following formula at the end of the year:

$$= (\text{SFC} \times \text{NAPAF} \times 24 \times \text{NDY} \times \text{IC} \times 10^{-\text{AC}_{\text{sfoy}}}) \times \text{LPSF}_y \times 0.5$$

Where,

AC_{sfoy} = Actual consumption of secondary fuel oil during the year in ml

A8: THERMAL POWER GENERATING STATIONS

Components of tariff

8.1 The Tariff for supply of electricity from a thermal generating station shall comprise of two parts, namely, capacity charge (for recovery of annual fixed cost) and energy charge (for recovery of primary fuel cost) to be worked out in the manner provided hereinafter.

8.2 The annual fixed cost of a thermal generating station shall consist of the following components:

- (a) Return on Equity;
- (b) Interest and Financing Charges on Loan Capital;
- (c) Depreciation;
- (d) Operation and Maintenance Expenses;
- (e) Interest Charges on Working Capital;
- (f) Cost of Secondary Fuel Oil (for coal based and lignite fired generating stations only); and
- (g) Special allowance in lieu of R&M or separate compensation allowance, wherever applicable:

8.3 The energy (variable) charges shall cover main fuel cost.

Norms of operation

8.4 The values for operational norms for the existing generating stations have been decided, based on the past operational data of these plants. The norms of operation as given hereunder shall apply for existing thermal power stations in the state:

Jharkhand State Electricity Board

Generation Tariff Regulations

Patratu Thermal Power Station (PTPS)

Parameters	2011-12	2012-13	2013-14	2014-15	2015-16
Normative Annual Plant Availability Factor (%)	82%	82%	82%	82%	82%
Gross Station Heat Rate (kCal/kWh)	3150	3125	3100	3100	3100
Auxiliary Consumption (%)	12%	12.0%	12.0%	12.0%	12.0%
Secondary Fuel Oil Consumption (ml/kWh)	3.50	3.50	3.50	3.50	3.50

Tenughat Vidhyut Nigam Limited (TVNL)

Tenughat Thermal Power Station

Parameters	2011-12	2012-13	2013-14	2014-15	2015-16
Normative Annual Plant Availability Factor (%)	85%	85%	85%	85%	85%
Gross Station Heat Rate (kCal/kWh)	3043	2908	2773	2638	2503
Auxiliary Consumption (%)	9.50%	9.50%	9.50%	9.50%	9.50%
Secondary Fuel Oil Consumption (ml/kWh)	1.00	1.00	1.00	1.00	1.00

Tata Power Company Limited (TPCL)

Jojobera Thermal Power Station

Unit-II

Parameters	2011-12	2012-13	2013-14	2014-15	2015-16
Normative Annual Plant Availability Factor (%)	85%	85%	85%	85%	85%
Gross Station Heat Rate (kCal/kWh)	2567	2567	2567	2567	2567
Auxiliary Consumption (%)	10.00%	10.00%	10.00%	10.00%	10.00%
Secondary Fuel Oil Consumption (ml/kWh)	1.00	1.00	1.00	1.00	1.00

Unit-III

Parameters	2011-12	2012-13	2013-14	2014-15	2015-16
Normative Annual Plant Availability Factor (%)	85%	85%	85%	85%	85%
Gross Station Heat Rate (kCal/kWh)	2577	2577	2577	2577	2577
Auxiliary Consumption (%)	10.00%	10.00%	10.00%	10.00%	10.00%

Generation Tariff Regulations

Secondary Fuel Oil Consumption (ml/kWh)	1.00	1.00	1.00	1.00	1.00
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8.5 The Commission may modify these norms of operations after considering the capital investments approved for any Renovation and Modernisation activities in these plants.

8.6 The norms of operation for generating stations other than existing stations shall be as under:

(a) Normative Annual Plant Availability Factor (NAPAF): All thermal generating stations, NAPAF shall be 85%.

(b) Gross Station Heat Rate:

(i) Coal-based and lignite-fired Thermal Generating Stations = 1.065 X Design Heat Rate (kCal/kWh)

Where, the Design Heat Rate of a 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	247
SHT/RHT (0C)	535/535	537/537	537/565	537/565	565/593
Type of BFP	Electrical Driven	Turbine driven	Turbine driven	Turbine driven	Turbine driven
Max Turbine Cycle Heat rate (kCal/kWh)	1955	1950	1935	1900	1850
Min. Boiler Efficiency					
Sub-Bituminous Indian Coal	0.85	0.85	0.85	0.85	0.85
Bituminous Imported Coal	0.89	0.89	0.89	0.89	0.89
Max Design Unit Heat rate (kCal/kWh)					
Sub-Bituminous Indian Coal	2300	2294	2276	2235	2176
Bituminous Imported Coal	2197	2191	2174	2135	2079

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;

Generation Tariff Regulations

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

Provided also that if one or more units were declared under commercial operation prior to 1.4.2011, the heat rate norms for those units as well as units declared under commercial operation on or after 1.4.2012 shall be lower of the heat rate norms arrived at by above methodology and the norms as per clause 8.4 of these Regulations;

Note: In respect of 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.

- (ii) 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.

- (c) Auxiliary Energy Consumption:

- (i) Coal-based generating stations

200 MW series	With Natural Draft cooling Tower or without cooling towers	8.5 %
500 MW series – Steam driven Boiler Feed Pumps	With Natural Draft cooling Tower or without cooling towers	6.0%
500 MW series – Electrically driven Boiler Feed Pumps	With Natural Draft cooling Tower or without cooling towers	8.5%

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

- (ii) Gas-based and Naphtha-based generating stations

Combined cycle	3.0%
Open cycle	1.0%

Generation Tariff Regulations

(d) Secondary Fuel Oil Consumption for Coal based generating stations: 1.0 ml/kWh.

- 8.7 Wherever the station is designed for combined cycle operation, the approval of SLDC shall be required for operation of the station in the open cycle mode.
- 8.8 The Commission may prescribe relaxed operational norms including the norms of Normative Annual Plant Availability Factor contained in these Regulations for a generating station, and these relaxed norms shall be applicable for determination of tariff for such generating station during the Control Period.
- 8.9 In case of renovation and modernisation, derating and rerating of the generating station, norms of operation shall be reviewed and modified accordingly by the Commission.

Recovery of Capacity Charge

- 8.10 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.
- 8.11 Full Capacity Charges shall be recoverable at Normative Annual Plant Availability Factor (NAPAF) specified in clause 8.4, 8.6 of these Regulations. Recovery of Capacity Charges below the level of Normative Annual Plant Availability Factor (NAPAF) will be on a pro-rata basis. At zero availability, no Capacity Charges shall be payable.
- 8.12 The capacity charge (inclusive of incentive) payable to a thermal generating station for a calendar month shall be calculated in accordance with the following formulae :

- (a) Generating stations in commercial operation for less than ten (10) years on 1st April of the financial year :

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

Provided that in case the plant availability factor achieved during a financial year (PAFY) is less than 70%, the total capacity charge for the year shall be restricted to:

$$= AFC \times (0.5 + 35 / NAPAF) \times (PAFY / 70) \text{ (in Rupees)}$$

- (b) For generating stations in commercial operation for ten (10) years or more on 1st April of the year:

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

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Where,

AFC - Annual fixed cost specified for the year, in Rupees;

NAPAF - Normative annual 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 percent;

PAFY - Plant availability factor achieved during the year, in percent

8.13 The PAFM and PAFY shall be computed in accordance with the following formula:

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

Where,

AUX - Normative auxiliary energy consumption in percentage;

DC_i - Average declared capacity (in ex-bus MW), subject to clause 8.14 of these Regulations, for the i^{th} 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.

8.14 In case of fuel shortage in a thermal generating station, the Generating Company may propose to deliver a higher MW during peak-load hours by saving fuel during off-peak hours. The SLDC may then specify a pragmatic day-ahead schedule for the generating station to optimally utilize its MW and energy capability, in consultation with the Beneficiaries. DC_i in such an event shall be taken to be equal to the maximum peak-hour ex-power plant MW schedule specified by the SLDC for that day.

8.15 Payment of capacity charge shall be on monthly basis in proportion to allocated/contracted capacity.

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Energy Charge

8.16 The energy (variable) charge shall cover primary fuel costs 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 specified energy charge rate of the month (with fuel price adjustment).

8.17 Total Energy charge payable to the Generating Company for a month shall be:

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

8.18 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 stations

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

(b) For gas and liquid fuel based stations

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

Where,

AUX - Normative auxiliary energy consumption in percentage

CVPF - Gross calorific value of primary fuel as fired, in kCal per kg, per litre or per standard cubic metre, as applicable.

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.

LPPF - Weighted average landed price of primary fuel, in Rupees per kg, per litre or per standard cubic metre, as applicable, during the month.

SFC - Specific fuel oil consumption, in ml per kWh

8.19 The landed cost of coal shall include:

(a) Base cost of coal;

(b) Royalty;

(c) Taxes and duties;

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(d) Transport cost by rail / ocean / road / pipeline or any other means; and

(e) Clean energy cess as per Ministry of Coal, Govt. of India Notification.

For the purpose of computing energy charges, landed cost of coal shall be arrived at after considering normative transit and handling loss of 0.8% on the quantity of coal dispatched by the coal supplier in case of non-pit-head generating stations and 0.2% on the quantity of coal dispatched by the coal supplier in case of pit-head generating stations.

Fuel Price Adjustment

8.20 The Fuel Price Adjustment (FPA) applicable for calculation of Energy Charges is as follows:

(a) For coal-based generating stations, $FPA = A + B$

Where,

FPA – Fuel price Adjustment for a month in Paise/kWh Sent out;

A – Fuel price adjustment for Secondary Fuel oil in Paise/kWh sent out;

B – Fuel price adjustment for Coal in Paise/kWh sent out;

$$A = \frac{10}{(100 - AC_n)} * SFC_n * (P_{om} - P_{os})$$
$$B = \frac{10}{(100 - AC_n)} * [SHR_n * \{(P_{cm} / K_{cm}) - (P_{cs} / K_{cs})\} - SFC_n * \{(K_{om} * P_{cm} / K_{cm}) - (K_{os} * P_{cs} / K_{cs})\}]$$

Where,

SFC_n = Normative Specific Fuel Oil consumption in l/kWh;

SHR_n = Normative Gross Station Heat Rate in Kcal/kWh;

AC_n = Normative Auxiliary consumption in percentage;

P_{om} = Weighted average price of fuel oil on as consumed basis during the month in Rs. /KL;

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K_{om} = Weighted average Gross Calorific Value of fuel oils fired at boiler front for the month in Kcal/Litre;

P_{os} = Base value of price of fuel oils as taken for determination of base energy charge in tariff order in Rs. / KL;

K_{os} = Base value of Gross Calorific Value of fuel oils as taken for determination of base energy charge in tariff order in Kcal/Litre;

P_{cm} = Weighted average price of coal procured and burnt during the month at the power station in Rs. / MT;

K_{cm} = Weighted average Gross Calorific Value of coal fired at boiler front for the month in Kcal/kg;

P_{cs} = Base value of price of coal as taken for determination of base energy charge in tariff order in Rs. /MT

K_{cs} = Base value of gross calorific value of coal as taken for determination of base energy charge in tariff order in kCal/Kg

(b) For gas based thermal power plants, the Fuel Price Adjustment is calculated using the following formula:

$$FPA = \frac{10 * SHR_n * [(P_m / K_m) - (P_s / K_s)]}{(100 - AC_n)}$$

Where:

FPA = Fuel Price Adjustment for a month in Paise/kWh sent out;

SHR_n = Normative Gross Station Heat Rate expressed in kCal/kWh;

AC_n = Normative Auxiliary Consumption in percentage;

P_m = Weighted average price of Gas or Liquid fuel as per PSL for the month in Rs. / 1000 SCM of Rs./ KL or Rs./MT;

K_m = Weighted average Gross Calorific Value of Gas or Liquid fuel for the month in Kcal/ SCM or kCal/ Litre or kCal/ Kg;

P_s = Base price of Gas or Liquid fuel as taken for determination of base energy charge in tariff order in Rs. / 1000 SCM of Rs./ KL or Rs./MT;

K_s = Base value of Gross Calorific Value of Gas or Liquid fuel as taken determination of base energy charge in tariff order in Kcal/ SCM or kCal/Litre or kCal/ Kg;

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8.21 Any variation in fuel prices on account of change in the Gross Calorific Value (GCV) of coal or gas or liquid fuel shall be adjusted on a monthly basis on the basis of weighted average GCV of coal or gas or liquid fuel in stock, received and burnt and weighted average landed cost incurred by the generating company for procurement of coal, oil, or gas or liquid fuel, as the case may be for a power station.

8.22 Initially, the Base value of price of fuel oils, price of coal incurred by the Generating Company/ generating station shall be taken based on actuals of the weighted average price of the three preceding months and in the absence of weighted average landed costs for the three preceding months, latest respective weighted average procurement price for the generating station, before the start of the year.

Initially the Base value of gross calorific value of fuel oils and gross calorific value of coal incurred by the Generating Company/ generating Station shall be taken based on actuals of the weighted average gross calorific value of the three preceding months and in the absence of weighted average gross calorific value for the three preceding months, latest weighted average gross calorific value for the generating station, before the start of the year.

8.23 In its bills, the Generating Company shall separately indicate rate of energy charges at base price of primary and secondary fuel specified by the Commission and the fuel price adjustment. No separate petition needs to be filed with the Commission for fuel price adjustment.

A9: HYDRO POWER GENERATING STATION

Components of tariff

9.1 The Tariff for supply of electricity from a hydro power generating station shall comprise of capacity charge and energy charge to be derived in the manner specified in clauses 9.8-9.15 of these Regulations, for recovery of annual fixed cost consisting of the following components:

- (a) Return on Equity;
- (b) Interest and Financing Charges on Loan Capital;
- (c) Depreciation;
- (d) Operation and Maintenance Expenses;
- (e) Interest Charges on Working Capital;

Norms of operation

9.2 The norms of operation for hydro power station shall be as under:

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9.3 Normative Annual Plant Availability Factor (NAPAF) : The Normative Annual Plant Availability Factor for hydro generating stations shall be determined by the Commission as per the following criteria:

- (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) Storage and pondage type plants with head variation between FRL and MDDL of more than 8%, where plant availability is not affected by silt: Plant-specific allowance to be provided in NAPAF for reduction in NAPAF for reduction in MW output capability as reservoir level falls over the months. As a general guidelines the allowance on this account in terms of multiplying factor may be worked out from the projection of annual average of net head, applying the formula:

$$= (\text{Average head}/\text{Rated head}) + 0.02$$

Alternatively in case of a difficulty in making such projection, the multiplying factor may be determined as:

$$= (\text{Head at MDDL}/\text{Rated head}) \times 0.5 + 0.52$$

- (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.

9.4 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 imitations.

9.5 In case of a new hydro electric project the developer shall have the option of approaching the Commission in advance for fixation of NAPAF based on the principles enumerated in clause 9.3,9.4 of these Regulations.

9.6 Auxiliary Energy Consumption (AUX): The norms for auxiliary energy consumption shall be as under:

(a) Surface hydro generating stations

- i. With rotating mounted on the generator shaft : 0.7%
- ii. With static excitation system : 1%

(b) Underground hydro generating stations

- i. With rotating exciters mounted on the generator shaft: 0.9%

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- ii. With static excitation system : 1.2%

- 9.7 Based on the above, the norms of operation for the hydro generating station already in operation shall be as follows:

Sikidiri Hydel Power Station (JSEB)

Parameters	2011-12	2012-13	2013-14	2014-15	2015-16
Normative Annual Plant Availability Factor (%)	75%	75%	75%	75%	75%
Auxiliary Consumption (%)	0.70%	0.70%	0.70%	0.70%	0.70%

Computation and Payment of Capacity Charges and Energy Charges for Hydro Generating Stations

- 9.8 The Annual fixed cost of a Hydro generating station shall be computed, based on norms specified under these Regulations, and 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 payable during such period.

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

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

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.

- 9.10 The PAFM shall be computed in accordance with the following formula:

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

Where,

AUX - Normative auxiliary energy consumption in percentage;

DC_i - Declared Capacity (in ex-bus MW) for the i_{th} 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

- 9.11 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 :

$$= (\text{Energy Charge Rate in Rs. / kWh}) \times \{\text{Scheduled Energy (ex-bus) for the month in kWh}\} \times (100 - \text{FEHS}) / 100.$$

- 9.12 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 clause 9.14 of these Regulations:

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

Where,

DE - Annual Design Energy specified for the Hydro generating station, in MWh, subject to the provision in clause 9.13 of these Regulations;

FEHS - Free Energy for home State, in per cent, as defined in clause 10.7 of these Regulation;

- 9.13 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;
- (i) in case the energy shortfall occurs within 10 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 9.12 of these Regulations 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;

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- (ii) 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 year is A1 and A2 MWh respectively, A1 being less than DE. Then, the Design Energy to be considered in the formula as specified in clause of these 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;
- (iii) Actual energy generated (e.g. A1, A2) shall be arrived at by multiplying the net metered energy sent out from the station by $100 / (100 - AUX)$.
- 9.14 In case the Energy Charge Rate (ECR) for a Hydro generating station, as computed in clause 9.12 of these Regulations, exceeds eighty 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 eighty 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 eighty paise per kWh after the energy charge shortfall of the previous Year has been made up.

- 9.15 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.

A10: SCHEDULING, ACCOUNTING AND BILLING

Incentive

- 10.1 In case of thermal generating stations incentive shall form part of the recovered capacity (fixed) charges. No separate incentive shall be provided.
- 10.2 In case of hydro generating stations incentive shall form part of the recovered capacity charge and variable charge. No separate incentive would be provided.

Scheduling

- 10.3 The methodology for scheduling and despatch for the generating station shall be as specified in Grid Code, approved by the Commission.

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Metering and Accounting

- 10.4 Metering arrangements, including installation, testing and operation and maintenance of meters and collection, transportation and processing of data required for accounting of energy exchanges and average frequency on 15 minute Time Block basis shall be organised by the State Transmission Utility and State Load Despatch Centre as per the Grid Code. All concerned entities (in whose premises the special energy meters are installed), shall fully cooperate with the State Transmission Utility/ State Load Despatch Centre and extend the necessary assistance by taking weekly meter readings and transmitting them to the State Load Despatch Centre. The State Load Despatch Centre shall issue the Accounts for energy on monthly basis as well as UI charges on weekly basis. UI accounting procedures shall be governed by the orders of the Commission.

Unscheduled Interchange (UI) Charges

- 10.5 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 for which shall be governed by the relevant Regulations specified by the Commission from time to time.

Billing and payment of charges

- 10.6 Bills shall be raised for capacity charge and energy charge on monthly basis by the Generating Company in accordance with these Regulations, and payments shall be made by the Beneficiaries directly to the Generating Company.
- 10.7 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 State generating stations shall be as determined by the State 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. 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 State Government, the unallocated power shall be added to the allocated shares in the same proportion as the allocated shares.

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Note 2

The Beneficiaries may propose surrendering part of their allocated firm share to other Beneficiaries. In such cases, the shares of the Beneficiaries may be prospectively reallocated by the State 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 Beneficiary to whom the surrendered capacity is allocated. Except for the period of reallocation of capacity as above, the Beneficiaries of the generating station shall continue to pay the full capacity charges as per allocated capacity shares.

Note 3

FEHS - Free Energy for Home State, in percent shall be taken as 12% (not applicable for generating stations of JSEB)

Provided that in cases where the site of a Hydro Project is awarded to a developer (not being a State controlled or owned Company), by a State Government by following a two stage transparent process of bidding, the "Free Energy" shall be taken as 13%, which shall also include 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.

Late Payment Surcharge

- 10.8 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 1.25% per month shall be levied by the Generating Company

Rebate

- 10.9 For payment of bills of the Generating Company through a letter of credit on presentation, a rebate of 2% shall be allowed. If the payment is made by any other mode but within a period of one month of presentation of bills by the Generating Company, a rebate of 1% shall be allowed.

A11: OTHER PROVISIONS

Sharing of CDM Benefits

- 11.1 The proceeds of carbon credit from approved CDM project shall be shared in the following manner, namely-

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- (a) 100% of the gross proceeds on account of CDM to be retained by the project developer in the first year after the date of commercial operation of the generating station;
- (b) in the second year, the share of the Beneficiaries shall be 10% which shall be progressively increased by 10% every year till it reaches 50%, whereafter the proceeds shall be shared in equal proportion, by the Generating Company and the Beneficiaries.

Deviation from norms

- 11.2 Tariff for sale of electricity by the Generating Company, may also be determined in deviation of the norms specified in these Regulations subject to the conditions that-
 - (a) The levelised Tariff over the Useful life of the Project , calculated based on the discounting factor as notified by the CERC from time to time for the Projects under Section 63 of the Act, on the basis of the norms in deviation does not exceed the levelised Tariff calculated on the basis of the norms specified in these Regulations; 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.

Foreign Exchange Rate Variation

- 11.3 The Generating Company may hedge foreign exchange exposure in respect of the interest on foreign currency loan and repayment of foreign loan acquired for the generating station, in part or full in the discretion of the Generating Company.
- 11.4 Every Generating Company 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.
- 11.5 To the extent the Generating Company 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 its suppliers or contractors.
- 11.6 The Generating Company 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.

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Application fee and the publication expenses

- 11.7 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 directly from the Beneficiaries.

CHAPTER IV: PROCEDURE FOR FILING OF ARR

A12: ANNUAL FILINGS FOR THE TRANSITION PERIOD

- 12.1 The Generating company shall file an application for approval of Tariff for the financial year as per the timelines specified in Section A18: of these Regulations;
- 12.2 The tariff petition shall include statements containing Aggregate Revenue Requirement (ARR) during the Previous Year, Current Year and Ensuing Year. The information for the Previous Year should be based on audited accounts, if available;
- 12.3 The ARR filings shall, inter-alia, contain :
- (a) Generation data for each plant/unit during the Previous Year and Current Year and the projection for the ensuing year including – NAPAF, Auxiliary consumption, Station Heat Rate, Secondary oil consumption;
 - (b) Fuel cost of the plant/ unit during the Previous Year and Current Year and the projection for the ensuing year including details of quantity of coal, prices of coal, GCV, transit loss;
 - (c) Revenue Gap for the Previous Year, Current Year and Ensuing Year;
 - (d) Annual Capital Investment Plan that shall take into account the norms of operation specified in these Regulations;
 - (e) appropriate capital structure and cost of financing (interest on debt) and return on equity, terms of the existing loan agreements, etc;
 - (f) Details of depreciation based on the fair life of the asset and capitalisation schedules;
 - (g) Operation and Maintenance (O&M) expenses incurred in the Previous Year, Current Year and forecast of the O&M expenses for the ensuing year;

A13: MULTI YEAR TARIFF FILING PROCEDURE

- 13.1 The Multi Year Tariff filing shall be in such form and in such manner as may be decided by the Commission and as per the provisions of Conduct of Business Regulations.

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- 13.2 The Applicant shall also submit the Multi Year Tariff filing in electronic format to the Commission.
- 13.3 The Generating Company shall file tariff petition for the Control Period in accordance with the MYT framework contained in these Regulations failing which:
- (i) The return on equity shall be zero for entire duration of the Control Period;
 - (ii) The Commission shall issue the MYT order suo-motu.
- 13.4 Both 'Beginning of the Control Period filings' and 'Annual filings' as explained below shall be made available by the Licensee in both English and Hindi;

Beginning of the Control Period Filings

- 13.5 The Generating Company shall file for the Commission's approval, no later than 1st April of the Year preceding the start of the Control Period, a Business Plan and a Capital Investment Plan in accordance with clause 6.6 to 6.9 of these Regulations;
- 13.6 The Applicant shall file the application for approval of Generation Tariff for each Year of the Control Period consistent with the Business Plan, not less than 120 days before the commencement of the first Year of the Control Period or such other date as may be directed by the Commission

Annual Filings for the Control Period

- 13.7 The Generating Company shall submit periodic returns as may be specified, containing operational and cost data to enable the Commission to monitor the implementation of its MYT order.
- 13.8 The Generating Company shall submit to the Commission annual statements of its performance and accounts including latest report of audited accounts.

A14: DISPOSAL OF APPLICATION

- 14.1 The Commission shall process the filings made by the Generating Company in accordance with these Regulations and the Conduct of Business Regulations.
- 14.2 Based on the Generating Company's filings, objections/ suggestions from public and other stakeholders, the Commission may accept the application with such modifications and/or such conditions as may be deemed just and appropriate and issue, within 120 days of the receipt of the application and after considering all suggestions and objections from public and other stakeholders, an Order containing inter alia
- (a) **Transition period:** Trued up cost components for the previous Years, revised estimate for the Current Year and determination of ARR & generation Tariff for the ensuing Year.

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- (b) **Control Period:** Trued up cost components for the Year preceding the base Year, estimation of parameters for the Base Year and determination of ARR & generation Tariff for each Year of the Control Period. The Order shall also contain the approved Business plan, targets for controllable items for the Control Period.

A15: PERIODIC REVIEWS

Review during Control period

- 15.1 To ensure smooth implementation of the Multi Year Tariff (MYT) framework, the Commission may undertake periodic reviews of Generating Company's performance during the Control Period, to address any practical issues, concerns or unexpected outcomes that may arise.
- 15.2 The Generating Company shall submit information as part of annual performance review on actual performance to assess the performance vis-à-vis the targets approved by the Commission at the beginning of the Control Period. This shall include annual statements of its performance and accounts including latest available accounting statements, norms achieved and the tariff worked out in accordance with these Regulations.
- 15.3 The Commission may also direct any modifications to the forecast of the Generating Company for the remainder of the Control Period, with detailed reasons for the same.

Review at the end of the Control Period

- 15.4 Towards the end of the Control Period, the Commission shall seek to review if the implementation of the principles laid down in these Regulations has achieved their intended objectives. While doing this, the Commission shall take into account, among other things, the industry structure, sector requirements, consumer and other stakeholder expectations and Applicant's requirements at that point in time. Depending on the requirements of the sector to meet the objects of the Act, the Commission may revise the principles for the second Control Period.
- 15.5 The end of the first Control Period shall be the beginning of the second Control Period and the Generating Company shall follow the same procedure unless required otherwise by the Commission. The Commission shall analyse the performance of the generating company with respect to the targets set out at the beginning of the first Control Period and based on the actual performance, expected efficiency improvements and other factors prevalent, determine the initial values for the next Control Period

A16: TRUING UP

True-Up for the Period before Transition period

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16.1 Performance review and adjustment of variations of the Generating Company for Years before the Transition Period shall be considered during the Transition Period.

True-Up for the Transition period

16.2 Performance review and adjustment of variations of the Generating Company for the Year covered under the Transition Period shall be considered during the Control Period.

True-Up for the Control Period

16.3 The true-up for the Control Period shall be as per clause 6.14 and 6.15 of these Regulations.

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A17: MISCELLANEOUS

Issue of Orders and Practice Directions

- 17.1 Subject to the provision of the Act and these Regulations, the Commission may, from time to time, issue Orders and Practice directions in regard to the implementation of these Regulations and procedure to be followed on various matters, which the Commission has been empowered by these Regulations to direct, and matters incidental or ancillary thereto.
- 17.2 Notwithstanding anything contained in these Regulations, the Commission shall have the authority, either suo motu or on a petition filed by any interested or affected party, to determine the tariff of any Applicant.

Powers to remove difficulties

- 17.3 If any difficulty arises in giving effect to any of the provisions of these Regulations, the Commission may, by a general or special order, not being inconsistent with the provisions of these Regulations or the Act, do or undertake to do things or direct the Generating Company to do or undertake such things which appear to be necessary or expedient for the purpose of removing the difficulties..

Power of Relaxation

- 17.4 The Commission may in public interest and for reasons to be recorded in writing, relax any of the provision of these Regulations.

Interpretation

- 17.5 If a question arises relating to the interpretation of any provision of these Regulations, the decision of the Commission shall be final.

Repeal and Savings

- 17.6 The Regulations namely “JSERC (Terms and Conditions for determination of Generation Tariff) Regulations, 2004” read with all amendments thereto and “JSERC (Terms and Conditions of tariff determination, Multi-Year Tariff Framework) Regulation, 2007” read with all amendments thereto, as applicable to the subject matter of these Regulations is hereby superceded.
- 17.7 Nothing in these Regulations shall be deemed to limit or otherwise affect the inherent powers of the Commission to make such orders as may be necessary for ends of justice to meet or to prevent abuses of the process of the Commission.

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17.8 Nothing contained in these Regulations shall limit or otherwise affect the inherent powers of the Commission from adopting a procedure, which is at variance with any of the provisions of these Regulations, if the Commission, in view of the special circumstances of the matter or class of matters and for reasons to be recorded in writing, deems it necessary or expedient to depart from the procedure specified in these Regulations.

17.9 Nothing in these Regulations shall, expressly or impliedly, bar the Commission dealing with any matter or exercising any power under the Act for which no Regulations have been framed, and the Commission may deal with such matters, powers and functions in a manner it thinks fit.

Enquiry and Investigation

17.10 All enquiries, investigations and adjudications under these Regulations shall be done by the Commission through the proceedings in accordance with the provisions of the Conduct of Business Regulations.

Power to Amend

17.11 The Commission, for reasons to be recorded in writing, may at any time vary, alter or modify any of the provision of these Regulations by amendment.

A18: SUMMARY OF TIMELINES

S. No.	Description	Filing of the Document by	Obtaining additional information and acceptance by the Commission	Approval of the Document
1.	Annual Tariff/ARR Petition for FY 2011-12, first year of the Transition Period	1 st November 2010	Within 30 days of filing of document	Within 120 days of acceptance of the filing
2.	Business Plan for the Control Period	1 st June 2011	Within 30 days of filing of document	Within 45 days of acceptance of the filing
3.	Filing of MYT Petition for the Control Period FY 2012-13 to FY 2015-16.	1 st November 2011	Within 30 days of filing of document	Within 120 days of acceptance of the filing
4.	ARR Filing for True Up of FY 2011-12.	1 st November 2012	Within 30 days of filing of document	Within 120 days of acceptance of the filing
5.	Annual Performance Review	1 st November of each year of the Control Period	Within 30 days of filing of document	Within 120 days of acceptance of the filing

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Appendix-I: Depreciation Schedule

(Refer to Clause 7.31, 7.32 of the Regulation)

S. No	Asset Particulars	Depreciation Rate (Salvage value=10%)
		SLM
A	Land owned under full ownership	0.00%
B	Land under lease	
(a)	For investment in the land	3.34%
(b)	For cost of clearing the site	3.34%
(c)	Land for reservoir in case of hydro generating station	3.34%
C	Assets Purchased New	
(a)	PI & machinery in generating stations	
(i)	Hydro-electric	5.28%
(ii)	Steam-electric NHRB & Waste Heat Recovery Boilers	5.28%
(iii)	Diesel electric & gas plant	5.28%
(b)	Cooling towers and circulating water systems	5.28%
(c)	Hydraulic works forming part of hydro-electric system including:	
(i)	Dams, spillways weirs, canals, reinforced concrete flumes and siphons	5.28%
(ii)	Reinforced concrete pipelines and surge tanks, steel pipelines, sluice gates, steel surge (tanks) hydraulic control valves and hydraulic works	5.28%
(d)	Building & civil engineering works of a permanent character, not mentioned above:	
(i)	Offices & showrooms	3.34%
(ii)	Containing thermo-electric generating plant	3.34%
(iii)	Containing hydro-electric generating plant	3.34%
(iv)	Temporary erection such as wooden structures	100.00%
(v)	Roads other than kutchra roads	3.34%
(vi)	Others	3.34%
(e)	Transformers, kiosk sub-station equipment & other fixed apparatus (including plant foundations)	
(i)	Transformers (including foundations) having a rating of 100 kilo volt amperes and over	5.28%
(ii)	Others	5.28%
(f)	Switchgear, including cable connections	5.28%
(g)	Lightning arrestors:	
(i)	Station type	5.28%
(ii)	Pole type	5.28%
(iii)	Synchronous condenser	5.28%
(h)	Batteries	5.28%

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S. No	Asset Particulars	Depreciation Rate (Salvage value=10%)
(i)	Underground cable including joint boxes and disconnected boxes	5.28%
(ii)	Cable duct system	5.28%
(j)	Overhead lines including cable support	
(i)	Lines on fabricated steel operating at terminal voltages higher than 66 kV	5.28%
(ii)	Lines on steel supports operating at terminal voltages higher than 13.2 kV but not exceeding 66 kV	5.28%
(iii)	Lines on steel or reinforced concrete supports	5.28%
(iv)	Lines on treated wood supports	5.28%
(k)	Meters	5.28%
(l)	Self propelled vehicles	9.50%
(m)	Air conditioning plants:	
(i)	Static	5.28%
(ii)	Portable	9.50%
m(i)	Office furniture and furnishings	6.33%
(ii)	Office equipment	6.33%
(iii)	Internal wirings including fittings and apparatus	6.33%
(iv)	Street Light fittings	5.28%
(n)	Apparatus let on hire:	
(i)	Other than motors	9.50%
(ii)	Motors	6.33%
(o)	Communication equipment	
(i)	Radio and higher frequency carrier systems	6.33%
(ii)	Telephone lines and telephones	6.33%
(p)	IT Equipments	15.00%
(q)	Any other assets not covered above	5.28%

Appendix-II: Timeline for completion of Projects

(Refer to Clause 1.1 of the Regulation)

1. The completion time schedule shall be reckoned from the date of investment approval by the Board (of the Generating Company), up to the Date of Commercial Operation of the Units or Block of units.
2. The time schedule has been indicated in months in the following paragraphs and tables:
 - (i) **Thermal Power Projects - Coal/Lignite Power Plant**

Unit size 200/210/250/300/330 MW and 125 MW CFBC technology

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- (a) 33 months for Green Field Projects. Subsequent Units at an interval of 4 months each.
- (b) 31 months for Extension Projects. Subsequent Units at an interval of 4 months each

Unit size 250 MW CFBC technology

- (a) 36 months for Green Field Projects. Subsequent Units at an interval of 4 months each.
- (b) 34 months for Extension Projects. Subsequent Units at an interval of 4 months each

Unit size 500/600 MW

- (a) 44 months for Green Field Projects. Subsequent Units at an interval of 6 months each.
- (b) 42 months for Extension Projects. Subsequent Units at an interval of 6 months each

Unit size 660/800 MW

- (a) 52 months for Green Field Projects. Subsequent Units at an interval of 6 months each
- (b) 50 months for Extension Projects. Subsequent Units at an interval of 6 months each

(ii) Combined Cycle Power Plant

Gas Turbine size up to 100 MW (ISO rating)

- (a) 26 months for first Block of Green Field Projects. Subsequent Blocks at an interval of 2 months each
- (b) 24 months for first Block of Extension Projects. Subsequent Blocks at an interval of 2 months each.

Gas Turbine size above 100 MW (ISO rating)

- (a) 30 months for first Block of Green Field Projects. Subsequent Blocks at an interval of 4 months each
- (b) 28 months for first Block of Extension Projects. Subsequent Blocks at an interval of 4 months each

By order of the Commission

**(A.K. Mehta)
Secretary**

Jharkhand State Electricity Regulatory Commission