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**JHARKHAND STATE ELECTRICITY REGULATORY  
COMMISSION, RANCHI**

**JSERC (Terms and Conditions for Determination of Transmission Tariff)  
Regulations, 2020**

**No.73**In exercise of powers conferred by sub section (1) of Section 181 and clause (zd), (ze) and (zf) of sub-section (2) of Section 181, read with Sections 61, 62 and 86, of the Electricity Act, 2003 (36 of 2003)and all other powers enabling it in that behalf, the Jharkhand State Electricity Regulatory Commission, hereby makes the following Regulations. A Regulation 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 by the Transmission Licensees within the State of Jharkhand and for determination of Multi-Year Tariff to be recovered by the Transmission Licensees for the prudent expenses incurred towards providing reliable and optimal transmission infrastructure for power supply to Distribution Licensees and Open Access consumers within the State of Jharkhand.

## **CHAPTER I:**

### **SCOPE, EXTENT AND DEFINITIONS**

#### **A 1. Short Title & Commencement**

- 1.1 These Regulations shall be called the Jharkhand State Electricity Regulatory Commission (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2020.
- 1.2 These Regulations shall come into force for the period from April 1, 2021 to March 31, 2026, after its publication in the Official Gazette of the Government of Jharkhand and unless reviewed earlier or extended by the Commission, shall remain in force upto March 31, 2026.
- 1.3 These Regulations shall extend to the whole of the State of Jharkhand.
- 1.4 These Regulations shall supersede the Jharkhand State Electricity Regulatory Commission (Terms & Conditions for Determination of Transmission Tariff) Regulations, 2015, Jharkhand State Electricity Regulatory Commission (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2010, Jharkhand State Electricity Regulatory Commission (Terms and Conditions of Tariff determination, Multi-Year Tariff Framework) Regulations, 2007, read with all amendments thereto, as the case may be.

Explanation:-For all purpose including the review matters pertaining to period till March 31, 2021, the issue related to determination of Aggregate Revenue Requirement and Tariff shall be governed by the provisions of the Jharkhand State Electricity Regulation Commission (Terms and Conditions for Determination of Transmission Tariff) Regulation, 2015 and Jharkhand State Electricity Regulatory Commission (Terms and Conditions for determination of Transmission Tariff) Regulations, 2010, Jharkhand State Electricity Regulatory Commission (Terms and Conditions of Tariff determination, Multi-Year Tariff Framework) Regulations, 2007, including amendment thereto, as may be applicable.

## **A 2. Scope of Regulations and Extent of Application**

- 2.1 These Regulations shall be applicable for determination of Aggregate Revenue Requirement and tariff for the intra-State transmission of electricity and apply to all the Transmission Licensees in the State of Jharkhand.
- 2.2 These Regulations shall be applicable where the cost based/Aggregate Revenue Requirement (ARR) based tariff is determined by the Commission:

Provided that these Regulations shall not be applicable where tariff has been discovered through tariff based competitive bidding in accordance with the guidelines issued by the Central Government and adopted by the Commission under Section 63 of the Act.

## **A 3. Definitions and Interpretation**

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

1. **‘Accounting Statement’** means for each financial year:
  - (i) The Balance sheet, prepared in accordance with the form contained in The Companies Act, 2013 and its predecessors, as applicable;
  - (ii) Cash flow statement, prepared in accordance with the applicable Accounting Standards of the Institute of Chartered Accountants of India;
  - (iii) Cost Accounting Records prescribed by the Central Government under section 148 of The Companies Act, 2013 and its predecessors, as applicable.
  - (iv) Notes on accounts thereto, and such other supporting statements and information forming part of financial statements or as the Commission may direct from time to time.
  - (v) Profit and loss account, complying with the requirements contained in The Companies Act, 2013 and its predecessors, as applicable;
  - (vi) Report of the Statutory Auditors, including any annexure and appendix thereto, as applicable;
  - (vii) Any or all the formats as notified by the Commission under these regulations for Tariff Regulation including Multi Year Tariff Regulations pertinent to the relevant year.

- (viii) Reconciliation Statement, duly certified by the statutory auditors, showing the reconciliation between the total expenses, revenue, assets and liabilities, of the entity as a Company and the expenses, revenue, assets and liabilities, separately for each business regulated by the Commission and unregulated business operations.
2. **‘Act’** means the Electricity Act, 2003 (36 of 2003), and subsequent amendments thereof;
  3. **‘Additional Capitalisation’** means the capital expenditure incurred and capitalised or projected to be capitalised, after the date of commercial operation of the project and admitted by the Commission after prudence check, subject to provisions of Clause 10.13 of these Regulations;
  4. **‘Aggregate Revenue Requirement’** or **‘ARR’** means application for each financial year, the costs pertaining to the Licensed Business which are admissible, in accordance with these Regulations, to be recovered in the form of tariffs and charges as determined by the Commission;
  5. **‘Allocation Statement’** means for each financial year a statement in respect of each of the business (Transmission, SLDC, Other Business) of the Transmission Licensee, showing the amounts of any revenue, cost, asset, liability, reserve or provision, etc., which has been either:
    - (i) Determined by apportionment or allocation between different Businesses of the Transmission Licensee including the Licensed Business, together with a description of the basis of the apportionment or allocation; or
    - (ii) Charged from or to each such Other Business together with a description on the basis of that charge;
  6. **‘Allotted Transmission Capacity’** means and includes the power transfer in MW between the specified point(s) of injection and point(s) of drawl allowed to a Long and Medium-Term Transmission Customer on the intra-State transmission system under the normal circumstances and the expression “allotment of capacity” shall be construed accordingly:

Provided that the Allotted Transmission Capacity to a Long-Term Transmission Customer and Medium -Term Transmission Customer shall be

sum of the generating capacities allocated to the Long-Term Transmission Customer and Medium-Term Transmission Customer respectively

7. **‘Applicant’** means a Transmission Licensee who has filed the Petition for determination of transmission charge or a Petition for truing up or annual performance review in accordance with the Act and these Regulations and includes a Transmission Licensee whose tariff is subjected to review by the Commission;
8. **‘Auditor’** means an auditor appointed by the Transmission Licensee, in accordance with the provisions of the Companies Act, 2013, as amended from time to time, or any other law for the time being in force;
9. **‘Availability’** in relation to a Transmission System for a given period shall mean the time in hours during that period in which the Transmission System is capable of transmitting electricity at its declared voltage to the delivery point and shall be expressed in percentage of total hours in the given period;
10. **‘Bank Rate’** means the one-year Marginal Cost of Lending Rate (MCLR) of the State Bank of India from time to time or any replacement thereof for the time being in effect;
11. **‘Base Year’** means the Financial Year 2020-21 and used for the purposes of these Regulations;
12. **‘Beneficiary(ies)’** shall mean Long-term, Medium-term or Short-term Transmission Customers whose tariff is determined under these Regulations;
13. **‘Capital Cost’** means the capital cost as defined in Clauses 10.4 and 10.9 of these Regulations;
14. **‘CERC’** or **‘Central Commission’** means the Central Electricity Regulatory Commission;
15. **‘Change in Law’** means occurrence of any of the following events:
  - (i) the enactment, bringing into effect or promulgation of any new Indian Law; or
  - (ii) adoption, amendment, modification, repeal or re-enactment of any existing Indian law; or

- (iii) change in interpretation or application of any Indian law by a competent court, Tribunal or Indian Governmental Instrumentality which is the final authority under law for such interpretation or application; or
  - (iv) change by any competent statutory authority in any condition or covenant of any consent, clearances or approval or licence available or obtained for the project; or
  - (v) coming into force or change in any bilateral or multilateral agreement/treaty between the Government of India and any other Sovereign Government having implication for the Transmission Licensee regulated under these Regulations;
16. **‘Commission’** means the Jharkhand State Electricity Regulatory Commission (JSERC);
17. **‘Conduct of Business Regulations’** means the JSERC (Conduct of Business) Regulations 2016, as amended from time to time;
18. **‘Control Period’** means a multi-year period fixed by the Commission, from April 01, 2021 and up to March 31, 2026;
19. **‘Cut-off Date’** means March 31, 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 financial year, the cut-off date shall be March 31, of the year closing after three years of the year of commercial operation:

Provided that the cut-off date may be extended by the Commission if it is proved on the basis of documentary evidence that the capitalization could not be made within the cut-off date for reasons beyond the control of the Transmission Licensee

20. **‘Date of Commercial Operation’** or **‘COD’** means the date declared by the Transmission Licensee from 0000 hour of which an element of the transmission system is in regular service after successful charging and trial operation:

Provided that the transmission charge for the element shall be payable and its availability shall be accounted for, from that date:

Provided further that in case an element of the transmission system is ready for regular service but is prevented from providing such service for reasons not attributable to the Transmission Licensee, its suppliers or contractors, the Commission may approve the date of commercial operation prior to the element coming into regular service;

21. **'Day'** means the 24 hours period starting at 0000 hour;
22. **'De-capitalization'** for the purpose of the tariff under these Regulations, means reduction in Gross Fixed Assets of the project corresponding to the assets taken out of service;
23. **'Deemed Transmission Licensee'** means a person/entity deemed to be a Transmission Licensee under Section 14 of the Act;
24. **'Distribution Licensee'** means a person who has been granted a Distribution Licence under Section 14 of the Act and shall include a deemed Licensee;
25. **'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;
26. **'Existing Project'** means the project declared under commercial operation from a date prior to April 01, 2021;
27. **'Financial Year'** means a period commencing on April 01 of a calendar year and ending on March 31 of the subsequent calendar year;
28. **'Force Majeure Event'** means, with respect to any party, any event or circumstance, or combination of events or circumstances, which is not within the reasonable control of, and is not due to an act of omission or commission of that party and which, by the exercise of reasonable care and diligence, could not have been prevented; and, without limiting the generality of the foregoing, shall include the following events or circumstances:
  - (i) acts of God, including but not limited to lightning, storm, action of the elements, earthquakes, flood, torrential rains, drought and natural disaster or any acts of God beyond the control of any party or due to any restraint of the State Govt. or Central Govt. or any other Statutory Authority;

- (ii) strikes and industrial disturbances having a State-wide or extensive impact in the area of supply of a Transmission Licensee, but excluding strikes and industrial disturbances in the Transmission Licensee's own organisation;
  - (iii) acts of war, invasion, armed conflict or act of foreign enemy, insurrections, riots, revolution, terrorist or military action;
  - (iv) unavoidable accident, including but not limited to fire, explosion, radioactive contamination and toxic chemical contamination;
  - (v) any shutdown or interruption of the grid, which is required or directed by the concerned Load Despatch Centre;
29. **'Grid Code'** means the JSERC (Grid Code) Regulations, 2008, as amended or replaced from time to time;
30. **'Income from Other Business'** is the income received by the Transmission Licensee other than from Tariff towards usage of assets and/or manpower relating to regulated Business and shall exclude Non-Tariff Income;
31. **'Licensee'** means a person who has been granted licence under Section 14 of the Act and shall include deemed Licensee under the Act;
32. **'Licensed Business'** means the functions and activities, which the Licensee is required to undertake in terms of the Licence granted by the Commission or as a deemed Licensee under the Act;
33. **'Long-Term Transmission Customer'** means a person having a long-term lien exceeding three years over an Inter/Intra-State Transmission System by virtue of paying transmission charges and a Distribution Licensee shall necessarily be a Long-Term user for which it will be required to enter into appropriate agreement with the Transmission Licensee;
34. **'Medium-Term Transmission Customer'** means a person having a Medium-Term lien for means the period exceeding three months and upto three Years over an inter / intra-State Transmission System by virtue of paying transmission charges;
35. **'Non-Tariff Income'** means net income relating to the Licensed Business other than from tariff (Intra-State transmission of electricity), including but not



limited to profit derived from sale of scrap, rent of land or buildings, income from investments, miscellaneous receipts, etc.;

36. **‘Other Business’** means any other business of the Transmission Licensee for optimum utilisation of its assets within the meaning of Section 41 of the Act;
37. **‘Open Access Customer’** means any Licensee or Consumer or buyer or a person engaged in generation who has been granted Open Access in accordance with the JSERC (Terms and Conditions for Intra-State Open Access) Regulations, 2016 as amended or replaced from time to time;
38. **‘Operation and Maintenance Expenses’** or **‘O&M Expenses’** means the expenditure incurred for operation and maintenance of the project, or part thereof, and includes the expenditure on manpower, repairs and maintenance, spares, consumables, insurance and overheads;
39. **‘Original Project Cost’** means the capital expenditure incurred by the Transmission Licensee, within the original scope of the project up to the cut-off date as admitted by the Commission;
40. **‘Project’** means the transmission system;
41. **‘Prudence Check’** means scrutiny of reasonableness of any cost or expenditure incurred or proposed to be incurred in accordance with these Regulations by the Transmission Licensee;
42. **‘Rated Voltage’** means the manufacturer’s design voltage at which the Transmission System is designed to operate and includes such lower voltage at which any transmission line is charged or for the time being charged, in consultation with Long Term Transmission Customers;
43. **‘Scheduled Commercial Operation Date’** or **‘SCOD’** shall mean the date(s) of commercial operation of transmission system or element thereof and associated communication system as indicated in the Investment Approval or as agreed in transmission service agreement as the case may be, whichever is earlier;
44. **‘Short-Term Transmission Customer’** in the context of usage of Transmission System means a person having short-term lien for a period upto three months over an inter / intra-State Transmission System by virtue of paying transmission charges;

45. **‘Start Date or Zero Date’** means the date indicated in the Investment Approval for commencement of implementation of the project and where no such date has been indicated, the date of Investment Approval shall be deemed to be Start Date or Zero Date;
46. **‘State’** means the Jharkhand State;
47. **‘State Load Despatch 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;
48. **‘Statutory Charges’** comprises taxes, cess, duties, royalties and other charges levied through Acts of the Parliament or State Legislatures or by Indian Government Instrumentality under relevant statutes;
49. **‘Tariff Period’** shall mean the period from April 01, 2021 to March 31, 2026 for which Tariff is determined by the Commission under these Regulations;
50. **‘Transmission Business’** means the business of transmission of electricity by a Transmission Licensee to a Beneficiary and permitted Open Access customers;
51. **‘Transmission Licensee’** means a Licensee authorized to establish or operate Intra-State transmission lines;
52. **‘Transmission service agreement’** means the agreement, contract, memorandum of understanding, or any such covenant, entered into between the Transmission Licensee and the Long-Term Transmission Customer(s) for the use of Transmission System;
53. **‘Transmission System’** means a line or a group of lines with or without associated sub-station, equipment associated with transmission lines and sub-stations identified under the scheme as per the Investment Approval(s) and shall include associated communication system;
54. **‘Transmission System Availability Factor’** means Availability of the Transmission System as certified by the State Load Despatch Centre;
55. **‘Useful life’** in relation to a unit of a Transmission System from the COD shall mean 25 years for sub-station, 15 years for communication system and 35 years for transmission line;
56. **‘Year’** means financial year;

- 3.2 Words and expressions used in these Regulations and not defined herein but defined in the Act shall have the meanings respectively assigned to them in the Act.
- 3.3 Reference to any Act, Rules and Regulations shall include amendment or consolidation or re-enactment thereof.
- 3.4 All proceedings under these Regulations shall be governed by the JSERC (Conduct of Business) Regulations, 2016, as amended or re-enacted from time to time.

#### **A 4. Norms of Operation to be Ceiling Norms**

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

## **CHAPTER II:**

### **TARIFF FRAMEWORK AND GUIDING PRINCIPLES FOR MULTI YEAR TARIFF (MYT)**

#### **A 5. MYT Framework**

- 5.1 The MYT Framework shall commence from April 01, 2021 and unless reviewed earlier or extended by the Commission, shall be applicable till March 31, 2026. The ARR filings for the Control Period shall be done in accordance with the MYT Framework contained in these Regulations.
- 5.2 The Transmission Licensees shall file MYT Application along with supporting documents before the Commission as per the timelines specified in **Section A 24** of these Regulations.
- 5.3 The MYT Application shall include statements containing ARR along with its break up for the Years of the previous Control Period based on the Audited Accounts for FY 2015-16 to FY 2019-20, revised estimate for Base Year FY 2020-21 and the projections for each year of the Control Period.
- 5.4 The Guiding Principles for MYT Framework are described in **Section A 6** of these Regulations.
- 5.5 The principles for determination of ARR for the Control Period are 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.

#### **A 6. Guiding Principles for MYT Framework**

- 6.1 The Commission shall adopt Multi Year Tariff Framework for approval of ARR and expected revenue from tariffs and charges. The ARR and tariffs shall be determined for each year of the Control Period.
- 6.2 The Multi Year Tariff framework shall be based on the following:
  - (a) Business Plan of the Transmission Licensee for the entire Control Period to be filed before the Commission for approval along with MYT Petition, prior to the start of the Control Period or within such period as the Commission may direct;
  - (b) The Transmission System or network usage forecast for each year of the Control Period, consistent with the Business Plan;

- (c) Proposals for transmission tariff design for each year of the Control Period, including the losses to be charged and the procedure thereof;
- (d) Transmission Licensee's forecast of expected ARR for each year of the Control Period, transmission tariff for each year of the Control Period, based on reasonable assumptions of the underlying financial and operational parameters laid down under these Regulations, and on the basis of the Business Plan;
- (e) Trajectory for specific parameters shall be prescribed by the Commission, for improvement through incentives and disincentives;
- (f) Annual review of performance, which shall be conducted vis-à-vis the approved forecast and categorization of variations in performance into controllable and uncontrollable factors; and
- (g) Mechanism for sharing approved gains or losses on account of controllable and uncontrollable factors.

#### **Determination of Baseline**

- 6.3 The values for the Base Year of the Control Period shall be determined on the basis of audited accounts available for FY 2015-16 to FY 2019-20. In the absence of audited accounts of any such year, the Commission may consider best estimate for such years after carrying out due, prudence check and after taking in account other factors as considered relevant by the Commission.
- 6.4 The Commission shall normally not revise the performance targets during the Control Period, unless the Commission is of the view that there is a major variation in approved numbers vis-à-vis actuals.

#### **Business Plan**

- 6.5 The Transmission Licensee shall file for the Commission's approval, a Business Plan approved by an authorised signatory, as per the timelines specified in **Section A 24** of these Regulations.
- 6.6 The Business Plan shall be for the entire Control Period and shall, *inter-alia*, contain:
  - (a) **Capital Investment Plan:** This should be commensurate with load growth and quality improvement proposed in the Business Plan. The Capital Investment Plan should also include corresponding capitalisation schedule and financing plan;

The Transmission Licensee shall also submit scheme-wise capital structure and cost of financing (interest on debt) and return on equity, Grant, Deposit Works along with terms of the existing loan agreements, etc., as a part of Capital Investment Plan;

- (b) **Operational Plan:** Actual yearly Transmission Loss in the preceding Control Period along with year wise projection of Transmission Loss for the next Control Period.
- (c) **Human Resource Plan** with manpower planning including details of the estimated year wise manpower addition and retirements for the Control Period to meet the growth in demand;
- (d) A set of targets proposed for other controllable items such as transmission system availability, Transmission losses, return on equity, depreciation, working capital requirement, performance targets, Employee, R&M and A&G Expenses etc., along with detailed break up and any other information used for preparing projections of various performance parameters and other components during the Control Period. The targets shall be consistent with the Capital Investment Plan proposed by the Transmission Licensee;
- (e) Proposals for Non-Tariff Income with item-wise description and details;
- (f) Proposals in respect of income from Other Business; and
- (g) Business Plan shall also contain the requisite information for the preceding Control Period:

Provided that requisite information for the preceding Control Period shall include year-wise audited data on Scheme-wise capital investment, capacity enhancement plan, if any, proposed efficiency improvements and its cost benefit analysis, quality improvement measures undertaken, Employee Expenses, Repair & Maintenance Expenses and A&G Expenses along with detailed break up and any other information used for preparing projections of various performance parameters and other components during the Control Period.

### **Capital Investment Plan**

- 6.7 The Transmission Licensee shall file for the Commission's approval a Capital Investment Plan for the entire Control Period along with the Business Plan planned in accordance with provisions stated in the Grid Code. The Capital Investment Plan shall be prepared scheme-wise and each scheme shall include:

1. Purpose of investment (e.g. replacement of existing assets, meeting load growth, improvement in quality and reliability of supply, etc);
  2. Approval of Competent Authority;
  3. Detail Project Report& Load Flow Analysis;
  4. Capital Structure;
  5. Capitalization Schedule;
  6. Implementation schedule including timelines;
  7. Cost-benefit analysis and Rate reasonability;
  8. Improvement in operational efficiency envisaged in the Control Period;
  9. Ongoing schemes that will spill over into the year under review along with justification;
  10. New schemes that will commence during the Control Period but may be completed within or beyond the Control Period.
- 6.8 The Commission shall approve the system augmentation plan submitted by the Transmission Licensee, based on the load growth forecast during the Control Period. The same would be considered for computation of ARR, wherein the amount of electricity transmitted by the Transmission System shall be projected considering the estimated growth plan of its Beneficiaries and any plans of new transmission system, based on network expansion plans within the State:
- 6.9 The Capital Investment Plan shall be in conformity with the plans made by the CEA/CTU and with the Capital Investment Plans of the Distribution Licensees and the Generating Companies and shall be developed as per the procedure specified in the Grid Code.
- 6.10 During the Annual Performance Review, the Commission shall monitor the year-wise progress of the actual capital expenditure incurred by the Transmission Licensee vis-à-vis the approved capital expenditure. The Transmission Licensees shall submit the actual capital expenditure incurred along with the Annual Performance Review Filing.
- 6.11 The Commission shall review the actual capitalisation at the end of each year of the Control Period vis-à-vis the approved capitalisation schedule and shall true up the ARR based on the actual capitalisation for the year for which True up has been filed and also ARR components for the year for which APR and Tariff has been sought.
- 6.12 In case the capital expenditure is required for emergency work, which has not been approved in the Capital Investment Plan, the Transmission Licensee shall submit an application containing all relevant information along with reasons justifying emergency nature of the proposed work seeking approval by the Commission:

Provided that in case the capital expenditure is required for emergency work or unforeseen situation to mitigate threat to life and property and if prior intimation thereof to the Commission shall cause any irreparable loss or injury, the Transmission Licensee may undertake such capital expenditure and submit the details for post-facto approval of the Commission along with the next Tariff Petition with all the relevant details.

### **Controllable & Uncontrollable Parameters**

6.13 The 'Controllable Parameters' shall comprise but not be limited to the following parameters, which are within the control of, and are attributable to the applicant:

- a) Transmission System Availability
- b) Transmission losses
- c) Capital expenditure and additional capitalization
- d) Interest and finance charges
- e) Return on equity
- f) Depreciation
- g) Interest on working capital
- h) Operation and Maintenance expenses

6.14 The 'Uncontrollable Parameters' shall comprise but not be limited to the following factors, which are beyond control the applicant:

- a) Terminal Liabilities of Employees
- b) Foreign Exchange Rate Variations
- c) Taxes and duties
- d) Non-Tariff Income and Income from Other Business

6.15 The variation on account of uncontrollable parameters shall be treated as a pass through to be ultimately charged to the consumers, subject to prudence check and approval by the Commission.



- 6.16 The Commission shall also permit pass-through of variations in controllable items on account of Force Majeure events and due to Change in Law event(s) in the ARR, based on the submission of actual values by the Transmission Licensee and subsequent validation and approval by the Commission.
- 6.17 The variation from targets specified by the Commission on account of controllable parameters shall be subject to incentive and penalty framework, as detailed in the subsequent section.

### **Incentive and Penalty Framework**

- 6.18 The net savings due to refinancing of Loans by the Transmission Licensee shall be shared between the Users and Transmission Licensee, as the case may be, in the ratio of **50:50**.
- 6.19 The financial gains on account of Operations and Maintenance Expenses for Transmission Licensee shall be shared in the ratio of **50:50** between the Transmission Licensee and beneficiaries at the time of truing up.
- 6.20 The Transmission Licensee shall be entitled to incentive on achieving annual availability beyond the target availability, in accordance with the mechanism specified in these Regulations.
- 6.21 In case of **any loss** on account of underperformance with respect to the controllable parameters, the Transmission Licensee shall bear the entire losses and no proportion of the losses shall be passed on to the Users of the Transmission System.

## **A 7. Truing Up**

- 7.1 The Transmission Licensee shall submit along with the application for truing up, details of capital expenditure and additional capitalization, transformation and transmission losses, sources of financing, depreciation, operation and maintenance expenditure, actual loan portfolio with the interest paid, Return on equity, variation in working capital along with other components of ARR, for each year of the Control Period, on the basis of annual Audited Accounts as per the Timelines stipulated in the **SectionA 24**.
- 7.2 Where after the truing up, the Revenue recovered exceeds the ARR approved by the Commission under these Regulations, the Transmission Licensee shall refund to the Beneficiaries as the case may be, the surplus amount so recovered as specified in Clause 7.4 of these Regulations.

7.3 Where after the truing up, the Revenue recovered is less than the ARR approved by the Commission under these Regulations, the Transmission Licensee shall recover from the Beneficiaries as the case may be, the gap amount in accordance with Clause 7.4 of these Regulations.

7.4 The amount under-recovered or over-recovered, along with simple interest at the rate equal to Bank Rate as on April 01 of the respective year plus 350 basis points, shall be recovered or refunded by the Transmission Licensee in six equal monthly instalments starting within three months from the date of the Tariff Order issued by the Commission:

Provided that no carrying cost on the duration of delay shall be allowed on unrecovered gap if the Transmission Licensee fails to submit the Petition as per the timelines stipulated in **Section A 24**:

Provided further that any adverse financial impact for variation in uncontrollable items due to lapse on part of the Transmission Licensee or its suppliers/contractors shall not be allowed in truing up;

## **A 8. Annual Performance Review (APR)**

8.1 The Transmission Licensee shall file APR Petition for Annual Performance Review, along with details of capital expenditure, additional capitalization, sources of financing, operations and maintenance expenditure, actual loan portfolio with the interest paid along with other components of ARR incurred/projected to be incurred for the year under review, as per the timelines stipulated in the **Section A 24** of these Regulations.

8.2 The Transmission Licensee along with Annual Performance Review petition, shall also claim revised ARR for the following year based on the truing up and annual performance review of previous year(s).

8.3 The Scope of the Annual Performance Review shall be comparison of the approved expenses vis-à-vis revised estimates for the year/s and shall comprise the following:

- a) Comparison of Performance Targets vis-a-vis revised estimates based on the latest actual data available;
- b) Comparison of Approved Capital Expenditure and Capitalisation vis-à-vis revised estimates by the Transmission Licensee based on the latest actual data available;

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- c) Comparison of Other Expenses such as Interest on Loan, Interest on Working Capital, Return on Equity, Depreciation and O&M Expenses approved by the Commission vis-à-vis the revised estimates by the Transmission Licensee based on the latest actual data available;
  - d) Computation of the sharing of gains and losses on account of controllable factors.
  - e) Approved Revenue vis-à-vis revised estimates based on the latest actual data available
  - f) Any other Expenses/Revenue impacting ARR
- 8.4 The Transmission Licensee may, as a result of additional information not previously known or available to them at the time the forecast was developed, apply for a modification in the approved forecast of ARR as part of the Annual Performance Review.
- 8.5 The Commission if, as a result of additional information not previously known or available to it at the time the forecast was developed, is of the view that the same may result in significant over/under recovery, either suo-motu or on an application made by any interested or affected party, modify the approved forecast of ARR for the remainder of the Control Period, as part of the Annual Performance Review.
- 8.6 Based on the analysis of Annual Performance Review and truing up, the Commission, shall revise the ARR and Tariff for the ensuing year of the Control Period.

### **CHAPTER III:**

#### **DETERMINATION OF ARR**

##### **A 9. Details for True-up, APR and determination of ARR & Tariff**

9.1 The Transmission Licensee shall submit the details for True-up for the previous year, Annual Performance Review for the current year and Tariff Determination for the ensuing year as per the principles discussed in the subsequent Sections.

##### **A 10. Principles for determination of ARR**

10.1 The Transmission Licensee shall segregate its business into Transmission Business and SLDC activity not later than March 31, 2021. The Transmission Business revenue requirement would be used for determining non-discriminatory transmission charges.

10.2 Till such time there is a complete segregation of accounts between Transmission Business and SLDC activity, the ARR for each Business shall be supported by an allocation statement duly approved by the Board of the Transmission Licensee containing the apportionment of all costs, revenues, assets, liabilities, reserves and provisions between the Transmission Business, SLDC activity and any Other Business of the Transmission Licensee. The allocation statement shall also contain the methodology used for the apportionment between different Businesses.

##### **Calculation of ARR for Transmission Business during the Control Period**

10.3 The Aggregate Revenue Requirement for the Transmission Business of the Licensee, for each year of the Control Period, shall comprise the following items:

- a) Operation and Maintenance Expenses;
- b) Return on Equity;
- c) Interest on Working Capital;
- d) Interest on Loans;
- e) Interest on Security Deposit (if any);
- f) Depreciation;
- g) Income Tax;
- h) Lease Charges;
- i) Foreign Exchange Rate Variation;
- j) Less: Non-Tariff Income;
- k) Less: Income from Other Business.

**Capital Cost**

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

Provided that where the Commission has given 'in principle' approval to the estimates of scheme capital cost and financing plan, the same shall be the guiding factor for applying prudence check on the actual capital expenditure:

Provided further that in case of the existing schemes, the capital cost admitted by the Commission prior to April 01, 2021 and the additional capital expenditure projected to be incurred for respective year of the Control Period from FY 2021-22 to FY 2025-26 as may be admitted by the Commission, shall form the basis for determination of capital cost.

Provided also that any increase in Capital Cost due to time/cost over-run shall only be allowed in case the Transmission Licensee, establishes with the support of appropriate documents and facts to the satisfaction of the Commission that the delay was on account of uncontrollable factors and not attributable to the Transmission Licensee.

- 10.5 Capital cost to be allowed by the Commission for the purpose of determination of tariff will be based on the Capital Investment Plan prepared by the Transmission Licensee and approved by the Commission.
- 10.6 The amount of any contribution made by Beneficiary, distribution system users, Capital subsidy & Grants towards work for connection to the transmission system of the Transmission Licensee shall be deducted from the original cost of the scheme for the purpose of calculating the amount under debt and equity under these Regulations.
- 10.7 Further, in case such cost has been incurred towards replacement or upgradation of any existing assets, the original cost of the replaced asset shall be reduced and de-capitalized from the Capital Cost.
- 10.8 The capital cost of the Transmission Licensee shall include the following:
- (a) the expenditure incurred or projected to be incurred on original scope of work, including interest during construction and financing charges, any gain or loss on account of foreign exchange risk variation during construction, on the actual loan up to the date of commercial operation of the scheme, as admitted by the Commission, after prudence check shall form the basis for determination of Tariff;

(b) Interest during Construction (IDC) and financing charges, on the actual loans drawn;

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

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

Provided that if the delay is not attributable to the Transmission Licensee and is due to uncontrollable factors as specified in Clause 6.14 of these Regulations, IDC may be allowed after due prudence check:

Provided further that if the delay in achieving the COD is attributable either in entirety or in part to the Transmission Licensee or its contractor or supplier or agency, in such cases, IDC beyond SCOD may be disallowed after prudence check either in entirety or on pro-rata basis corresponding to the period of delay not condoned and the liquidated damages, if any, recovered from the contractor or supplier or agency shall be retained by the Transmission Licensee;

(c) Incidental Expenditure during Construction (IEDC) as computed in accordance with these Regulations;

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

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

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

Provided that if the delay is not attributable to the Transmission Licensee and is due to uncontrollable factors as specified in Clause 6.14, IEDC may be allowed after due prudence check:

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

- (iii) If the delay in achieving the COD is attributable either in entirety or in part to the Transmission Licensee or its contractor or supplier or agency, in such cases, IEDC beyond SCOD may be disallowed after prudence check either in entirety or on pro-rata basis corresponding to the period of delay not condoned and the liquidated damages, if any, recovered from the contractor or supplier or agency shall be retained by the Transmission Licensee;
- (d) capitalized initial spares subject to the ceiling norms as percentage of plant and machinery cost as under:
- |       |   |        |
|-------|---|--------|
| i.    | Transmission line-                            | 1.00%  |
| ii.   | Transmission substation(Green Field)-         | 4.00%  |
| iii.  | Transmission Substation (Brown Field) –       | 6.00%  |
| iv.   | Series compensation devices and HVDC Station- | 4.00%  |
| v.    | Gas Insulated Sub-station (Green Field) –     | 5.00%  |
| vi.   | Gas Insulated Sub-station (Brown Field) –     | 7.00%  |
| vii.  | Communication System –                        | 3.50%  |
| viii. | Static Synchronous Compensation –             | 6.00%: |

Provided that the Plant and Machinery cost shall be considered as the original project cost excluding IDC, IEDC, Land Cost and Cost of Civil Works. The Transmission Licensee for the purpose of estimating Plant and Machinery Cost, shall submit the break-up of head-wise IDC and IEDC in its tariff application;

- (e) Additional capital expenditure determined under Clause 10.13 of these Regulations:

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

- (f) In case any asset(s) have been replaced, the original value of such assets shall be de-capitalised and reduced while approving the capitalisation for that year.

10.9 The following shall be excluded from the capital cost of the existing and new projects:

- (a) The assets forming part of the project, but not in use;
- (b) De-capitalised assets after the date of commercial operation on account of replacement or removal on account of obsolescence.

**Controllable and Uncontrollable factors**

10.10 The following factors shall be considered as controllable and uncontrollable factors for deciding time over-run, cost escalation, IDC and IEDC of the project.

10.11 The “controllable factors” shall include but shall not be limited to the following:-

1. Efficiency in the implementation of the project not involving approved change in scope of such project, change in statutory levies or change in law or Force Majeure events; and
2. Delay in execution of the project on account of contractor or supplier or agency of the Transmission Licensee except due to uncontrollable factors.

10.12 The “uncontrollable factors” shall include but shall not be limited to the following:-

1. Force Majeure events;
2. Change in law; and
3. Delay in Land acquisition, obtaining statutory approval and ROW Issues except where the delay is attributable to the Transmission Licensee.



**Additional Capitalisation****10.13 Additional Capitalisation within the original scope and upto the Cut-off date:**

- a) The additional capital expenditure in respect of a new project or an existing project incurred or projected to be incurred, on the following counts within the original scope of work, after the date of commercial operation and up to the cut-off date may be admitted by the Commission, subject to prudence check:
- a) Undischarged liabilities recognized to be payable at a future date;
  - b) Works deferred for execution;
  - c) Procurement of initial capital spares within the original scope of work, in accordance with the provisions of Clause 10.6 (d) of these Regulations;
  - d) Liabilities to meet award of arbitration or for compliance of the order or directions of any statutory authority, or order or decree of any court of law;
  - e) On account of Change in Law or compliance of any existing law; and
  - f) Capital Expenses incurred due to force majeure conditions.

Provided in case of any replacement/up-gradation of the assets, the additional capitalization shall be worked out after adjusting the gross fixed assets and cumulative depreciation of the assets replaced on account of de-capitalization;

- b) The Transmission Licensee shall submit the details of works asset wise/work wise, included in the original scope of work along with estimates of expenditure, liabilities recognized to be payable at a future date and works deferred for execution along with the application for determination of tariff.

**10.14 Additional Capitalisation within original scope and after the cut-off date:**

- a) The additional capital expenditure incurred or projected to be incurred in respect of an existing project or a new project on the following counts within the original scope of work and after the cut-off date may be admitted by the Commission, subject to prudence check on the following counts:
- (i) Liabilities to meet award of arbitration or for compliance of the order or directions or order of any statutory authority, or order or decree of any court of law;
  - (ii) On account of Change in law;
  - (iii) Liability of works executed prior to the cut-off date;

- (iv) Force Majeure events;
  - (v) Liability for works admitted by the Commission after the cut-off date to the extent of discharge of such liabilities by actual payments;
- b) In case of replacement/up-gradation 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.

#### 10.15 **Additional Capitalisation beyond the original scope:**

- a) The capital expenditure, in respect of existing transmission system including communication system, incurred or projected to be incurred on the following counts beyond the original scope, may be admitted by the Commission, subject to prudence check:
- (i) 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;
  - (ii) Change in law or compliance of any existing law;
  - (iii) Force Majeure events;
  - (iv) Need for higher security and safety of the plant as advised or directed by appropriate Indian Government Instrumentality or statutory authorities responsible for national or internal security;
- b) In case of de-capitalisation of assets of a Transmission Licensee, the original cost of such asset as on the date of decapitalisation duly certified by its Statutory Auditor shall be deducted from the value of gross fixed asset and corresponding outstanding loan on such assets as well as equity shall be deducted from loan and the equity balances respectively. Such deduction shall

be carried out in the year such de-capitalisation takes place with corresponding adjustments in cumulative depreciation and cumulative repayment of loan shall be carried out, duly taking into consideration the year in which it was capitalised.

10.16 Impact of additional capitalisation within the approved scheme cost on tariff shall be considered by the Commission during the Annual Performance Review.

Provided that the Commission may consider any new scheme proposed on merits subject to prudence check as per this Tariff Regulation.

**10.17 Additional Capitalisation on account of Renovation and Modernisation:**

a) The Transmission Licensee, intending to undertake renovation and modernization of the transmission system or element thereof for the purpose of extension of life beyond the originally recognised useful life for the purpose of tariff, shall file a Petition before the Commission for approval of the proposal with a Detailed Project Report giving complete scope, justification, cost-benefit analysis, load flow analysis, rate reasonability, estimated life extension from a reference date, financial package, phasing of expenditure, schedule of completion, reference price level, estimated completion cost including foreign exchange component, if any, and any other information considered to be relevant by the Transmission Licensee:

Provided that the Transmission Licensee intending to undertake renovation and modernization shall be required to obtain the consent of the beneficiaries or the long-term customers, as the case may be, for such renovation and modernization and submit the same along with the Petition.

b) Where the Transmission Licensee, makes an application for approval of its proposal for renovation and modernisation, approval may be granted after due consideration of reasonableness of the proposed cost estimates, load flow analysis, financing plan, schedule of completion, interest during construction, use of efficient technology, cost-benefit analysis, expected duration of life extension, consent of the beneficiaries or long term customers, if obtained, and such other factors as may be considered relevant by the Commission.

c) After completion of the renovation and modernisation, the Transmission Licensee shall file a Petition for determination of tariff. Expenditure incurred or projected to be incurred and admitted by the Commission after prudence

check, and after deducting the accumulated depreciation already recovered from the admitted project cost, shall form the basis for determination of tariff.

### **Operation and Maintenance (O&M) expenses**

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

- (a) Salaries, wages, pension contribution and other employee costs;
- (b) Administrative and General costs;
- (c) Repairs and maintenance expenses;

10.19 The O&M expenses for the Base Year of the Control Period shall be approved by the Commission taking into account the audited accounts of FY 2015-16 to FY 2019-20, Business Plan filed by the Transmission Licensees, estimates of the actuals for the Base Year, prudence check and any other factor considered appropriate by the Commission.

10.20 O&M expenses permissible towards ARR for each year of the Control Period shall be determined using the formula detailed below:

$$\mathbf{O\&M_n = (R\&M_n + EMP_n + A\&G_n) + Terminal\ liabilities;}$$

Where,

R&M<sub>n</sub> – Repair and Maintenance Costs of the Transmission Licensee for the n<sup>th</sup> year;

A&G<sub>n</sub> – Administrative and General Costs of the Transmission Licensee for the n<sup>th</sup> year;

EMP<sub>n</sub> – Employee Costs of the Transmission Licensee for the n<sup>th</sup> year excluding terminal liabilities.

10.21 The above components shall be computed in the manner specified below:

$$\text{a) } R\&M_n = K * GFA * (INDX_n / INDX_{n-1})$$

Where

“K” is constant (expressed in %) governing the relationship between R&M costs and Gross Fixed Assets (GFA) and shall be calculated based on the % of R&M to GFA of the preceding years of the Base Year in the MYT Order after normalising any abnormal expenses;

‘GFA’ is opening value of the gross fixed asset of the n<sup>th</sup> year;

$$b) EMP_n + A\&G_n = [(EMP_{n-1}) * (1 + G_n) + (A\&G_{n-1})] * (INDX_n / INDX_{n-1})$$

Where,

$EMP_{n-1}$  – Employee Costs of the Transmission Licensee for the (n-1)<sup>th</sup> year excluding terminal liabilities;

$A\&G_{n-1}$  – Administrative and General Costs of the Transmission Licensee for the (n-1)<sup>th</sup> year excluding legal/litigation expenses;

$INDX_n$  – Inflation Factor to be used for indexing the employee cost and A&G cost. This will be a combination of the Consumer Price Index (CPI) and the Wholesale Price Index (WPI) for immediately preceding year before the base year;

$G_n$  – is a growth factor for the n<sup>th</sup> year and it can be greater than or lesser than zero based on the actual performance. Value of  $G_n$  shall be determined by the Commission in the MYT Order for meeting the additional manpower requirement based on the Transmission Licensee’s Filing, benchmarking and any other factor that the Commission feels appropriate;

$$c) INDX_n = 0.55 * CPI_n + 0.45 * WPI_n$$

Note 1: For the purpose of estimation, the same  $INDX_n / INDX_{n-1}$  value shall be used for all years of the Control Period. However, the Commission will consider the actual values in the  $INDX_n / INDX_{n-1}$  at the end of each year during the Annual Performance Review exercise and true up the employee cost and A&G expenses on account of this variation, for the Control Period;

Note 2: Any variation due to changes recommended by the Pay Commission or wage revision agreement, etc., will be considered separately by the Commission;

Note 3: Terminal Liabilities will be approved as per actual submitted by the Transmission Licensee or be established through actuarial studies.

10.22 The Petitioner, in addition to the above details shall also submit the detailed break-up of the Legal/Litigation Expenses for the previous Years (FY 2015-16 to FY 2019-20) along with the details and documentary evidence of incurring such expenses. The Commission shall approve the legal expenses as per the relevant provisions of the Jharkhand State Litigation Policy based on the necessary documentary evidence submitted for the Control Period and shall carry out due prudence check of legal expense sat the time of truing up.

### **Debt-Equity Ratio**

10.23 Existing Schemes - In case of capital expenditure schemes capitalized prior to April 01, 2021, the debt-equity ratio allowed by the Commission for determination of tariff for the period ending March 31, 2021 shall be considered.

10.24 New Scheme – For capital expenditure scheme capitalized on or after April 01,2021;

- a) A normative debt-equity ratio of 70:30 shall be considered for the purpose of determination of Tariff;
- b) In case the actual equity employed is in excess of 30%, the amount of equity for the purpose of tariff determination shall be limited to 30%, and the balance amount shall be considered as normative loan;
- c) In case the actual equity employed is less than 30%, the actual debt-equity ratio shall be considered;
- d) The premium, if any raised by the Transmission Licensee while issuing share capital and investment of internal accruals created out of free reserve, shall also be reckoned as paid up capital for the purpose of computing return on equity, provided such premium amount and internal accruals are actually utilized for meeting capital expenditure.

Note 1: Any expenditure admitted on account of committed liabilities within the original scope of work and the expenditure deferred on techno-economic grounds but falling within the original scope of work shall be serviced in the normative debt-equity ratio specified in these Regulations;

Note 2: Any expenditure on replacement of old assets or on renovation and modernization or life extension shall be considered on normative debt-equity ratio specified in these Regulations after writing off the entire book value of the original assets from the capital cost of the new asset;

Note 3: Any expenditure admitted by the Commission for determination of tariff on account of new works not in the original scope of work shall be serviced in the normative debt-equity ratio specified in these Regulations.

10.25 The Transmission Licensee shall submit the resolution of the Board of the Company or approval of the competent authority in other cases regarding infusion of funds from internal resources in support of the utilization made or proposed to be made to meet the capital expenditure of the Transmission Licensee.

### **Return on Equity**

10.26 The rate of return on equity shall be 14.00% (post-tax) for the Control Period.

10.27 Return on equity for each year shall be allowed on equity employed in assets in use considering the following:

- a) Equity employed in accordance with Clause 10.23 of these Regulations on assets (in use) capitalised as on the beginning of the year; and
- b) 50% of the equity projected to be employed in accordance with Clause 10.24 of these Regulations on assets (in use) commissioned during the year.

### **Interest on Loan Capital**

10.28 The loans arrived at in the manner indicated in Clauses 10.23 and 10.24 of these Regulations shall be considered as gross normative loan for calculation of interest on loan.

10.29 The normative loan outstanding as on April 01, 2021 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to March 31, 2021 from the gross normative loan.

10.30 The repayment for the year of the Control Period shall be deemed to be equal to the depreciation allowed for that year.

10.31 In case of de-capitalization of assets, the repayment shall be adjusted by taking into account cumulative repayment on a pro-rata basis and the adjustment should not exceed cumulative depreciation recovered up to the date of de-capitalization of such assets.

10.32 Notwithstanding any moratorium period availed by the Transmission Licensee, there payment of loan shall be considered from the first year of commercial operation of the scheme.

10.33 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 Transmission Licensee:

Provided that if there is no actual loan for a particular year but normative loan is still outstanding, then the rate of interest shall be considered on normative basis and shall be equal to the Bank Rate as on April 01 of the respective year of the Control Period plus 200 basis points.

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

10.35 The above interest computation shall exclude interest on loan amount, normative or otherwise, to the extent of capital cost funded by Consumer Contribution, Grants or Deposit Works carried out by Transmission Licensee.

10.36 The Transmission Licensee shall make every effort to re-finance the loan as long as it results in net savings on interest and in that event the costs associated with such re-financing shall be borne by the users and the net savings shall be shared between the users and the Transmission Licensee, in the ratio of 50:50.

### **Depreciation**

10.37 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 contribution from Beneficiary, Distribution system user, Capital Subsidy & Grants. Provision for replacement of such assets shall be made in the Capital Investment Plan.

10.38 Depreciation for each year shall be determined based on the methodology as specified in these Regulations along with the rates and other terms specified in these Regulations.

10.39 Depreciation shall be calculated annually, based on the straight-line method at the rates specified at Appendix-I. The base value for the purpose of depreciation shall be original cost of the asset:

Provided that the Transmission Licensee shall ensure that once the individual asset is depreciated to the extent of seventy (70) percent of the Book Value of the asset, remaining depreciable value as on March 31 of the closing shall be spread over the balance useful life of the asset.



- 10.40 Depreciation shall be charged from the first year of operation of the asset. In case, the operation of the asset is for a part of the year, depreciation shall be charged on a pro-rata basis.
- 10.41 The residual value of assets shall be considered as 10% and depreciation shall be allowed to a maximum of 90% of the original cost of the asset. Land is not a depreciable asset and its cost shall be excluded while computing 90% of the original cost of the asset:
- Provided that the salvage value for IT equipment and software shall be considered as NIL and 100% value of the assets shall be considered depreciable.
- 10.42 The Commission may, in the absence of the Fixed Assets Register, calculate Depreciation (%) arrived by dividing the Depreciation and the Average Gross Fixed Assets as per the latest available Audited Accounts of the Transmission Licensee. The Depreciation (%) so arrived shall be multiplied by the Average GFA approved by the Commission for the relevant Financial Year to arrive at the Depreciation for that Financial Year.
- 10.43 In case of de-capitalization of assets, the cumulative depreciation shall be adjusted by taking into account the depreciation recovered through tariff corresponding to the decapitalised asset during its useful services.

### **Interest on Working Capital**

- 10.44 Working Capital for the Transmission Licensee shall comprise:
- (a) Maintenance spares @ 15% of the O&M expenses specified in Clauses 10.19-10.21 of these Regulations;
  - (b) Receivables equivalent to 45 days of annual fixed cost;
  - (c) Operation and Maintenance expenses for one month;
  - (d) Less: Interest on amount, if any, held as security deposits from Transmission system users.
- 10.45 Rate of interest on working capital shall be equal to the Bank Rate as on September 30 of the financial year in which the MYT Petition is filed plus 350 basis points. At the time of true up, the interest rate shall be adjusted as per the actual rate prevailing on April 01 of the financial year for which true up exercise has been undertaken.

- 10.46 The interest on working capital shall be payable on normative basis notwithstanding that the Transmission Licensee has not taken working capital loan from any outside agency.

### **Income Tax**

- 10.47 Tax on income, if any, on the Licensed business of the Transmission Licensee shall be limited to tax on the allowed return on equity.
- 10.48 The income tax actually payable or paid limited to the tax on allowed return on equity shall be included in the ARR while truing up. The actual assessment of income tax should take into account benefits of tax holiday, and the credit for carry forward losses applicable as per the provisions of the Income Tax Act, 1961 and its amendments thereof shall be passed on to the consumers. Tax on the other income streams of the Transmission Licensee shall not be recovered from the Beneficiaries.

### **Non-Tariff Income**

- 10.49 The amount of Non-Tariff Income relating to the Transmission Business as approved by the Commission shall be deducted from the ARR in determining the Tariff for Transmission Business:

Provided that the Transmission Licensee shall submit full details of its forecast of Non-Tariff Income to the Commission in such form as may be stipulated by the Commission.

- 10.50 The Non-Tariff Income shall include:

- a) Income from rent of land or buildings;
- b) Income from sale of scrap;
- c) Income from investments;
- d) Interest accrued on advances to suppliers/contractors;
- e) Interest income on loans / advances to employees;
- f) Income from rental of staff quarters;
- g) Income by rental from contractors;
- h) Income by hire charges from contractors and others;
- i) Income by supervision charges, etc.;
- j) Supervision charges for capital works;
- k) Income from advertisements;
- l) Income from sale of tender documents;

- m) Profit from sale of assets (i.e. difference in Sale Value and Book Value)
- n) Any other Non-Tariff Income:

Provided that the interest earned from investments made out of Return on Equity corresponding to the regulated Business of the Transmission Business shall not be included in Non-Tariff Income.

Provided that the onus to substantiate, to the satisfaction of the Commission, that such investments have been out of Return on Equity shall be on the Licensee.

### **Income from other Business of the Transmission Licensee**

10.51 Where the Transmission Licensee is engaged in any Other Business utilising infrastructure and/or manpower of regulated business by any means in accordance with Section 41 of the Electricity Act, 2003, the income from such Business shall be calculated considering the following conditions:

- a) The Transmission Licensee shall not in any manner utilize the assets and facilities of the Licensed Business or otherwise directly or indirectly allow the activities to be undertaken in a manner that it results in the Licensed Business subsidising the Other Business in any manner;
- b) The Transmission Licensee shall not in any manner, directly or indirectly encumber the assets and facilities of the Licensed Business for the Other Business or for any activities other than the Licensed Business;
- c) The Transmission Licensee shall duly pay for all costs accounted for in the Licensed Business, which have been incurred for Other Business and in the event of such cost being incurred commonly for both the Licensed Business and Other Business, apportion such cost and ensure due payment of apportioned costs to the Licensed Business from the Other Business;
- d) The revenue derived from the Other Business shall be commensurate with prevailing market condition for such similar business activities;
- e) In addition to the sharing of costs under sub-clause c) above, the Transmission Licensee shall account for and ensure due payment to the Licensed Business a certain proportion of revenues from the other Business. As a general principle, the Transmission Licensee shall retain 50% of the revenues arising on account of Other Business and pass on the remaining 50% of the revenues to the consumers.

10.52 The revenue from Other Business shall be deducted from the ARR in calculating the revenue requirement of the TransmissionLicensee:

Provided that the TransmissionLicensee shall follow a reasonable basis for allocation of all joint and common costs between the Transmission and the Other Business and shall submit the Allocation Statement as approved by the Board of Directors to the Commission along with his application for determination of tariff:

Provided further that where the sum total of the direct and indirect costs of such Other Business exceeds the revenues from such Other Business, no amount shall be allowed to be added to the ARR of the TransmissionLicensee on account of such Other Business.

### **Quality of Supply**

10.53 The Commission shall monitor the following Quality of Supply parameters during the Control Period:

(a) Transmission System Availability;

(b) Transformer Failure across various capacities, represented by the number of transformer failures as a percentage of the total number of transformers in that specified capacity within the Transmission System, over a specified period of time.

10.54 The Transmission Licensee in its Business Plan filings shall submit and propose the trajectory for the achievement of quality targets. The Commission will specify the targets for each parameter. The Transmission Licensee shall submit its performance on each parameter in the form and manner specified by the Commission.

### **Norms of operation**

10.55 **Normative Annual Transmission System Availability factor (NATSAF):** for recovery of full transmission charges shall be as under:

**For recovery of Annual Fixed Charges:**

**AC system:** 98.0% for the Control Period from FY 2021-22 to FY 2025-26;

**HVDC bi-pole links:** 95.0% for the Control Period from FY 2021-22 to FY 2025-26;

**HVDC back-to-back stations:** 95.0% for the Control Period FY 2022-26:

Provided that the normative annual transmission availability factor of the HVDC bi-pole links shall be 85% for first twelve months from the date of commercial operation.

**For incentive consideration:**

**AC system:** 98.50% for the Control Period FY 2022-26;

**HVDC bi-pole links:** 95.0% for the Control Period FY 2022-26;

**HVDC back-to-back stations:** 95.0% for the Control Period FY 2022-26:

Provided that no incentive shall be payable for availability beyond 99.75%:

Provided further that for AC system, two trippings per year shall be allowed. After two trippings in a year, additional 12 hours outage shall be considered in addition to the actual outage:

Provided also that in case of outage of a transmission element affecting evacuation of power from a generating station, outage hours shall be multiplied by a factor of 2.

**10.56 Auxiliary Energy Consumption in the sub-station**

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

**Annual Transmission Charge**

10.57 The Transmission Licensee shall be entitled to recover its Annual Transmission Charges (ATC) from Beneficiaries as specified in Clauses 10.58 to 10.60 of these Regulations.

**Recovery of Fixed Charges**

10.58 The fixed cost of the Transmission System shall be computed on annual basis, in accordance with norms contained in these Regulations, aggregated as appropriate, and recovered on monthly basis as transmission charge from the users.

10.59 The transmission charge (inclusive of incentive) payable for a calendar month for a Transmission System or part thereof shall be

a. For TAFM < 98%

$$\text{AFC} \times (\text{NDM/NDY}) \times (\text{TAFM}/98\%)$$

b. For TAFM:  $98\% < \text{TAFM} < 98.5\%$

$$\text{AFC} \times (\text{NDM}/\text{NDY}) \times (1)$$

c. For TAFM:  $98.5\% < \text{TAFM} < 99.75\%$

$$\text{AFC} \times (\text{NDM}/\text{NDY}) \times (\text{TAFM}/98.5\%)$$

d. For TAFM  $> 99.75\%$

$$\text{AFC} \times (\text{NDM}/\text{NDY}) \times (99.75\%/98.5\%)$$

Where,

AFC = Annual Fixed Cost specified for the year, in Rupees;

NDM = Number of days in the month;

NDY = Number of days in the year; and

TAFM = Transmission system availability factor for the month, in percent, computed in accordance with **Appendix –III** to these Regulations.

10.60 The Transmission Licensee shall raise the bill for the transmission charge (inclusive of incentive) for a month based on its estimate of TAFM. Adjustments, if any, shall be made on the basis of the TAFM to be certified by the SLDC within 30 days from the last day of the relevant month.

### **Allocation of Annual Transmission Charge**

10.61 The Annual Transmission Charge (ATC) shall be allocated as specified in Jharkhand State Electricity Regulatory Commission (Framework for sharing of charges for Intra-State Transmission System) Regulations, 2019 as amended or replaced from time to time.

### **Late Payment Surcharge**

10.62 In case the payment of any bill for charges payable under these Regulations is delayed by a Consumer beyond a period of 60 days from the date of billing, a late payment surcharge at the Bank Rate as on April 01 of the respective year plus 500 basis points shall be applicable for the first month and for every month or part thereof delay the rate shall increase by 50 basis points subject to a maximum of Bank Rate as on April 01 of the respective year plus 700 basis point shall be levied by the Transmission Licensee.

Provided that the rate of Late Payment Surcharge shall not exceed the rate specified in the TSA entered between the Transmission Licensee and its Beneficiaries.

### **Rebate**

10.63 For payment of bills of the Transmission Licensee within 5 days of presentation of bills by the Transmission Licensee, a rebate of 2.00% shall be allowed.

Provided that if percentage of Rebate has been agreed between the Transmission Licensee and Beneficiary/ies in TSA, the same shall be applicable.

**Note:** In case of computation of 5 days, the number of days shall be counted consecutively without considering any holiday. However, in case the last day or 5<sup>th</sup> day is official holiday, the 5<sup>th</sup> day for the purpose of Rebate shall be construed as the immediate succeeding working day (as per the official state Government's calendar, where the office of the Authorized signatory or Representative of the Beneficiary, for the purpose of receipt or acknowledgement of Bill is situated).

### **Deviation from norms**

10.64 The transmission charges by the Transmission Licensee may also be determined in deviation of the norms specified in these Regulations subject to the conditions that-

- (a) The levelized 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 levelized 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 Transmission Licensee before filing tariff Petition / ARR for determination of Tariff.

### **Lease charges**

10.65 Lease charges for assets taken on lease by the Transmission Licensee shall be considered as per lease agreement, provided they are considered reasonable by the Commission.

**Foreign Exchange Rate Variation**

- 10.66 The Transmission Licensee may hedge foreign exchange exposure in respect of the interest on foreign currency loan and repayment of foreign loan acquired for the Transmission System, in part or full at the discretion of the Transmission Licensee.
- 10.67 Every Transmission Licensee shall recover the cost of hedging of Foreign Exchange Rate Variation corresponding to the normative foreign debt, in the relevant Year on Year-to-Year basis as expense in the period in which it arises and extra rupee liability corresponding to such foreign exchange rate variation shall not be allowed against the hedged foreign debt.
- 10.68 To the extent the Transmission Licensee is not able to hedge the foreign exchange exposure, the extra rupee liability towards interest payment and loan repayment corresponding to the normative foreign currency loan in the relevant Year shall be permissible provided it is not attributable to the Transmission Licensee or its suppliers or contractors.
- 10.69 The Transmission Licensee shall recover the cost of hedging and Foreign Exchange Rate Variation on Year-to-Year basis as income or expense in the period in which it arises.

**Application fee and the publication expenses**

- 10.70 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 Transmission Licensee directly from the Beneficiaries.



## **CHAPTER IV:**

### **PROCEDURE FOR FILING OF ARR AND TARIFF**

#### **A 11. Multi Year Tariff filing procedure**

- 11.1 The Multi Year Tariff filing shall be submitted as per the directions by the Commission in these Regulations and in the manner as per the provisions of JSERC (Conduct of Business) Regulations, 2016, as amended or replaced from time to time.
- 11.2 The Transmission Licensee shall also submit the MYT filing in electronic format to the Commission.
- 11.3 The Transmission Licensee shall file the MYT Petition for the Control Period in accordance with the MYT framework and the timelines specified in **Section A 24** of these Regulations failing which:
- (a) The Commission may issue the MYT order suo-motu;
  - (b) The Commission may disallow the return on equity to the Transmission Licensee.

#### **Before the Start of the Control Period**

- 11.4 The Transmission Licensee shall file for the Commission's approval as per the timelines specified in **Section A 24** of these Regulations, a Business Plan and MYT Petition in accordance with Clause 6.5 to 6.12 of these Regulations.

#### **Annual Filings for the Control Period**

- 11.5 The Transmission Licensee 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 vide its Annual Filings as per the timelines specified in **Section A 24** of these Regulations.
- 11.6 The Transmission Licensee shall submit to the Commission annual statements of its performance and accounts including latest report of audited accounts.

#### **A 12. Disposal of Application**

- 12.1 The Commission shall process the filings made by the Transmission Licensee in accordance with these Regulations and JSERC (Conduct of Business) Regulations, 2016 and its amendments thereof.

- 12.2 Based on the Transmission Licensee'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, true up cost components for the year preceding the base year, estimation of parameters for the Base Year and determination of ARR & Transmission Tariff for each year of the Control Period. The Order shall also contain the approved Business Plan and targets for controllable items for the Control Period.

### **A 13. Periodic Reviews**

#### **Review during Control Period**

- 13.1 To ensure smooth implementation of the Multi Year Tariff (MYT) framework, the Commission may undertake periodic reviews of Transmission Licensee's performance during the Control Period, to address any practical issues, concerns or unexpected outcomes that may arise.
- 13.2 The Transmission Licensee shall submit information as part of annual performance review on actual performance as per the timelines specified in **Section A 24** of these Regulations 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 accounting statements and the tariff worked out in accordance with these Regulations.
- 13.3 The Transmission Licensee shall also submit the True up of ARR and corresponding tariff adjustments as per the timelines specified in the **Section A 24** of these Regulations. The revised estimates shall be required to true-up the costs on account of uncontrollable variations, profit sharing mechanism for exceeding the targets, and implementation of performance framework for quality of Transmission targets.
- 13.4 The Commission may also specify any modifications to the forecast of the Transmission Licensee for the remainder of the Control Period, with detailed reasons for the same.

**Review at the end of the Control Period**

- 13.5 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 objective of the Act, the Commission may revise the principles for the next Control Period.
- 13.6 The end of the first Control Period shall be the beginning of the second Control Period and the Transmission Licensee shall follow the same procedure unless required otherwise by the Commission.
- 13.7 The Commission shall analyse the performance of the Transmission Licensee with respect to the targets set out at the beginning of the ensuing Control Period and based on the actual performance, expected efficiency improvements and other factors prevalent, determine the initial values for the next Control Period.

## **CHAPTER V:**

### **MISCELLANEOUS PROVISIONS**

#### **A 14. Issue of Orders and Practice Directions**

- 14.1 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.
- 14.2 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.

#### **A 15. Non-Compliance of Directions**

- 15.1 State Load Despatch Centre may give such directions and exercise such supervision and control as may be required for ensuring integrated operation of the power system for achieving maximum economy and efficiency and every Licensee, Generating Company, sub-station and any other person connected with the operation of the power system shall comply with such directions.
- 15.2 If any Transmission Licensee fails to comply with the directions issued, it shall be liable to a penalty as per Section 146 of the Electricity Act 2003.

#### **A 16. Dispute Resolution**

- 16.1 In case of dispute, any of the parties may make an application in accordance with the JSERC (Conduct of Business) Regulations, 2016, as amended from time to time, including statutory re-enactment thereof, for settlement of the dispute.

#### **A 17. Power to Remove Difficulties**

- 17.1 In case of any difficulty in giving effect to any of the provisions of this Regulation, the Commission may by general or special order, issue appropriate directions to Transmission Licensee(s), to take suitable action, not being inconsistent with the provisions of the Act, which appear to the Commission to be necessary or expedient for the purpose of removing the difficulty.

17.2 The Transmission Licensees may make an application to the Commission and seek suitable orders to remove any difficulties that may arise in implementation of these Regulations.

### **A 18. Power of Relaxation**

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

### **A 19. Interpretation**

19.1 If a questionarises relating to the interpretation of any provision of these Regulations, the decision of the Commission shall be final.

### **A 20. Saving of Inherent Powers of The Commission**

20.1 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.

### **A 21. Enquiry and Investigation**

21.1 All enquiries, investigations and adjudications under these Regulations shall be done by the Commission through the proceedings in accordance with the provisions of the JSERC (Conduct of Business) Regulations, 2016, as amended from time to time.

### **A 22. Power to Amend**

22.1 The Commission may from time to time add, vary, alter, suspend, modify, amend or repeal any provisions of these Regulations.

### **A 23. Savings**

23.1 Nothing in these Regulations shall be deemed to limit or otherwise affect the inherent power of the Commission to make such orders as may be necessary to meet the ends of justice or to prevent abuses of the process of the Commission.

- 23.2 Nothing in these Regulations shall bar the Commission from adopting in conformity with the provisions of the Act a procedure, which is at variance with any of the provisions of these Regulations, if the Commission, in view of the special circumstances of a matter or class of matters and for reasons to be recorded in writing, deems it necessary or expedient for dealing with such a matter or class of matters.
- 23.3 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 or Regulations have been framed, and the Commission may deal with such matters, powers and functions in a manner it thinks fit.

**(By order of the Commission)**

**(Rajendra Prasad Nayak)**

**Secretary**

**Jharkhand State Electricity Regulatory Commission**

**A 24. Summary of Timelines**

<b>S. No.</b>	<b>Description</b>	<b>Filing of the Document by</b>	<b>Furnishing additional information as sought by the Commission</b>	<b>Disposal of the Application</b>
<b>1.</b>	Business Plan for the Control Period and MYT Petition for the Control Period for FY 2020-21 to FY 2025-26 with Transmission Tariff for each year of the Control Period	November 30, 2020	Within 30 days of filing of document	Within 120days of acceptance of the filing
<b>2.</b>	True Up for the Previous Year, Annual Performance Review for the current year and ARR &Transmission Tariff for next year of the Control Period	November 30 of the financial year for which APR has been sought for	Within 30 days of filing of document	Within 120 days of acceptance of the filing

**Appendix-I: Depreciation Schedule**

<b>Asset Description</b>	<b>Straight Line Depreciation (%)</b>
<b>Land owned under full ownership</b>	0.00
<b>Land under lease</b>	
For investment in land	2.67
For cost of clearing site	2.67
<b>Assets Purchased New:</b>	
<b><i>Building &amp; Civil Engineering works</i></b>	
Offices & showrooms	2.67
Temporary erection such as wooden structures	100.00
Roads other than kutcha roads	2.67
Others	2.67
<b><i>Transformers, kiosk sub-station equipment &amp; other fixed apparatus (including plant foundations)</i></b>	
Transformers including foundations having a rating of 100 kVA and over	4.22
Others	4.22
<b><i>Switchgear, including cable connections</i></b>	4.22
<b><i>Lightning arrestors</i></b>	
Station type	4.22
Pole type	4.22
Synchronous condenser	4.22
<b><i>Batteries</i></b>	12.77
<b><i>Underground cable including joint boxes and disconnected boxes</i></b>	4.22
<b><i>Cable &amp; duct system</i></b>	4.22
<b><i>Overhead lines including cable support</i></b>	
Lines on fabricated steel operating at terminal voltages higher than 66 kV	4.22
Lines on steel supports operating at terminal voltages higher than 13.2 kV but not exceeding 66 kV	4.22
Lines on steel or reinforced concrete supports	4.22
Lines on treated wood supports	4.22
<b><i>Meters</i></b>	12.77
<b><i>Self-propelled vehicles</i></b>	12.77
<b><i>Air conditioning plants</i></b>	
Static	4.22
Portable	7.60
<b><i>Furniture &amp; Furnishing</i></b>	
Office furniture and furnishings	6.33
Office equipment	6.33
Internal wirings including fittings and apparatus	6.33
Street Light fittings	6.33
<b><i>Apparatus let on hire</i></b>	



<b>Asset Description</b>	<b>Straight Line Depreciation (%)</b>
Other than motors	7.60
Motors	4.22
<b><i>Communication equipment</i></b>	
Radio and higher frequency carrier systems	6.33
Telephone lines and telephones	6.33
<b><i>IT Equipment and Software</i></b>	15.00
<b><i>Any other assets not covered above</i></b>	4.22(or as approved by the Commission considering asset life and residual value)

## Appendix-II: Procedure for Calculation of Transmission System Availability Factor for a Month

1. Transmission System Availability factor for n<sup>th</sup> calendar month (TAFM) shall be calculated by the respective Transmission Licensee, got verified and certified by the SLDC and separately for each AC and HVDC transmission system and grouped according to sharing of transmission charges. For the purpose of calculation of TAFM:

- (i) AC transmission lines: Each circuit of AC transmission line shall be considered as one element:
- (ii) Inter-Connecting Transformers (ICTs)/Transformer: Each ICT bank/Transformer (three single phase transformers together) shall form one element
- (iii) Static VAR Compensator (SVC): SVC along with SVC transformer shall form one element.
- (iv) Bus Reactors/Switchable line reactors: Each Bus Reactors/Switchable line reactors shall be considered as one element.
- (v) HVDC Bi-pole links: Each pole of HVDC link along with associated equipment at both ends shall be considered as one element.
- (vi) HVDC back-to-back station: Each block of HVDC back-to-back station shall be considered as one element. If associated AC line (necessary for transfer of interregional power through HVDC back-to-back station) is not available, the HVDC back-to-back station block shall also be considered as unavailable.
- (vii) Static Synchronous Compensation (“STATCOM”): Each STATCOM shall be considered as separate element

2. The Availability of AC and HVDC portion of Transmission system shall be calculated as under:

% TAFM for AC System

$$[(o \times AV_o) + (p \times AV_p) + (q \times AV_q) + (r \times AV_r) + (u \times AV_u)] / (o + p + q + r + u) \times 100$$

Where

o = Total number of AC lines.

AV<sub>o</sub> = Availability of o number of AC lines.

- p = Total number of bus reactors/switchable line reactors
- AV<sub>p</sub> = Availability of p number of bus reactors/switchable line reactors
- q = Total number of ICTs/Transformer.
- AV<sub>q</sub> = Availability of q number of ICTs/Transformer.
- r = Total number of SVCs.
- AV<sub>r</sub> = Availability of r number of SVCs.
- u = Total Number of STATCOM
- AV<sub>u</sub> = Availability of u number of STATCOMs

%TAFM for HVDC System:

$$= \frac{\sum_{x=1}^s C_{xpb}(\text{act}) \times AV_{xpb} + \sum_{y=1}^t C_{ybtb}(\text{act}) \times AV_{ybtb}}{\sum_{x=1}^s C_{xpb} + \sum_{y=1}^t C_{ybtb}} \times 100$$

Where

- C<sub>xpb</sub>(act) = Total actual operated capacity of x<sup>th</sup> HVDC pole
- C<sub>xpb</sub> = Total rated capacity of x<sup>th</sup> HVDC pole
- AV<sub>xpb</sub> = Availability of X<sup>th</sup> HVDC pole
- C<sub>ybtb</sub>(act) = Total actual operated capacity of y<sup>th</sup> HVDC back-to-back station block
- C<sub>ybtb</sub> = Total rated capacity of y<sup>th</sup> HVDC back-to-back station block
- AV<sub>ybtb</sub> = Availability of y<sup>th</sup> HVDC back-to-back station block
- s = Total no of HVDC poles
- t = Total no of HVDC Back to Back blocks

3. The availability for each category of transmission elements shall be calculated based on the weighted factor, total hours under consideration and non-available hours for each element of that category. The calculation of Availability of each category of the transmission elements are as per **Appendix III**. The weightage factor for each category of transmission elements shall be as under:
  - a. For each circuit of AC line – Number of sub-conductors in the line multiplied by ckt-km;
  - b. For each HVDC pole – The rated MW capacity x ckt-km
  - c. For each ICT bank/Transformer – The rated MVA capacity
  - d. For SVC- The rated MVAR capacity (inductive and capacitive)
  - e. For Bus Reactor/switchable line reactors – The rated MVAR capacity.
  - f. For HVDC back-to-back station connecting two Regional grids- Rated MW capacity of each block.
  
4. The transmission elements under outage due to following reasons shall be deemed to be available:
  - (a) Shut down availed for maintenance or construction of elements of another transmission scheme. If the other transmission scheme belongs to the Transmission Licensee, the SLDC may restrict the deemed availability period to that considered reasonable by him for the work involved.
  - (b) Switching off of a transmission line to restrict over voltage and manual tripping of switched reactors as per the directions of SLDC.
  
5. Outage time of transmission elements for the following contingencies shall be excluded from the total time of the element under period of consideration.
  - (a) Outage of elements due to Force Majeure events such as war, strike, riot, floods, earthquake, etc., beyond the control of the Transmission Licensee. However, onus of satisfying the SLDC that element outage was due to aforesaid events and not due to design failure shall rest with the Transmission Licensee. A reasonable restoration time for the element shall be considered by SLDC and any additional time taken by the Transmission Licensee for restoration of the element beyond the reasonable time shall be treated as

outage time attributable to the Transmission Licensee. SLDC may consult the Transmission Licensee or any expert for estimation of reasonable restoration time. Circuits restored through ERS (Emergency Restoration System) shall be considered as available.

- (b) Outage caused by grid incident/disturbance not attributable to the Transmission Licensee, e.g. faults in substation or bays owned by other agency causing outage of the Transmission Licensee's elements, and tripping of lines, ICTs, etc. due to grid disturbance. However, if the element is not restored on receipt of direction from SLDC while normalizing the system following grid incident/disturbance within reasonable time, the element will be considered not available for the period of outage after issuance of SLDC's direction for restoration.

6. Time frame for certification of transmission system availability: Following schedule shall be followed for certification of availability by SLDC:

- Submission of outage data by Transmission Licensees to SLDC- By 5th of the following month;
- Review of the outage data by SLDC – By 20th of the month;
- Issue of availability certificate by SLDC- By 3rd of the next Month.

### Appendix III: Formulae for calculation of availability of each category of transmission elements

#### For AC transmission system

$$AV_o(\text{Availability of } o \text{ no. of AC lines}) = \frac{\sum_{i=1}^o W_i(T_i - TN_{Ai})/T_i}{\sum_{i=1}^o W_i}$$

$$AV_q(\text{Availability of } q \text{ no. of ICTs) / Transformer} = \frac{\sum_{k=1}^q W_k(T_k - TN_{Ak})/T_k}{\sum_{k=1}^q W_k}$$

$$AV_r(\text{Availability of } r \text{ no. of SVCs}) = \frac{\sum_{l=1}^r W_l(T_l - TN_{Al})/T_l}{\sum_{l=1}^r W_l}$$

$$AV_p(\text{Availability of } p \text{ no. of Switched Bus reactors}) = \frac{\sum_{m=1}^p W_m(T_m - TN_{Am})/T_m}{\sum_{m=1}^p W_m}$$

$$AV_u(\text{Availability of } u \text{ no. of STATCOMs}) = \frac{\sum_{n=1}^u W_n(T_n - TN_{An})/T_n}{\sum_{n=1}^u W_n}$$

$$AV_{x_{bp}}(\text{Availability of an individual HVDC pole}) = \frac{(T_x - TN_{x_{bp}})}{T_x}$$

$$AV_{y_{btb}}(\text{Availability of an individual HVDC Back-to-back Blocks}) = \frac{(T_y - TN_{Ay})}{T_y}$$

#### For HVDC transmission system

For the new HVDC commissioned but not completed twelve months;

For first 12 months:  $[(AV_{x_{bp}} \text{ or } AV_{y_{btb}}) \times 95\% / 85\%]$ , subject to ceiling of 95%.

Where,

$o$  = Total number of AC lines;

$AV_o$  = Availability of  $o$  number of AC lines;

$p$  = Total number of bus reactors/switchable line reactors;

$AV_p$  = Availability of  $p$  number of bus reactors/switchable line reactors;

$q$  = Total number of ICTs/Transformer;

$AV_q$  = Availability of  $q$  number of ICTs/Transformer;

$r$  = Total number of SVCs;

$AV_r$  = Availability of  $r$  number of SVCs;

- U = Total number of STATCOM;
- AVu = Availability of u number of STATCOMs;
- Wi = Weightage factor for i<sup>th</sup> transmission line;
- Wk = Weightage factor for k<sup>th</sup> ICT/Transformer;
- Wl = Weightage factors for inductive & capacitive operation of lth SVC;
- Wm = Weightage factor for m<sup>th</sup> bus reactor;
- Wn = Weightage factor for nth STATCOM.

T<sub>i</sub>, T<sub>k</sub>, T<sub>l</sub>, T<sub>m</sub>, T<sub>n</sub>, T<sub>x</sub>, T<sub>y</sub> The total hours of i<sup>th</sup> AC line, k<sup>th</sup> ICT/Transformer, l<sup>th</sup> SVC, m<sup>th</sup> Switched Bus Reactor, n<sup>th</sup> STATCOM, x<sup>th</sup> HVDC pole, y<sup>th</sup> HVDC back-to-back blocks during the period under consideration (excluding time period for outages not attributable to Transmission Licensee for reasons given in Para 5 of the procedure)

T<sub>NAi</sub>, T<sub>NAk</sub>, T<sub>NAl</sub>, T<sub>NAm</sub>, T<sub>NA n</sub>, T<sub>NAx</sub>, T<sub>NAy</sub> The non-availability hours (excluding the time period for outages not attributable to Transmission Licensee taken as deemed availability as per Para 5 of the procedure) for i<sup>th</sup> AC line, k<sup>th</sup> ICT/Transformer, l<sup>th</sup> SVC, m<sup>th</sup> Switched Bus Reactor, n<sup>th</sup> STATCOM, x<sup>th</sup> HVDC pole and y<sup>th</sup> HVDC back-to-back block.