

# **Odisha Electricity Regulatory Commission**

## **Explanatory Memorandum**

**on**

**Draft Odisha Electricity Regulatory Commission  
(Terms and Conditions for Determination of  
Generation Tariff) Regulations, 2020**

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# 1. Introduction

## 1.1. Background

- 1.1.1. Section 61 of the Electricity Act, 2003 (36 of 2003), provides that the Appropriate Commission shall specify the terms and conditions for the determination of tariff, and in doing so, shall be guided by the principles and methodologies specified by the Central Commission for determination of tariff applicable to generating companies and also by the National Tariff Policy formulated under the said Act.
- 1.1.2. Odisha Electricity Regulatory Commission (OERC) has framed the OERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2014.
- 1.1.3. Subsequently, the Central Electricity Regulatory Commission (CERC) has notified CERC (Terms and Conditions of Tariff) Regulations, 2019 specifying the principles and methodologies to be followed for determination of tariff applicable to generating companies and various changes have also been made in the National Tariff Policy 2016.
- 1.1.4. The OERC is undertaking an exercise to determine the tariff for generating companies within the State for the next control period starting from 1st April, 2020. Keeping in view the changes in National Tariff Policy and the methodologies of Central Commission, amongst others, it has become necessary to amend/modify the existing regulations.
- 1.1.5. Therefore, in exercise of the powers conferred by clauses (zd), (ze) and (zf) of sub-section (2) of section 181 read with sections 61, 62 and 86, of the of the Electricity Act, 2003 (36 of 2003) and all other powers enabling it in this behalf, the OERC has published the OERC (Draft Terms and Conditions for Determination of Generation Tariff) Regulations, 2020 with the explanation for various changes in the following sections.

## 2. Capital Cost and Additional Capitalization

### 2.1. Capital Cost

2.1.1. The provisions for capital cost and eligibility of expenditure on various aspects have been clarified as part of the Regulations. These provisions are in line with the CERC Tariff Regulations 2019-24. The proposed amendment is as follows:

#### "8. CAPITAL COST OF THE PROJECT

(1) *Capital cost for a Project shall include:*

(a) *The expenditure incurred or projected to be incurred, including Interest During Construction (IDC) & Incidental Expenditure During Construction (IEDC) 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, after prudence check;*

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

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

(i) *Coal-based thermal generating stations – 2.0% of original project cost*

(ii) *Hydro generating stations including pumped storage hydro-electric generating station - 1.0% of original project cost*

(c) *Expenditure on account of additional capitalization and decapitalization determined in accordance with these regulations*

(d) *Adjustment of revenue due to sale of infirm power in excess of fuel cost prior to the date of commercial operation as specified under Regulation 12 of these regulations;*

(e) *Capital expenditure on account of ash disposal and utilization including handling and transportation facility;*

(f) *Capital expenditure incurred towards railway infrastructure and its augmentation for transportation of coal upto the receiving end of the generating station but does not include the transportation cost and any other appurtenant cost paid to the railway;*

(g) *Capital expenditure on account of biomass handling equipment and facilities, for co-firing;*

(h) *Capital expenditure on account of emission control system necessary to meet the revised emission standards and sewage treatment plant;*

(i) *Expenditure on account of fulfilment of any conditions for obtaining environment clearance for the project;*

(j) *Expenditure on account of change in law and force majeure events;*

(k) *Capital cost incurred or projected to be incurred by a thermal generating station, on account of implementation of the norms under Perform, Achieve and Trade (PAT) scheme of Government of India shall be considered by the Commission subject to sharing of benefits accrued under the PAT scheme with the beneficiaries;*

(l) *Capital expenditure on account of renovation and modernisation as admitted by this Commission in accordance with these regulations;”*

## **2.2. Additional Capitalization and Decapitalization**

2.2.1. Under additional capitalization, the provisions for replacement of assets in existing generating stations after the cut-off date have been included on the lines of CERC Tariff Regulation 2019-24 in order to bring more clarity with respect to consideration of additional capital expenditure and capitalization for tariff determination of the generating stations in the state. Proposed provision is as below:

*“(3) In case of replacement of assets deployed under the original scope of the existing project after cut-off date, the additional capitalization may be admitted by the Commission, after making necessary adjustments in the gross fixed assets and the cumulative depreciation, subject to prudence check on the following grounds:*

*(a) The useful life of the assets is not commensurate with the useful life of the project and such assets have been fully depreciated in accordance with the provisions of these regulations;*

*(b) The replacement of the asset or equipment is necessary on account of change in law or Force Majeure conditions;*

*(c) The replacement of such asset or equipment is necessary on account of obsolescence of technology; and*

*(d) The replacement of such asset or equipment has otherwise been allowed by the Commission.*

*(4)The capital expenditure, in respect of existing generating station incurred or projected to be incurred on the following counts beyond the original scope, may be admitted by the Commission, subject to prudence check:*

*(a) Liabilities to meet award of arbitration or for compliance of order or directions of any statutory authority, or order or decree of any court of law;*

*(b) Change in law or compliance of any existing law;*

*(c) Force Majeure events;*

*(d) Need for higher security and safety of the plant as advised or directed by appropriate Indian Governmental Instrumentality or statutory authorities responsible for national or internal security;*

*(e) Deferred works relating to ash pond or ash handling system in additional to the original scope of work, on case to case basis:*

*Provided also that if any expenditure has been claimed under Renovation and Modernisation (R&M) or repairs and maintenance under O&M expenses, the same shall not be claimed under this Regulation;*

(f) *Usage of water from sewage treatment plant in thermal generating station.*"

2.2.2. Further, in case of any decapitalization of assets of existing generating stations, treatment of the same has been clarified for the purpose of tariff determination:

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

## **2.3. Tariff Mechanism for Pollution Control System**

2.3.1. As per the new Environment norms notified by Ministry of Environment, Forest and Climate Change, the Thermal Power Plants would be required to install or upgrade various emission control systems like Flue-Gas desulfurization ("FGD") system, electrostatic precipitators ("ESP") system etc. to meet the revised standards.

2.3.2. The additional capital expenditure on account of setting up the pollution control facilities to meet the revised emission standards in the generating stations will result in increase in the capacity charge of the generating station. Further, the pollution control facilities shall also require additional recurring expenses in the form of reagent, consumables, additional O&M expenses and also result in additional impact on the operating norms, specifically the auxiliary energy consumption of the generating station. Thus, the impact will result in increase in capacity charges as well as energy charges of the generating stations.

2.3.3. Recovery of this investment made during operation period require a mechanism in the tariff regulations. Therefore, additional capitalization on account of revised emission standards have been included in the draft regulations:

**"13. ADDITIONAL CAPITALIZATION ON ACCOUNT OF REVISED EMISSION STANDARDS:**

*(1) A generating company requiring to incur additional capital expenditure in the existing generating station for compliance of the revised emissions standards shall share its proposal with the beneficiaries and file a petition for undertaking such additional capitalization.*

*(2) The proposal under clause (1) above shall contain details of proposed technology as specified by the Central Electricity Authority, scope of the work, phasing of expenditure, schedule of completion, estimated completion cost including foreign exchange component, if any, detailed computation of indicative impact on tariff to the beneficiaries, and any other information considered to be relevant by the generating company.*

*(3) Where the generating company makes an application for approval of additional capital expenditure on account of implementation of revised emission standards, the Commission may grant approval after due consideration of the 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.*

*(4) After completion of the implementation of revised emission standards, the generating company shall file a petition for determination of tariff. Any expenditure incurred or projected to be incurred and admitted by the Commission after prudence check based on reasonableness of the cost and impact on operational parameters shall form the basis of determination of tariff."*

2.3.4. In view of the above, CERC in its Tariff Regulation 2019-24 has allowed for supplementary tariff based on the actual capital expenditure duly certified by the Auditor. Similar provisions have been incorporated in the draft generation regulations as below:

*"Provided further that, in case of emission control system required to be installed in existing generating station or unit thereof to the revised emission standards, an application shall be made for determination of supplementary tariff (capacity charges or energy charge or both) based on the actual capital expenditure duly certified by the Auditor;"*

## 3. Computation of Tariff

### 3.1. Return on Equity

- 3.1.1. Tariff Policy, 2016 stipulates that while laying down rate of return, the Commission shall maintain a balance between the interests of the consumers and the need for investments. The Commission had adopted return on equity mechanism for allowing return on investment in form of equity in the generating station in the past. The Commission has continued with the return on equity approach for the next Control Period as well.
- 3.1.2. CERC in its Tariff Regulations 2019-24 had considered the CAPM model for determination of return of equity for generation and transmission utilities. As per the approach adopted, CERC had arrived at the cost of equity for regulated entities in the power sector to be in the range of 12-15%.
- 3.1.3. In view of the same, the Commission proposes a return on equity of 15% for all generating stations excluding the existing generating stations of OPGC and OHPC for which the return on equity shall be as per the provisions of the PPA.
- 3.1.4. With the growing importance of grid security and in line with CERC Tariff Regulations 2019-24, a reduction in rate of RoE by 1.00% has been proposed under following circumstances:
- "(a) In case of a new project, the rate of return on equity shall be reduced by 1.00% for such period as may be decided by the Commission, if the generating station is found to be declared under commercial operation without commissioning of any of the Restricted Governor Mode Operation (RGMO) or Free Governor Mode Operation (FGMO), data telemetry, communication system up to load dispatch centre or protection system based on the confirmation by the SLDC;*
- (b) in case of existing generating station, as and when any of the requirements under (a) above of this Regulation are found lacking based on the confirmation by the concerned SLDC, rate of return on equity shall be reduced by 1.00% for the period for which the deficiency continues;"*
- 3.1.5. Further, it is proposed that RoE on additional capitalization after cut-off date beyond the original scope excluding additional capitalization due to Change in Law, shall be equal to the weighted average rate of interest on actual loan portfolio of the generating station, in line with CERC regulation.

### 3.2. Depreciation

- 3.2.1. With respect to depreciation, the Commission has continued with the depreciation rates provided in the existing OERC Tariff Regulations with the proposed following amendments:
- i. Given that the salvage value of IT equipment and software is NIL, it is proposed that 100% value of the assets shall be considered depreciable.
  - ii. Adjustment with regard to gross block and accumulated depreciation of the decapitalized assets during the useful life

### 3.3. Working Capital

- 3.3.1. CERC has reviewed the actual average fuel stock for various generating stations for last 5 years. In most of the stations, the average fuel stock maintained was well below the allowed normative 15 days for pit head stations and 30 days for non-pit head stations. It is therefore proposed to have coal stock as 15 days for pit head station and 30 days for non-pit head stations.

- 3.3.2. CERC has also analysed the average number of days of receivables for various generating companies. It was observed that in case of a large number of entities, the number of days of receivables ranges around 40 to 50. It is therefore proposed to keep number of days of receivables to 45 days for next control period for new generation regulation.
- 3.3.3. The generating company are required to pay fuel cost in advance for a month as per the fuel supply agreement signed with the coal suppliers. Therefore, advance payment for thirty (30) days towards cost of coal for generation is also proposed to be included in working capital in line with the new regulation of CERC.

Particulars	Existing OERC	CERC, 2019	Proposed in New Regulation
<b>Thermal</b>			
<b>Coal Stock</b>	Pit head station – 1 month Non-pit head station – 2 months	Pit head station – 10 days Non-pit head station – 20 days	Pit head station – 15 days Non-pit head station – 30 days
<b>Cost of secondary fuel oil for IoWC</b>	1 month	2 months	1 month
<b>Receivables</b>	1 month	45 days	45 days
<b>Fuel Cost - Working Capital</b>	-	30 days advance payment towards cost of coal against normative PAF	30 days advance payment towards cost of coal against normative PAF
<b>O&amp;M</b>	1 month	1 month	1 month
<b>Hydro</b>			
<b>Receivables</b>	2 months	45 days	45 days
<b>O&amp;M</b>	1 month	1 month	1 month

### 3.4. Rate for Interest on Working Capital and True-up

- 3.4.1. The Reserve Bank of India (RBI), vide ref. RBI/2015-16/273DBR.No.Dir.BC.67/13.03.00/2015-16 dated 17.12.2015, introduced Marginal Cost of funds-based Lending Rate (MCLR). The new methodology for computing benchmark lending rates came into effect from April 1, 2016.
- 3.4.2. CERC has analysed the trend of SBI Base Rate and SBI MCLR (1 Year) and has considered to link Interest on Working Capital and rate of interest for the purpose of trueing up to MCLR.
- 3.4.3. In view of the above, OERC proposes to link interest rates to MCLR and has proposed to consider MCLR of SBI plus 300 basis points as interest for working capital loans and also for the purpose of trueing up.

### 3.5. Operation and Maintenance – Thermal Generating Stations

- 3.5.1. CERC has provided new O&M norms for thermal generating stations based on review of actual O&M for various plants in last control period and actual WPI and CPI rates. The norms as per CERC (Terms and Conditions of Tariff) Regulations, 2019 is given below:

Year	(Rs. in lakh/MW)				
	200/210/250 MW series	300/330/350 MW series	500 MW series	600 MW series	800 MW series and above
2020-21	34.12	28.71	23.30	20.97	18.87
2021-22	35.31	29.72	24.12	21.71	19.54

Year	(Rs. in lakh/MW)				
	200/210/250 MW series	300/330/350 MW series	500 MW series	600 MW series	800 MW series and above
2022-23	36.56	30.76	24.97	22.47	20.22
2023-24	37.84	31.84	25.84	23.26	20.93

- 3.5.2. The Commission proposes to adopt similar norms towards new thermal generating stations for the next Control Period.

### 3.6. Capacity Charge and Energy Charge

- 3.6.1. At present there is no mechanism to ensure that generators declare higher availability during high load period.
- 3.6.2. There is a need to encourage declaration of higher available generation capacity during peak season/duration, when the requirement is higher for meeting the Discom demand. Thus, there is need to incentivise generators to plan and make available its generation capacity and supply power during peak/off-peak period as per requirement of load.
- 3.6.3. The pricing framework should encourage generators to plan and adjust its generation resources to cater to diurnal variation/seasonal variation in demand of its beneficiary and also should facilitate power system operations to achieve load-generation balance in most optimal and efficient manner.
- 3.6.4. Hence, it is proposed to introduce the Capacity Charge in two parts (i) Capacity Charge for Peak period and (ii) Capacity Charge for Off-Peak period in the new generation regulation, in line with CERC Tariff Regulations 2019-24.

*"(1) The fixed cost of a thermal generating station shall be computed on annual basis, based on norms specified under these regulations, and recovered on monthly basis under capacity charge. The total capacity charge payable for a generating station shall be shared by its beneficiaries as per their respective percentage share / allocation in the capacity of the generating station. The capacity charge shall be recovered under two segments of the year, i.e. High Demand Season (period of three months) and Low Demand Season (period of remaining nine months), and within each season in two parts viz., Capacity Charge for Peak Hours of the month and Capacity Charge for Off-Peak Hours of the month as follows:*

*Capacity Charge for the Year (CCy) = Sum of Capacity Charge for three months of High Demand Season + Sum of Capacity Charge for nine months of Low Demand Season"*

## 4. Norms of Operation

### 4.1. Station Heat Rate

- 4.1.1. The Commission has proposed revision in Station Heat Rate for all existing generating stations (excluding OPGC thermal generating stations) in line with the norms notified in the CERC Tariff Regulations 2019-24 as given below:

200/210/250 MW Sets	500 MW Sets (Sub-critical)
2430 KCal/kWh	2390 kCal/kWh

### 4.2. Auxiliary Energy Consumption

- 4.2.1. In view of the changes in auxiliary consumption in the CERC Tariff Regulations 2019-24, the Commission proposes the following norms of auxiliary consumption for determination of tariff for thermal plants:

“

Sl. No.	Generating Station	With Natural Draft cooling tower or without cooling tower
(i)	200 MW series	8.5%
(ii)	<b>300 MW &amp; above series</b>	
	Steam driven boiler feed pumps	5.75%
	Electrically driven boiler feed pumps	8.00%

*Provided that for thermal generating stations with induced draft cooling towers and where tube type coal mill is used, the norms shall be further increased by 0.5% and 0.8% respectively:*

*Provided further that Additional Auxiliary Energy Consumption as follows shall be allowed for plants with Dry Cooling Systems*

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

”

## 5. Other Provisions

### 5.1. Tariff Determination Process

- 5.1.1. As per the existing generation regulation, all generating stations (except OPGC and OHPC plants) are required to submit petitions for tariff determination for the entire Control Period at the beginning of the Control Period. However, OPGC and OHPC plants are required to submit tariff petition for determination of generation tariff on an annual basis.
- 5.1.2. To bring uniformity in the tariff determination process across all generating stations, it is proposed that all existing and new plants (including OPGC and OHPC plants) shall submit application for tariff determination at the beginning of the Control Period for the entire Control Period. Further, the true-up required in case of any change in capital expenditure and capitalization shall be carried out at the end of the Control Period based on prudence check.

### 5.2. Rebate

- 5.2.1. In the existing OERC Generation Tariff Regulation a rebate of 2% is provided for payment within 2 days. As per the CERC Tariff Regulations 2019-24, a rebate of 1.5% is applicable for payment within 5 days and 1% for payment within 30 days.
- 5.2.2. In view of the revision in CERC Regulations, the Commission has proposed to provide rebate in graded manner as given below:
- 2% for payment within 2 days
  - 1.5% for payment within 5 days
  - 1% for payment within 30 days

### 5.3. Sharing of gains due to variation in norms

- 5.3.1. In line with the CERC Tariff Regulations 2019-24, the Commission has proposed sharing of gains due to variation in the norms in the ratio of 50:50 between the generating company and beneficiaries based on the following:

"36. *SHARING OF GAINS DUE TO VARIATION IN NORMS*

(1) *The generating company shall workout gains based on the actual performance of applicable Controllable parameters as under:*

- (i) *Station Heat Rate;*
- (ii) *Secondary Fuel Oil Consumption; and*
- (iii) *Auxiliary Energy Consumption.*

(2) *The financial gains by the generating company on account of controllable parameters shall be shared between generating company and the beneficiaries on annual basis. The financial gains computed as per the following formulae in case of generating station other than hydro generating stations on account of operational parameters as shown in Clause (1) of this Regulation shall be shared in the ratio of 50:50 between the generating stations and beneficiaries.*

*Net Gain = (ECRN– ECRA) x Scheduled Generation*

Where,

*ECRN = Normative Energy Charge Rate computed on the basis of norms specified for Station Heat Rate, Auxiliary Energy Consumption and Secondary Fuel Oil consumption.*

*ECRA = Actual Energy Charge Rate computed on the basis of actual Station Heat Rate, Auxiliary Energy Consumption and Secondary Fuel Oil Consumption for the month.*

*Provided that in case of hydro generating stations, the net gain on account of Actual Auxiliary Energy Consumption being less than the Normative Auxiliary Energy Consumption, shall be computed as per following formulae provided the saleable scheduled generation is more than the saleable design energy and shall be shared in the ratio of 50:50 between generating station and beneficiaries.:*

*(i) When saleable scheduled generation is more than saleable design energy on the basis of normative auxiliary energy consumption and less than or equal to saleable design energy on the basis of actual auxiliary energy consumption:*

*Net gain (Million Rupees) = [(Saleable Scheduled generation in MUs) – (Saleable Design energy on the basis of normative auxiliary energy consumption in MUs)] x [1.20 or ECR, whichever is lower]*

*(ii) When saleable scheduled generation is more than saleable design energy on the basis of actual auxiliary energy consumption:*

*Net gain (Million Rupees) = {Saleable Scheduled generation in MUs- [(Saleable Scheduled Generation in MUs x (100-normative AEC in %))/(100- actual AEC in %)]}x [1.20 or ECR, whichever is lower]"*

## **5.4. Deviation from Ceiling Tariff**

5.4.1. The Commission has also proposed inclusion of a provision in case of deviation from the ceiling tariff approved by the Commission in line with the provisions included in the CERC Tariff Regulations 2019-24. The provision is as follows:

*"(1) The tariff determined in these regulations shall be a ceiling tariff. The generating company and the beneficiaries, as the case may be, may mutually agree to charge a lower tariff.*

*(2) The generating company may opt to charge a lower tariff for a period not exceeding the validity of these regulations on agreeing to deviation from operational parameters, reduction in operation and maintenance expenses, reduced return on equity and incentive specified in these regulations.*

*(3) If the generating company opts to charge a lower tariff for a period not exceeding the validity of these regulations on account of lower depreciation based on the requirement of repayment in such case the unrecovered depreciation on account of reduction of depreciation by the generating company during useful life shall be allowed to be recovered after the useful life in these regulations.*

*(4) The deviation from the ceiling tariff specified by the Commission, shall come into effect from the date agreed to by the generating company and the beneficiaries.*

*(5) The generating company and the beneficiaries of a generating station shall be required to approach the Commission for charging lower tariff in accordance with clauses (1) to (3) above. The details of the accounts and the tariff actually charged under clauses (1) to (3) shall be submitted at the time of true up."*