Discussion Paper on Draft JERC (Multi Year Tariff) Regulations, 2021

Joint Electricity Regulatory Commission

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List of Acronyms

Acronym	Full Form
AAD	Advance against Depreciation
ABT	Availability Based Tariff
EA, 2003	Electricity Act, 2003
APR	Annual Performance Review
ARR	Aggregate Revenue Requirement
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
COD	Commercial Operation Date
CPI	Consumer Price Index
DISCOM	Distribution Companies
GFA	Gross Fixed Asset
IWC	Interest on Working Capital
JERC	Joint Electricity Regulatory Commission
TP	Tariff Policy
OA	Open Access
O&M	Operation and Maintenance
PBR	Performance Based Regulation
ROCE	Return on Capital Employed
NEP	National Electricity Policy
RoE	Return on Equity
R&M	Repair and Maintenance
SEB	State Electricity Board
SERC	State Electricity Regulatory Commission
SLDC	State Load Dispatch Centre
STU	State Transmission Utility
UI	Unscheduled Interchange
WPI	Wholesale Price Index

1 Introduction

1.1 Background

JERC is a statutory body responsible for regulation of the electricitysector in the State of Goa and the Union Territories of Andaman & Nicobar Islands, Lakshadweep, Chandigarh, Daman & Diu, Dadra & Nagar Haveli and Puducherry, consisting of generation, transmission, distribution, trading and use of electricity. Its primary objective includes taking measures conducive to the development of the electricity industry, promoting competition therein, protecting the interest of consumers and ensuring supply of electricity to all areas. The powers and the functions of the Commission are as prescribed in the Electricity Act, 2003.

1.1.1 Electricity Act 2003

The Electricity Act, 2003 (EA 2003), requires the appropriate Commission to be guided by Multi-Year Tariff (MYT) principles while specifying the Terms and Conditions for determination of tariff. Section 61 of the EA, 2003 stipulates:

> *"The Appropriate Commission shall, subject to the provisions of this Act, specify the terms and conditions for the determination of tariff, and in doing so, shall be guided by the following, namely:-*
>
> *(a**) The principles and methodologies specified by the Central Commission for determination of the tariff applicable to generating companies and transmission licensees**;*
>
> *(b) The generation, transmission, distribution and supply of electricity are conducted on commercial principles;*
>
> *(c) The factors which would encourage competition, efficiency, economical use of the resources, good performance and optimum investments;*
>
> *(d) Safeguarding of consumers' interest and at the same time, recovery of the cost of electricity in a reasonable manner;*
>
> *(e) The principles rewarding efficiency in performance;*
>
> *(f) **Multi year tariff principles**;*
>
> *(g) That the tariff progressively reflects the cost of supply of electricity and also reduces cross-subsidies in the manner specified by the Appropriate Commission;*
>
> *(h) The promotion of co-generation and generation of electricity from renewable sources of energy;*
>
> *(i) **The National Electricity Policy and tariff policy" (emphasis added)***

1.1.2 Tariff Policy and National Electricity Policy

The Ministry of Power (MoP) has notified the National Electricity Policy and the Tariff Policy which provide guidelines for determination of tariff and Annual Revenue Requirement (ARR). The National Electricity Policy provides certain guidelines as regards performance norms, the need of tariff rationalization and also stipulates the need to provide incentives and disincentives, as reproduced below:

> *"5.8.5 All efforts will have to be made to improve the efficiency of operations in all the segments of the industry. Suitable performance norms of operations together with incentives and disincentives will need to be evolved along with appropriate arrangement for sharing the gains of efficient operations with the consumers. This will ensure protection of consumers' interests on the one hand and provide motivation for improving the efficiency of operations on the other*
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> *...*
>
> *5.8.7 It will be necessary that all the generating companies, transmission licensees and distribution licensees receive due payments for effective discharge of their operational obligations as also for enabling them to make fresh investments needed for the expansion programmes. Financial viability of operations and businesses would, therefore, be essential for growth and development of the sector. Concerted efforts would be required for restoring the financial health of the sector. For this purpose, tariff rationalization would need to be ensured by the SERCs. This would also include differential pricing for base, intermediate and peak power."*

The relevant extractions of the guidelines specified under the National Tariff Policy, 2016, are reproduced below:

> *"5.11 Tariff policy lays down the following framework for performance based cost of service regulation in respect of aspects common to generation, transmission as well as distribution...*
>
> *...*
>
> *h) Multi Year Tariff 1) Section 61 of the Act states that the Appropriate Commission for determining the terms and conditions for the determination of tariff shall be guided, inter-alia, by Multi-Year Tariff (MYT) principles. The framework should feature a five-year control period. The initial control period may, however, be of 3 year duration for transmission and distribution if deemed necessary by the Regulatory Commission on account of data uncertainties and other practical considerations..."*

1.1.3 CERC Tariff Regulations

CERC has notified the 2019 Tariff Regulations for the Control Period from April 1, 2019 to March 31, 2024. The Commission in accordance with EA 2003 has been guided by the principles and methodologies specified by the CERC for determination of the tariff applicable to Generating Companies and Transmission Licensees. Accordingly, the Commission is guided by the principles and methodologies specified in the prevalent CERC Tariff Regulations wherever it has deemed it necessary and relevant.

1.1.4 Forum of Regulators

The Commission is also guided by some of the principles and methodologies specified by the Forum of Regulators in Model Regulations for Multi Year Distribution Tariff, 2011 based on Section 166 of the Act, which stipulates the following:

> *"(1) The Central Government shall constitute a coordination forum consisting of the Chairperson of the Central Commission and Members thereof, the Chairperson of the Authority, representatives of generating companies and transmission licensees engaged in inter-State transmission of electricity for smooth and coordinated development of the power system in the country.*
>
> *(2) The Central Government shall also constitute a forum of regulators consisting of the Chairperson of the Central Commission and Chairpersons of the State Commissions."*

Considering the guidance as provided under the Electricity Act, National Electricity Policy, National Tariff policy and the recommendations of the Forum of Regulators (FOR), the Commission has prepared the draft MYT Regulations 2021. The Commission has also analyzed the challenges faced in approval of tariff by themselves and also other ERCs (Electricity Regulatory Commissions) and data gaps that were sought frequently during the tariff proceedings. These were considered while preparing the draft JERC MYT Regulations, 2021. Accordingly, the Commission has proposed modifications to certain clauses vis-à-vis the clauses notified in the JERC MYT Regulations, 2018 in order to simplify/clarify/amend certain provisions as considered reasonable. The rationale for the changes proposed in the draft Regulations have been elaborated in the ensuing chapters. In cases where no change is proposed, the same has not been explicitly mentioned. This Discussion Paper has been prepared in the sequential order of the changes proposed in various provisions in the draft JERC MYT Regulations, 2021.

2 MYT Overview - General Principles

This paper discusses the contours of the Multi-Year Tariff (MYT) principles for formulation of Regulations for determination of tariff for the next Control Period beginning April 1, 2021. The broad objectives of any MYT framework are to:

- Provide regulatory certainty to the utilities, investors and consumers by promoting transparency, consistency and predictability of regulatory approach, thereby minimizing the perception of regulatory risk.
- Address the risk sharing mechanism between utilities and consumers based on controllable and uncontrollable factors.
- Ensure financial viability of the sector to attract investment, ensure growth and safeguard the interest of the consumers.
- Review operational norms for Transmission, Distribution Wires and Supply businesses, related issues and recommend suitable measures to address such issues.
- Promote operational efficiency.

2.1 Contours of Multi-Year Tariff

2.1.1 Duration of Control Period

In this context, the Tariff Policy, 2016 stipulates the following:

> *"Section 61 of the Act states that the Appropriate Commission for determining the terms and conditions for the determination of tariff shall be guided, inter-alia, by Multi-Year Tariff (MYT) principles. The framework should feature a five-year control period. The initial control period may, however, be of 3 year duration for transmission and distribution if deemed necessary by the Regulatory Commission on account of data uncertainties and other practical considerations. In cases of lack of reliable data, the Appropriate Commission may state assumptions in MYT for first control period and a fresh control period may be started as and when more reliable data becomes available"*

As the Control Period starting on April 1, 2022 will be the third Control Period, the Commission proposes a 5-year Control Period in accordance with the recommendations of the Tariff Policy 2016. However, the Commission wants to deliberate and understand the stakeholders' views on whether to continue with the existing 3-year Control Period or change the Control Period to 5-year considering the merits of 3-year vis-à-vis 5-year Control Period.

The 5-year Control Period provides greater regulatory certainty for both consumers and Licensees. The various trajectories defined or to be defined by the Commission can be better streamlined.

On the other hand, the 3-year Control Period has been observed to be relatively more effective for utilities with lower reliability and stability of data. Further, it allows for greater ease in dealing with the challenges associated with pending past years true-up for account of unavailability of accounts vis-à-vis 5-year Control Period. It also allows for revision of performance of parameters and trajectories after a shorter period of time. Moreover, with the on-going efforts of privatization of utilities in certain Union Territories, the 3-year Control Period may help in dealing with execution/planning uncertainty in a relatively better manner. Also, private players may want to have a re-look and further discussions on the trajectories to be adopted for the Control Period.

2.1.2 Cost-plus Regulation vs Performance based Regulation

The SERCs have generally adopted the approach of modified 'cost-plus' regulation, whereby tariffs are determined in such a manner so as to enable the utilities to recover prudent expenses and earn a pre-determined return on the equity investment or the capital employed. It should be noted that most SERCs do not approve all the expenses as submitted by utilities and undertake prudence check on the expenditure with the objective of improving the utility's efficiency and thereby, reducing tariffs. This introduces an element of 'performance- based' regulation within the overall framework of 'cost-plus' regulation.

The alternative approach to the 'cost-plus' approach to regulation is Performance Based Regulation (PBR). Rather than frequent reviews of utility's costs and determining tariffs to reimburse utilities for what they spend, PBR takes a longer-term view and focuses on efficient performance by utilities. In a well-designed PBR, good performance should lead to higher profits, while poor performance should lead to lower profits. In general, PBR mechanisms provide utilities with a fixed price or a fixed level of revenues, as opposed to a pre-determined level of profits. As a result, utilities can earn higher or lower profits depending upon how efficiently they plan for and operate their systems. The most commonly discussed PBR mechanism is the 'price cap'. Price caps differ from the cost-plus approach in two fundamental ways. First, prices are put in place for longer periods of time (e.g., four to six years) as compared to the annual tariff determination usually undertaken under the cost-plus approach. The fixed prices over longer periods are intended to provide incentives to reduce costs. Second, utilities are allowed to lower their prices to some customers, as long as all prices stay within the cap (or caps). This flexibility allows the utilities to provide competitive price discounts to customers that might otherwise leave their system.

However, it should be noted that internationally, PBR has been introduced only for the 'Wires Business' (Transmission Business and Wheeling Business), and the retail supply business is subjected to open competition. However, in India, the retail supply business is not presently subjected to competition in the real sense, save for certain open access transactions and presence of parallel licensees in certain areas.

The modified 'cost-plus' approach followed in the existing JERC MYT Regulations, 2018, is well understood by all the stakeholders and has stood the test of time in India and has also been largely effective in achieving the desired objectives.

Hence, for providing regulatory certainty to consumers, utilities and various stakeholders of the power sector, it is proposed that the modified 'cost-plus' regulation, subject to prudence check of the expenses may be continued, in line with the approach followed in the existing Control Period.

2.2 Business Plan

The Forum of Regulators (FOR), in its report on MYT framework and Distribution Margin, has recommended as under:

> *"2.5.4 Distribution licensees should submit the business plan and power purchase plan, for approval of the Commission, at least six months prior to submission of MYT petitions, comprising the following aspects:*
>
> - *Category-wise sales projections*
> - *Load growth details*
> - *Power Procurement Plan from short-term and long-term sources*
> - *Details of load shedding*

- *Capital expenditure and capitalisation plans, financing pattern and impact on related expenses*
- *Employee rationalisation*

2.5.5 The Commission should issue its order on the business plan and power procurement plan within four months of submission, so that the licensee submits the MYT petition based on the approved plan"

The JERC MYT Regulations, 2018 state the following:

"8.1 The Transmission Licensee and Distribution Licensee shall file for the Commission's approval a Business Plan for the entire Control Period, duly approved by the competent authority by August 31, 2018:

Provided that the Generation Company shall not be required to file a Business Plan for the Control Period.

8.2 The Business Plan filed by the Distribution Licensee shall contain separate sections on Distribution Wires Business and Retail Supply Business."

The FOR recommendations provide for submission of Business Plan six months prior to the submission of MYT Petition, i.e., 30th November. Considering the recommendations of FOR, the Commission has proposed that the petition for Business Plan approved by the authorized signatory shall be submitted by May 15, 2018

The objective of requiring the filing of Business Plan around 3 to 6 months prior to the submission of the MYT Petition is that the utilities will be required to prepare a long-term plan for the critical aspects of their business, mainly, capital investment, sales projections, power purchase planning and contracting, etc., and also provide various scenarios for these aspects for the Commission's consideration. Once the Commission issues an order on Business Plan after due regulatory process, the utilities are required to file their MYT Petition in accordance with the order by the Commission. If the Commission is unable to issue an order in due time, the Licensees may file their MYT petition based on the submitted Business Plan.

The Commission has analysed the merits and demerits of filing a separate Business Plan, as under:

Merits

1. It requires the utility to undertake long-term planning for the Control Period, rather than having a short-term view of say 1 year, which is essential in case of key aspects like sales projections, power procurement and capital expenditure.
2. Different scenarios can be analysed in the Business Plan for the consideration of the Commission and the Commission can appropriately take a view on the most likely scenario.

Demerits

1. Separate filing of the Business Plan and MYT Petition necessitates two separate regulatory processes, with similar end objectives, though the tariffs are not determined in the MYT Business Plan.
2. In case of separate filing of the Business Plan and MYT Petition, the MYT Petition is based on the approved Business Plan. The filing of any review petition or appeal against the Business Plan Order may impinge on the subsequent ARR and tariff determination exercise.

Though there are merits and demerits to both approaches, the Commission believes that it is essential to separate the Business Plan filings with the MYT Petition filings. As Business Plan contains target trajectories for various parameters for the whole of the Control Period, it needs to be approved before the filing of ARR for the Control Period and the tariff proposal for the first year of the Control Period. Further, it is integral that Capital Investment Plan be approved beforehand as it affects various components of ARR determination and hence tariff determination.

2.2.1 Sales Forecast

In this context, the FOR in its Model MYT Regulations, 2011 stipulates the following:

> *"6.2 The forecast of Aggregate Revenue Requirement shall be developed using the assumptions relating to the behaviour of individual variables that comprise the Aggregate Revenue Requirement during the Control Period.*
>
> *6.3 The forecast of expected revenue from tariff and charges shall be developed based on the following:*
>
> *(a) Estimates of quantum of electricity to be supplied to consumers and wheeled on behalf of Distribution System Users for each financial year within the Control Period; and*
> *(b) Prevailing tariff as at the date of making the application."*

The provision for sales forecast in the existing JERC MYT Regulations 2018 adheres to these principles and the Commission proposes that the same principles shall be continued for the Control Period starting from April 1, 2022. The sales forecast shall be filed as part of the business plan and the forecast shall be based on actual demand of electricity in previous years, anticipated growth in demand in coming years, expected growth in the number of consumers, changes in pattern of consumption and target distribution losses.

2.2.2 Power Procurement Plan

In this context, the FOR in its Model MYT Regulations, 2011 stipulates the following:

> *(a) "Comprehensive Power Procurement Plan shall be submitted as part of MYT petition to the Commission.*
> *(b) The Distribution Licensee shall prepare a short term (less than 1 year) and a medium term (5 years) plan, separately stated for peak and off-peak periods, for unrestricted demand of electricity for each consumer category in its area of operation as per Regulation 16 and Regulation 17 of these regulations…"*

The provision for Power Procurement Plan in the existing JERC MYT Regulations 2018 adheres to these principles and the Commission proposes that the same principles to be continued for the Control Period starting from April 1, 2022. Further, the Commission believes that the provisions for additional power procurement, in case of sudden increase in demand and/or for maintaining the stability of the distribution system, are necessary for the guidance of the licensee. Accordingly, the provisions for the additional power purchase have been included in the draft Regulations.

The Power Procurement Plan shall be filed as part of the Business Plan and the plan shall be based on past data, sales forecast, impact of loss reduction initiatives, improvement in Generating Station Plant Load Factors, impact of renewable energy in the generation mixand other relevant factors; and long-term, medium-term and short-term tie-ups of power procurement.

2.2.3 Capital Expenditure Plan

In the past, the Commission has observed that the licensees, often, propose ambitious capital expenditure in the Business Plans, but fail to execute the planned expenditure, resulting in levy of unwarranted higher tariffs to the consumers. In order to promote the efficiency in the capital expenditure projections, timely execution of the projected capital expenditure and protect the consumers from the unnecessary levy of additional tariffs due to over projections, the Commission proposes to introduce a penal clause in case of underachievement of the proposed capital expenditure.

In this context, CERC in its Tariff Regulations, 2019 stipulates the following:

> "*10(8) Where the capital cost considered by the Commission on the basis of projected additional capital expenditure exceeds the actual additional capital expenditure incurred on year to year basis by more than 10%, the generating company or the transmission licensee shall refund to the beneficiaries or the long term customers as the case may be, the tariff recovered corresponding to the additional capital expenditure not incurred, as approved by the Commission, along with interest at 1.20 times of the bank rate as prevalent on 1st April of the respective year.*
>
> *10(9) Where the capital cost considered by the Commission on the basis of projected additional capital expenditure falls short of the actual additional capital expenditure incurred by more than 10% on year to year basis, the generating company or the transmission licensee shall recover from the beneficiaries or the long term customers as the case may be, the shortfall in tariff corresponding to difference in additional capital expenditure, as approved by the Commission, along with interest at the bank rate as prevalent on 1st April of the respective year."*

Based on the guidance from CERC Tariff regulations, 2019, the Commission believes that it is appropriate to penalize the licensee in case the actual capital expenditure falls short of the proposed capital expenditure by more than 10%, and therefore proposes to recover the excess tariff along with interest at 1.20 times the Carrying Cost (i.e. 1-year SBI MCLR plus 100 basis points). However, if the actual capital expenditure exceeds the proposed capital expenditure by more than 10%, then the shortfall in tariff can be allowed at 0.80 times of the Carrying Cost (1-year SBI MCLR plus 100 basis points). This will motivate the licensees to prepare capital expenditure plan more judiciously.

2.2.4 Proposed Changes in the Regulations

In view of the explanations provided above, provisions for Capital Investment Plan under Regulation 8 of existing JERC MYT Regulations 2018 is revised as follows:

Capital Investment Plan

a) The Capital Investment Plan to be submitted as part of Business Plan shall include details of new projects planned during the Control Period, purpose of investment, capital structure, implementation schedule, quarter-wise capital expenditure and capitalisation schedule, financing plan, cost-benefit analysis, improvement in operational efficiency envisaged in the Control Period owing to proposed investment and such details for ongoing projects that will spill over into the Control Period under review along with justification;

b) The Capital Investment Plan proposed by the Transmission Licensee shall be in conformity with the plans made by the Authority/Central Transmission Utility and with the Capital Investment Plan of the Distribution Licensee;

c) During the Annual Performance Review, the Commission shall monitor the progress of the actual capital expenditure incurred by the Licensee vis-à-vis the approved capital expenditure. The

Licensees shall submit the actual capital expenditure incurred along with the Annual Performance Review, true-up and determination of tariff filing;

d) The truing up of the capital cost incurred for the new projects and additional capital cost for the existing projects shall be done on yearly basis based on the actual capital cost incurred.:

Provided if the actual capital cost incurred on year to year basis is lesser than the capital cost approved for determination of tariff by the Commission on the basis of the projected capital cost as on the date of commercial operation or on the basis of the projected additional capital cost, by ten (10) percent or more, the excess tariff realized corresponding to excess capital cost as approved by the Commission, along with interest at 1.20 times of the Carrying Cost (i.e. 1-year SBI MCLR plus 100 basis points, as prevalent on the first day of April of the respective Financial Year), shall be adjusted from the Annual Revenue Requirement at the time of true-up.

Provided if the actual capital cost incurred on year to year basis is higher than the capital cost approved for determination of tariff by the Commission on the basis of the projected capital cost as on the date of commercial operation or on the basis of the projected additional capital cost, by ten (10) percent or more, the shortfall in tariff realized corresponding to excess capital cost as incurred by the licensee vis-à-vis approved by the Commission, along with interest at 0.8 times of the Carrying Cost (i.e. 1-year SBI MCLR plus 100 basis points, as prevalent on the first day of April of the respective Financial Year), as prevalent on the first day of April of the respective Financial Year, shall be allowed in the annual revenue requirement at the time of true-up.

e) In case the capital expenditure is required for emergency work which has not been approved in the Capital Investment Plan, the Licensee shall submit an application containing all relevant information along with reasons justifying emergency nature of the proposed work seeking approval of the Commission:

Provided that in case 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 Licensee may undertake that capital expenditure and submit the details along with adequate justification for post facto approval of the Commission:

Provided further that for the purpose of Regulation 8.5 (c) , such approved capital expenditure shall be treated as a part of both the actual capital expenditure incurred by the Licensee and approved capital expenditure by the Commission;

f) The Licensee shall submit a report for every quarter detailing the progress of the capital expenditure and capitalisation undertaken against that proposed in the Capital Investment Plan, on or before the last day of the month succeeding the respective quarter for review by the Commission.

Power Procurement Plan

a) The Distribution Licensee shall prepare a plan for procurement of power to serve the demand for electricity in its Area of Supply and submit such plan to the Commission for approval as a part of Business Plan:

Provided further that such power procurement plan may include long-term (~5 to 25 years), medium-term (~1 to 5 years) and short-term (up to 1 year) sources of power procurement, in accordance with these Regulations;

b) The power procurement plan of the Distribution Licensee shall comprise of the following:

(i) A quantitative forecast of the unrestricted base load and peak load for electricity within its Area of Supply;

(ii) An estimate of the quantity of electricity supply from the identified sources of power purchase, including own generation, if any;

(iii) Measures proposed for energy conservation, energy efficiency, and demand side management;

(iv) An estimate of availability of power to meet the base load and peak load requirement:

Provided that such estimate of demand and supply shall be on month-wise basis in Megawatt (MW) as well as expressed in Million Units (MU);

(v) Standards to be maintained with regard to quality and reliability of supply, in accordance with the relevant Regulations of the Commission;

(vi) The requirement for new sources of power procurement, including augmentation of own generation capacity, if any, and identified new sources of supply, based on (i) to (v) above;

(vii) The sources of power, quantity and cost estimates for such procurement:

Provided that the forecast or estimates contained in the long-term procurement plan shall be separately stated for peak and off-peak periods, in terms of quantities of power to be procured (in MU) and maximum demand (in MW):

Provided that the forecast or estimates for the Control Period shall be prepared for each month over the Control Period:

Provided further that the long-term procurement plan shall be a cost-effective plan based on available information regarding costs of various sources of supply;

c) The forecast or estimate shall be prepared using forecasting techniques based on past data, sales forecast, impact of loss reduction initiatives, improvement in Generating Station Plant Load Factors, overall economic growth, consumption growth of electricity-intensive sectors, advent of competition in the electricity sector and other relevant factors;

d) Where the Commission has specified a percentage of the total consumption of electricity in the area of a Distribution Licensee to be purchased from co-generation or renewable sources of energy including solar power, the power procurement plan shall include the plan for procurement from such sources upto the specified level;

e) The Distribution Licensee shall also consult the State Transmission Utility at the time of preparation of the power procurement plan, and shall forward a copy of its power procurement plan to the State Transmission Utility to ensure consistency of such plan with the transmission system plan;

f) Every long-term/medium-term agreement or arrangement for power procurement, including on a Standby basis, by a Distribution Licensee from a Generating Company or Licensee or from another source of supply, and any change to an existing agreement or arrangement shall come into effect only with the prior approval of the Commission:

Provided that the prior approval of the Commission shall not be required for purchase of power from Renewable Energy sources at the generic/preferential tariff determined by the Commission for meeting its Renewable Purchase Obligation (RPO).

g) The Distribution Licensee may, as a result of additional information not previously known or available to it at the time of submission of the procurement plan under these Regulations, apply for modification in the power procurement plan for the remaining Control Period, as part of its Petition for Mid-term Review;

h) The Commission may, as a result of additional information not previously known or available to the Commission at the time of approval of the procurement plan, if it deems appropriate, Suo motu or on a Petition filed by the Distribution Licensee, modify the procurement plan of the Distribution Licensee for the remaining Control Period, as part of the Mid-term Review;

i) The Distribution Licensee may undertake additional power procurement during the year, over and above the power procurement plan for the Control Period approved by the Commission, where there has been an unanticipated increase in the demand for electricity or a shortfall or failure in the supply of electricity from any approved source of supply during the Year or when the sourcing of power from existing tied-up sources becomes costlier than other available alternative sources, the Distribution Licensee may enter into additional agreement or arrangement for procurement of power:

   Provided that any variation, during the first or second block of six months of a Year, in the quantum or cost of power procured, including from a source other than a previously approved source, that is expected to be in excess of five per cent of that approved by the Commission, shall require its prior approval:

   Provided that the five per cent limit shall not apply to variation in the cost of power procured on account of changes in the price of fuel for own generation or the fixed or variable cost of power purchase that is allowed to be recovered through FPPCA mechanism;

j) The Distribution Licensee may enter into a short-term arrangement or agreement for procurement of power without the prior approval of the Commission when faced with emergency conditions that threaten the stability of the distribution system:

k) Provided that within fifteen days from the date of entering into an agreement or arrangement for short-term power procurement for which prior approval is not required, the Distribution Licensee shall submit to the Commission its details, including the quantum, Tariff computations, duration, supplier particulars, method of supplier selection and such other details as the Commission may require so to assess that the conditions specified in this Regulation have been complied with;

l) Where the Commission has reasonable grounds to believe that the agreement or arrangement entered into by the Distribution Licensee does not meet the criteria specified in Regulations 8.7(i) and 8.7(j), it may disallow any increase in the total cost of power procurement over the approved level arising therefrom or any loss incurred by the Distribution Licensee as a result, from being passed through to consumers.

2.3 Multi Year Tariff Application

The Commission proposes to continue with the present approach for filing of the Multi Year Tariff Application.

2.4 Controllable and Uncontrollable Factors

While formulating the MYT framework, it is essential to clearly specify the controllable factors, uncontrollable factors and their appropriate treatment. The impact on the utility due to uncontrollable factors are generally considered as pass-through in tariffs, while the impact – gain or loss – on account of controllable factors has to be shared between the utility and the consumers in the specified manner.

2.4.1 Controllable factors

Controllable factors are those considered to be under the utility's control. The Commission needs to define these factors under the MYT framework as there should be no ambiguity regarding what is a controllable parameter that a licensee can control and what is an uncontrollable parameter, the financial implication of which shall be passed on to the consumer.

In view of the above, after comparing the norms stipulated by various other SERCs and studying the best practices, it is proposed that the existing Regulations shall be slightly updated in order to reduce ambiguity during filing of petitions. The updated list of parameters proposed for the Control Period starting on April 1, 2022 are as follows:

a) Variations in capitalisation on account of time and/or cost overruns / efficiencies in the implementation of a capital expenditure project not attributable to an approved change in scope of such project, change in statutory levies or force majeure events
b) Variation in Interest and Finance Charges, Return on Equity and Depreciation on account of variation in capitalization
c) Variations in technical and commercial losses of Distribution Licensee
d) Intra-state transmission losses
e) Availability of transmission system
f) Variations in performance parameters
g) Failure to meet the standards specified in the Joint Electricity Regulatory Commission for the State of Goa & UTs (Standard of Performance for Distribution Licensees) Regulation, 2015, as amended from time to time
h) Variations in labour productivity
i) Variation in Operation & Maintenance expenses, except to the extent of inflation
j) Bad debts written off

2.4.2 Uncontrollable factors

Uncontrollable costs usually include costs over which the utility has no control, such as variation in the cost of power purchase, etc.

In this context, the Tariff Policy stipulates the following:

> *"Pass through of past losses or profits should be allowed to the extent caused by uncontrollable factors. During the transition period controllable factors should be to the account of utilities and consumers in proportions determined under the MYT framework.*
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> ..
>
> *Uncontrollable costs should be recovered speedily to ensure that future consumers are not burdened with past costs. Uncontrollable costs would include (but not limited to) fuel costs, costs on account of inflation, taxes and cess, variations in power purchase unit costs including on account of hydro-thermal mix in case of adverse natural events."*

In view of the above, after comparing the norms stipulated by various other SERCs and studying the best practices, it is proposed that the existing Regulations shall be slightly updated in order to include more parameters and reduce ambiguity during filing of petitions. The updated list of parameters proposed for the Control Period starting on April 1, 2022 are as follows:

a) Force Majeure events

b) Change in Law, judicial pronouncements and Orders of the Central Government, State Government or Commission
c) Variation in the number or mix of consumers or quantities of electricity supplied to consumers
d) Interstate Transmission loss
e) Variation in the cost of power purchase due to variation in the rate of power purchase from approved sources, subject to clauses in the power purchase agreement or arrangement approved by the Commission
f) Variation in fuel cost
g) Change in power purchase mix
h) Inflation
i) Transmission Charges for a Distribution Licensee
j) Variation in market interest rates for long-term loans
k) Employee expenses limited to one-time payment owing requirements of a pay commission and terminal liability of employees
l) Taxes and Statutory levies
m) Taxes on income
n) Income from realisation of bad debts written off

3 Financial Principles

3.1 Financial Principles for Generation Business

The capital cost for a generating company shall be determined by the Commission, guided by the relevant provisions of the prevalent CERC Tariff Regulations governing generation of electricity, for existing projects as well as new projects. The norms for additional capitalisation and renovation and modernisation for a generating company shall be in accordance with the prevalent CERC Tariff Regulations, governing generation of electricity.

The financial principles including principles governing Debt to Equity Ratio, Return on Equity, Interest on Loan, Foreign Exchange Risk Variation, Interest on Working Capital, treatment of Tax on Income, norms for working capital etc. for a generating company shall be as specified in the prevalent CERC Tariff Regulations, governing generation of electricity.

3.2 Capital Cost

As explained in section 2.2 of this report there is a need to file a capital investment plan as part of the business plan for approval of capital expenditure. This is critical, since the capital expenditure has a significant bearing on the tariff payable by the consumers through related expenses like depreciation, interest on long-term loans, return on equity, etc. Currently, under JERC Regulations, Capital Expenditure Plan is being approved by the Commission as a part of the Business Plan.

In line with the provision of JERC MYT Regulations 2018, it is proposed that components of capital cost for the Control Period starting from April 1, 2022 shall include the following:

(a) The expenditure incurred or projected to be incurred, including interest during construction and financing charges, as admitted by the Commission after prudence check

(b) Capitalised initial spares subject to the ceiling rates specified in the Regulation
(c) Expenses incurred by the Licensee on obtaining right of way, as admitted by the Commission after prudence check
(d) Additional capitalisation
(e) Any gain or loss on account of foreign exchange rate variation pertaining to the loan amount availed up to the Date of Commercial Operation, as admitted by the Commission after prudence check

3.3 Debt to Equity Ratio

The Commission has specified the debt to equity ratio of 70:30 in the existing Regulations for financing new capital expenditure on projects. It is proposed to continue with the same debt-equity ratio for tariff determination for Transmission and Distribution licensees for the Control Period beginning from FY 2022-23 since this is the standard practice being followed in the power sector across various states in India.

Further, if the actual equity deployed is more than 30%, then the equity in excess of 30% shall be treated as a normative loan. However, if the actual equity deployed is less than 30% of the capital cost of the capitalised asset, the actual equity shall be considered for determination of tariff

In the case of existing projects, the debt to equity ratio of the period ending March 31, 2018 shall be considered. Further, regarding the case of de-capitalisation or retirement or replacement of assets, it is proposed that the equity capital approved as mentioned above, shall be reduced to the extent of 30% (or actual equity component based on documentary evidence, if it is lower than 30%) of the original cost of the de-capitalised or retired or replaced asset, and the debt capital approved as mentioned above, shall be reduced to the extent of actual debt component, based on documentary evidence, of the original cost of the de-capitalised or retired or replaced asset.

3.4 Return on Equity (RoE)

In any business, in addition to recovery of the costs incurred, the investors are entitled to earn an appropriate return on their investment, since there are alternative investment opportunities, and the investor has to choose between these alternative investment opportunities, in view of his risk-return profile.

The Commission has adopted the RoE approach in the existing JERC MYT Regulations 2018 for retail supply business and the CERC Tariff Regulations, 2019 for the Transmission Licensees and distribution wires business for the Control Period ending March 31, 2022.

In this context, Clause 5(a) of the Tariff Policy notified on January 28, 2016 stipulates:

> *"Balance needs to be maintained between the interests of consumers and the need for investments while laying down rate of return. Return should attract investments at par with, if not in preference to, other sectors so that the electricity sector is able to create adequate capacity. The rate of return should be such that it allows generation of reasonable surplus for growth of the sector.*
>
> *The Central Commission would notify, from time to time, the rate of return on equity for generation and transmission projects keeping in view the assessment of overall risk and the prevalent cost of capital which shall be followed by the SERCs also. The rate of return notified by CERC for transmission may be adopted by the SERCs for distribution with appropriate*

> *modification taking into view the risks involved. For uniform approach in this matter, it would be desirable to arrive at a consensus through the Forum of Regulators.*
>
> *While allowing the total capital cost of the project, the Appropriate Commission would ensure that these are reasonable and to achieve this objective, requisite benchmarks on capital costs should be evolved by the Regulatory Commissions."*

For the purposes of return on equity, any cash resources available to the company from its share premium account or from its internal resources that are used to fund the equity commitments of the project under consideration should be treated as equity subject to limitations contained in Clause 5(a) of the Tariff Policy below:

> *"The Central Commission may adopt either Return on Equity or Return on Capital approach whichever is considered better in the interest of the consumers.*
>
> *The State Commission may consider 'distribution and supply margin' as basis for allowing returns in distribution business at an appropriate time. The State Commission may also consider price cap regulation based on comprehensive study. The Forum of Regulators should evolve a comprehensive approach in this regard. The considerations while preparing such an approach would, inter-alia, include issues such as reduction in Aggregate Technical and Commercial losses, improving the standards of performance and reduction in cost of supply"*

3.4.1 Post-Tax Vs Pre-Tax Rate of Return

The issue is whether the returns to the investor should be allowed on a post-tax basis or on pre-tax basis. Both the approaches have merits and demerits.

Under the post-tax approach, the Commission has to assess the income tax liability at the time of determination of ARR and tariff, which can be complicated in case of entities that are undertaking other non-core businesses also, irrespective of whether they are regulated or not. Another negative aspect of the post-tax approach is that there is no inducement for better tax planning. However, in case of post-tax returns, the tax benefits available to the sector are passed on to the consumers.

On the other hand, the pre-tax return approach is aimed at encouraging power sector entities to do better tax planning and does not have the above de-merits of post-tax return approach. The income tax liability does not have to be projected in advance, and at the end of the year, does not have to be matched with the actual income tax paid, etc. The issue of estimating the income tax for utilities operating in several States/Businesses will also not arise.

It should also be noted that the erstwhile State Electricity Boards (SEBs) were not liable to pay income tax. However, post EA 2003, most of the erstwhile SEBs have been unbundled and the successor companies engaged in the business of generation, transmission and distribution of electricity are liable to pay income tax.

Under the mechanism of pre-tax returns, the benefits of Section 80 IA applicable to new units are not passed on to the beneficiaries and the tax recovered by utilities in some cases are more than the actual income tax. Under the regulated business, in general, the profit of the utilities should be equal to RoE specified because all other elements of tariff are based on the general premise of pass through of costs subject to achievement of normative performance parameters. Practically, however, the profit of the utilities is influenced by other factors such as profits of non-core business carried out by the utilities, UI earnings, efficiency gains, incentive earned, difference in the depreciation allowed under tariff and as per Income Tax Act, 1961, income tax holiday allowed in power sector, etc.

Under the regulated business, when the utilities are allowed specified post tax rate of return on equity in addition to prudently incurred expenses, the recovery of tax on specified Return on Equity by the utilities needs to be allowed based on actual tax paid on Return on Equity on 'no profit' and 'no loss' basis, as tax on Return on Equity is a sort of reimbursement to ensure the recovery of the specified RoE.

Since both approaches have their merits and demerits, it is proposed to continue with the post-tax approach for Distribution Wires Business and Retail Supply of Electricity to allow the pass through of tax benefits available to the utilities to Consumers. However, for transmission business, the approach as adopted by the CERC in the prevalent tariff regulations is proposed to be adopted.

3.4.2 Rate of Return

Return on Equity shall be computed on the paid-up equity determined as explained in section 3.4 on the assets put to use.

For a Transmission Licensee , the return shall be computed on the paid-up equity capital determined in accordance with Regulation 26 on the assets put to use for the Transmission Licensee and shall be allowed in accordance with the prevalent CERC Tariff Regulations for transmission system. For Distribution Wires Business, the return is allowed at a post-tax rate as specified in the prevalent CERC Tariff Regulations for Transmission System, as the transmission and the Distribution Wires Business are of similar nature. For a Retail Supply Business, the return is allowed at the post tax rate of 16 per cent per annum.

The equity base considered for the calculation of Return on Equity shall be the average of equity capital at the beginning and end of the year.

3.5 Interest on Loan

Based on the experience of the Commission in the current Control Period, and experiences in other States and also due to changes in the interest rate regime, certain modifications and additional provisions are proposed in the context of Interest on Long Term loans, as under:

a) The loans arrived at in the manner indicated in section 3.4 on the assets put to use, shall be considered as gross normative loan for calculation of interest on loan

b) The normative loan outstanding as on April 1, 2022, shall be worked out by deducting the cumulative repayment as admitted by the Commission up to March 31, 2022, from the gross normative loan

c) For new loans proposed for each Financial yYear of the Control Period, interest rate shall be considered as lower of
   i) 1-year State Bank of India (SBI) MCLR / any replacement thereof as notified by RBI for the time being in effect applicable for 1 Year period, as may be applicable as on 1st April of the relevant Year plus 100 basis points, and
   ii) weighted average rate of interest proposed by the Distribution Licensee.

d) 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 or Distribution Licensee

e) The finance charges incurred for obtaining loans from financial institutions for any year shall be allowed by the Commission at the time of Truing-up, subject to prudence check.

f) The excess Interest during Construction on account of time and/or cost overrun as compared to the approved completion schedule and capital cost or on account of excess withdrawal of the debt funds disproportionate to the actual requirement based on scheme completion status, shall be allowed or disallowed partly or fully on a case to case basis, after prudence check by the Commission

g) If the excess Interest during Construction allowed by the Commission is on account of delay attributable to an agency or contractor or supplier engaged by the Transmission Licensee or Distribution Licensee, any Liquidated Damages recovered from such agency or contractor or supplier shall be taken into account for computation of capital cost

h) Interest shall be allowed on the amount held as security deposit held in cash from Retail Consumers at the Bank Rate as on 1st April of the Financial yYear in which the Petition is filed.

3.6 Interest on Working Capital (IWC)

Currently, IWC is being allowed on a normative basis rather than based on actual IWC incurred. Since it has been proposed that variation in IWC requirement should be treated as a controllable factor, IWC would have to continue to be allowed on normative basis. If IWC is allowed on actuals, it will amount to considering IWC as an uncontrollable factor. Since it is desired to improve the operational and financing efficiency in this aspect, **it is desirable to continue allowing IWC on normative basis**.

Further, the Commission proposes to continue with the provisions of JERC MYT Regulations 2018 for the definition of normative interest on working capital.

3.7 Tax on Income

The existing JERC MYT Regulations 2018 stipulate the following:

> *"32.1 The treatment of tax on income for a Transmission Licensee shall be in accordance with the prevalent CERC Tariff Regulations.*
>
> *32.2 **The Commission in its MYT Order shall provisionally approve Income Tax payable for each Year of the Control Period, if any, based on the actual income tax paid,** including cess and surcharge on the same, if any, **as per latest audited accounts available for the Distribution Licensee**, subject to prudence check.*
>
> *32.3 Variation between Income Tax actually paid, including cess and surcharge on the same, if any, and approved, if any, on the income stream of the Licensed business of the Distribution Licensees shall be reimbursed to/recovered from the Distribution Licensees, based on the documentary evidence submitted at the time of truing up of each Year of the Control Period, subject to prudence check.*
>
> *32.4 Under-recovery or over-recovery of any amount from the Consumers on account of such tax having been passed on to them shall be adjusted every Year on the basis of income-tax assessment under the Income-Tax Act, 1961, as certified by the statutory auditors. The Distribution Licensee may include this variation in its truing up Petition:*
>
> *Provided that tax on any income stream other than the core business shall not be a pass-through component in tariff and tax on such other income shall be borne by the Distribution Licensee."*
> **(emphasis added)**

For Transmission Business, JERC currently follows the prevalent CERC Tariff Regulations. The prevalent CERC Tariff Regulations stipulate that actual income tax paid shall not be a pass through as the return on equity is computed on a pre-tax basis.

Further, as explained in section 3.4, since RoE shall be calculated on a post-tax basis for the Distribution Wires Business and Retail Supply of Electricity, it is proposed that the tax on income streams shall be allowed as an expense in ARR calculation.

3.8 Rebate

As there is no provision for treatment of rebates in the existing JERC Regulations, it is proposed that the provision in the prevalent CERC Tariff Regulations shall be adopted for the second Control Period.

Further, since the existing CERC provisions only provide for application of rebates and not for the treatment of rebates given/received in determination of ARR, some additions to the provision in existing CERC Tariff Regulations have been proposed. For a Transmission Licensee and a generation company, the normative IWC is computed by considering receivables for 45 days, hence, the cost of such receivable is already being allowed. In case, the Transmission Licensee or the generation company provide a rebate to their respective beneficiaries for early payment, then the prompt payment rebate given to the beneficiary should not be allowed as an expense, else, it will amount to double-benefit for the utility.

In view of the above, it is proposed that the rebate given by the Transmission Licensee and the generation company to their respective beneficiaries shall not be allowed as an expense for the Transmission Licensee, as the case may be.

The following provisions are proposed to be incorporated:

a) The rebate to be provided by a Generating Company or Transmission Licensee to a Distribution Licensee for early payment of bills shall be in accordance with the prevalent CERC Tariff Regulations.
b) Such rebate earned by the Distribution Licensee shall be considered under Non-Tariff Income for the Distribution Licensee.
c) Any rebate provided by the Generating Company or Transmission Licensee to the beneficiaries shall not be allowed as an expense for the Generating Company or Transmission Licensee, as the case may be.

3.9 Late Payment Surcharge

As there is no provision for Late Payment Surcharge in the existing JERC Regulations, it is proposed that the provision in the prevalent CERC Tariff Regulations shall be adopted for the second Control Period.

Further, as regards to Delayed Payment Charges (DPC), DISCOMs have submitted in their Petitions for truing up that for the purpose of ARR determination, the Commission considers revenue from Tariff on accrual basis, i.e., amount billed by the DISCOM to all the consumers, however, all the consumers do not make timely payments for the bills raised. Because of delays in the payment by the consumers, the working capital requirements of the DISCOMs are increased, which are funded by DPC. The Commission assumes Working Capital based on normative basis assuming that the consumers are paying within the payment due date. While in reality, the same is not the case and DPC becomes applicable when consumers delay the payment beyond the allowed due date. The same rationale is applicable for the Transmission Business as well. In view of the same, it is proposed not to consider interest on delayed or deferred payment on bills as part of Non-Tariff Income, for the Transmission, Distribution Wires and Retail Supply Business in line with the provisions of JERC MYT Regulations 2018.

4 Generation

4.1 Components of Tariff

The computation of Aggregate Revenue Requirement for a generation business shall comprise of the following components:

a) Return on Equity
b) Interest and finance charges
c) Depreciation
d) Interest on Working Capital
e) Operation and Maintenance expenses
f) Income tax

The treatment of each of the above components shall be in accordance with the prevalent CERC Tariff Regulations governing generation of electricity.

4.2 Norms of Operation

The norms of operation for a generation station including Normative Annual Plant Availability Factor (NAPAF), Normative Annual Plant Load Factor (NAPLF), gross station heat rate, auxiliary consumption etc. shall be in accordance with the prevalent CERC Tariff Regulations governing generation of electricity.

5 Intra-State Transmission

5.1 O&M Expenses

While specifying the normative O&M expenses for the Transmission Licensee, one of the aspects to be considered is whether the normative O&M expenses should be specified in a consolidated manner or separately, as employee expenses, A&G expenses and Repair & Maintenance expenses. Both options have their merits and de-merits. If the O&M expenses are specified in a consolidated manner, the utility has the flexibility to manage its expenditure through own resources (which will increase the employee expenses) or through outsourcing (which will increase the A&G expenses), as appropriate. However, under this dispensation, the variation in the individual heads of employee expenses, A&G expenses, and Repair & Maintenance expenses are difficult to track, and there are occasions when the Commission may wish to consider these separately, due to specific treatment to be given for pay revision, etc. This issue also depends on the nature of the business, i.e., transmission or distribution. However, based on past experiences and after reviewing the best practices across states, the Commission proposes that O&M expenses shall be continued to be considered as per the existing JERC Regulations.

In view of the above, it is proposed that Transmission Licensee shall submit the required O&M expenses for the Control Period as a part of Multi-Year Tariff Petition. The O&M expenses for the base year will be approved by the Commission taking into account the latest available audited accounts, business plan filed, estimates of the actuals for the base year, prudence check and any other factors considered appropriate by the Commission. The O&M expenses for the n^{th} year of the Control Period shall be approved based on the formula given below:

$O\&M_n = (R\&M_n + EMP_n + A\&G_n) \times (1 - X_n)$ + Terminal Liabilities

Where,

$R\&M_n = K \times GFA_{n-1} \times (1+WPI_{inflation})$

$EMPn = (EMPn\text{-}1) \times (1+Gn) \times (1+CPI_{inflation})$

$A\&G_n = (A\&G_{n-1}) \times (1+CPI_{inflation})$

'K' is a constant (expressed in %). Value of K for each Year of the Control Period shall be determined by the Commission in the MYT Tariff Order based on Licensee's filing, benchmarking of Repair and Maintenance expenses, approved Repair and Maintenance expenses vis-à-vis GFA approved by the Commission in past and any other factor considered appropriate by the Commission;

$CPI_{inflation}$ – is the increase in Consumer Price Index (CPI) for immediately preceding three years before the base year;

$WPI_{inflation}$ – is the average increase in the Wholesale Price Index (CPI) for immediately preceding three years before the base year;

EMP_n – Employee expenses of the Transmission Licensee for the nth year;

$A\&G_n$ – Administrative and General expenses of the Transmission Licensee for the nth year;

$R\&M_n$ – Repair and Maintenance expenses of the Transmission Licensee for the nth year;

GFA_{n-1} – Gross Fixed Asset of the Transmission Licensee for the n-1th year;

X_n is an efficiency factor for nth year. Value of X_n shall be determined by the Commission in the MYT Tariff Order based on Licensee's filing, benchmarking, approved cost by the Commission in past and any other factor the Commission feels appropriate;

G_n is a growth factor for the nth year. Value of G_n shall be determined by the Commission in the MYT tariff order for meeting the additional manpower requirement based on Licensee's filings, benchmarking, approved cost by the Commission in past and any other factor that the Commission feels appropriate.

R&M expenses shall be indexed to WPI because R&M expenses mostly include purchases of industrial goods. The prices for these goods are more in line with WPI than CPI. Accordingly, employee and A&G expenses shall be indexed to CPI as the change in expenses for these components are more in line with CPI.

Further, the O&M expenses has been considered as a controllable parameter, therefore the variation in O&M expenses shall be dealt in accordance with Regulation 14 of JERC MYT Regulations 2021.

5.2 Norms of Working Capital for Transmission Licensee

The prevalent CERC Tariff Regulations, 2019 stipulate the following norms:

> "*(i) Receivables equivalent to 45 days of annual fixed cost;*
>
> *(ii) Maintenance spares @ 15% of operation and maintenance expenses including security expenses; and*
>
> *(iii) Operation and maintenance expenses, including security expenses for one month.*"

Regarding inclusion of one month of O&M expenses as a part of the working capital requirement, as O&M expenses incurred for a given month are recoverable along with the tariff in the next month, the same needs to be a part of working capital. In addition, exclusion of the same may also have impact on the liquidity position of the utilities.

Further, in the Regulations for Control Period starting from April 1, 2022 it is proposed to provide for a rebate of 1% if the payment is made within 30 days and a late payment surcharge of 1.5% in case the payment is delayed beyond 45 days. As the payments are to be made by the beneficiaries without surcharge within a period of 45 days, it is imperative that working capital towards 45 days receivables is provided.

In view of the above, it is proposed that the prevalent CERC Tariff Regulation as stated shall be applicable for the Control Period starting from April 1, 2022.

5.3 Transmission Loss

The Commission conducted a review of regulations adopted by various other SERCs with respect to transmission loss. The findings of the review are as under:

Table 1: Treatment of Transmission Loss by SERCs

States	Treatment of Transmission Loss
Uttarakhand	Borne by the Transmission System Users in proportion to their usage of the Intra-State transmission system
Gujarat	
Punjab	
Maharashtra	
Madhya Pradesh	A trajectory of target transmission losses for the Control Period is provided in the Regulation
Karnataka	• Bourne by the Transmission System Users in proportion to their usage of the Intra-State transmission system • In case the actual transmission loss exceeds the normative loss level approved by the Commission, Licensee is liable for penalty of 1% of the allowable RoE for every 0.5% variation
Rajasthan	The transmission losses as allowed by the Commission shall be bourne by the users of the transmission system in kind, as percentage of energy transmitted.

In majority of the states, transmission losses are bourne by the transmission system users in proportion to their usage of the intra-state transmission system. Therefore, the Commission proposes to continue the treatment of sharing of transmission losses as notified in JERC MYT Regulations 2018.

5.4 Norms of Operations for Transmission Licensee

The norms of operations for a Transmission Licensee shall be applicable as specified in the prevalent CERC Tariff Regulations.

Further, 50 percent of incentive earned by the Transmission Licensee for exceeding the norms of operations shall be shared between the beneficiaries in the ratio of their average allotted transmission capacity for the year.

5.5 Sharing of charges for Intra-State Transmission Network

The annual transmission charges of the Transmission Licensee shall be determined by the Commission on the basis of an application made by the Transmission Licensee for the determination of tariff. These charges are computed based on the Aggregate Revenue Requirement of the Transmission Licensee for the Financial Year as approved by the Commission.

Further, since the transmission network in the regions regulated by JERC is not wide, the Commission proposes to continue with the postage stamp method for computation of transmission charges as notified in JERC MYT Regulations, 2018.

5.6 Consequential Impact of any Government of India Scheme

As there is a possibility that new Government schemes that impact the Transmission Licensee might come into force at any time during the course of the Control Period, the Commission proposes that there is a need for a provision which specifies how to deal with the consequential impact of any Government of India scheme for waiver/reduction of transmission charges, incentives, and losses for any entity/ies, on the transmission charges payable by the other entities. The Commission proposes that they shall be addressed through separate Orders to be issued by the Commission from time to time.

6 Distribution Wires Business

6.1 O&M Expenses

While specifying the normative O&M expenses for the distribution wires business, one of the aspects to be considered is whether the normative O&M expenses should be specified in a consolidated manner or separately, as employee expenses, A&G expenses, and Repair & Maintenance expenses. Both options have their merits and de-merits. If the O&M expenses are specified in a consolidated manner, the utility has the flexibility to manage its expenditure through own resources (which will increase the employee expenses) or through outsourcing (which will increase the A&G expenses), as appropriate. However, under this dispensation, the variation in the individual heads of employee expenses, A&G expenses, and Repair & Maintenance expenses are difficult to track, and there are occasions when the Commission may wish to consider these separately, due to specific treatment to be given for pay revision, etc. This issue also depends on the nature of the business. However, based on past experiences and after reviewing the best practices across states, the Commission proposes that O&M expenses shall be continued to be considered as per the existing JERC Regulations.

In view of the above, it is proposed that Distribution Licensee shall submit the required O&M expenses for the Control Period as a part of Multi-Year Tariff Petition. The O&M expenses for the base year will be approved by the Commission taking into account the latest available audited accounts, Business Plan filed, estimates of the actuals for the base year, prudence check and any other factors considered appropriate by the Commission. The O&M expenses for the n^{th} year of the Control Period shall be approved based on the formula given below:

$$\mathbf{O\&M_n = (R\&M_n + EMP_n + A\&G_n) \times (1 - X_n) + Terminal\ Liabilities}$$

Where,

$R\&M_n = K \times GFA_{n-1} \times (1+WPI_{inflation})$

$EMPn = (EMPn\text{-}1) \times (1+Gn) \times (1+CPI_{inflation})$

$A\&G_n = (A\&G_{n-1}) \times (1+CPI_{inflation})$

'K' is a constant (expressed in %). Value of K for each Year of the Control Period shall be determined by the Commission in the MYT Tariff Order based on Licensee's filing, benchmarking of repair and maintenance expenses, approved repair and maintenance expenses vis-à-vis GFA approved by the Commission in past and any other factor considered appropriate by the Commission;

$CPI_{inflation}$ – is the increase in Consumer Price Index (CPI) for immediately preceding three years before the base year;

$WPI_{inflation}$ – is the average increase in the Wholesale Price Index (CPI) for immediately preceding three years before the base year;

EMP_n – Employee expenses of the Transmission Licensee for the nth year;

$A\&G_n$ – Administrative and General expenses of the Transmission Licensee for the nth year;

$R\&M_n$ – Repair and Maintenance expenses of the Transmission Licensee for the nth year;

GFA_{n-1} – Gross Fixed Asset of the Transmission Licensee for the n-1th year;

X_n is an efficiency factor for nth year. Value of X_n shall be determined by the Commission in the MYT Tariff Order based on Licensee's filing, benchmarking, approved cost by the Commission in past and any other factor the Commission feels appropriate;

G_n is a growth factor for the nth year. Value of G_n shall be determined by the Commission in the MYT tariff order for meeting the additional manpower requirement based on Licensee's filings, benchmarking, approved cost by the Commission in past and any other factor that the Commission feels appropriate.

R&M expenses shall be indexed to WPI because R&M expenses mostly include purchases of industrial goods. The prices for these goods are more in line with WPI than CPI. Accordingly, employee and A&G expenses shall be indexed to CPI as the change in expenses for these components are more in line with CPI.

Further, the O&M expenses has been considered as a controllable parameter, therefore the variation in O&M expenses shall be dealt in accordance with proposed Regulation 14 of JERC MYT Regulations 2021.

6.2 Norms of Working Capital for Distribution Wires Business

All SERCs use a standard formula as norm for determination of working capital requirement, wherein O&M expenses as well as cost of maintenance spares is allowed, in addition to the receivables. Regarding inclusion of one month of O&M expenses as a part of the working capital requirement, as O&M expenses incurred for a given month are recoverable along with the tariff in the next month, the same needs to be a part of working capital. In addition, exclusion of the same may also have impact on the liquidity position of the utilities.

Further, the Regulations for Control Period starting from April 1, 2022 proposed to provide for a rebate of 1% if the payment is made within 30 days and a late payment surcharge of 1.5% in case the payment is delayed beyond 60 days. As the payments are to be made by the beneficiaries without surcharge within a period of 60 days, it is imperative that working capital towards 60 days receivables is provided.

Further, in order to obtain a better picture of existing norms, a sample of states spread across India were selected for review. The norms followed by the selected SERCs are as follows:

Table 2: Norms of Working Capital for Distribution Wires Business adopted by SERCs

States	O&M Expenses	Maintenance spares	Receivables
Uttarakhand	1 month	15% of O&M expenses for 1 month	2 months of expected revenue from charges for use of Distribution Wires - security deposit
Gujarat	1 month	1% of historical cost	1 month of expected revenue from charges for use of Distribution Wires - security deposit

States	O&M Expenses	Maintenance spares	Receivables
Maharashtra	1 month	1% of the opening GFA for the Year	1.5 month of expected revenue from charges for use of Distribution Wires at the prevailing Tariff - security deposits in cash or equivalent
Punjab	1 month	15% of the O&M expenses	2 months of expected revenue from wheeling charges at prevailing tariffs – security deposit

In view of the above, the Commission proposes to continue with the norms as notified in JERC MYT Regulations 2018.

6.3 Wheeling Losses

6.3.1 Distribution loss vs AT&C loss

Technical Losses: Every element in a power system (a line or a transformer, etc.) offers resistance to power flow and thus, consumes some energy while performing the duty expected of it. The cumulative energy consumed by all these elements is classified as **"Technical Loss".**

Commercial Losses: Losses that occur on account of non-performing and under-performing meters, wrong application of multiplying factors, defects in CT and PT circuitry, meters not read, pilferage by manipulating or by-passing of meters, theft by direct tapping, etc., correspond to energy consumed but not metered or billed and are hence, categorised as "**commercial losses**".

The combination of "Technical" and "Commercial" losses in the electricity distribution business is termed as **Distribution loss.**

In addition to the above, there is also a loss in revenue collected due to non-realisation of billed amount. The aggregate of distribution loss and revenue loss due to non-realisation (collection inefficiency) is termed as **"AT&C loss"** (Aggregate Technical and Commercial loss). Therefore, AT&C loss of the distribution licensee is the combination of technical losses, commercial losses and collection inefficiency.

Since the beginning of the reform process, distribution loss reduction has been one of the primary benchmarks for measuring the performance of a distribution utility. The SERCs have either adopted distribution losses reduction or AT&C loss reduction approach as a performance benchmark.

Distribution loss reduction is a widely used approach at the national and international level to measure the performance of the distribution licensee. Distribution loss is simple to compute as it takes into account the energy input and energy billed to the consumers, thereby taking into consideration the technical losses and unaccounted energy due to theft and misuse. However, in many cases, the actual distribution losses are estimated to be higher than the reported losses, on account of the assessment of un-metered agricultural consumption. Thus, distribution loss method has certain limitations, particularly in case of significant un-metered consumption.

On the other hand, AT&C loss method covers the whole basket of losses of the distribution system and includes technical losses, billing inefficiency, theft, and collection inefficiency. If units sold, units billed and units collected can be computed accurately, then AT&C loss method would be the best indicator of measuring the efficiency of the distribution licensee. However, computation of AT&C losses leads to creation of complexities as it combines technical and commercial parameters, i.e., energy input in units and amount collected in Rupees. Some other issues in AT&C loss computation are as follows:

- Units realised have to be derived based on units billed and collection efficiency
- Units billed may not be measured accurately due to un-metered consumption, thus having the same drawback as distribution loss method
- Revenue collected may include the past arrears
- Amount collected against other charges may not be separately accounted for
- If AT&C loss computation is attempted on cash basis alone (total amount collected/total amount spent), it can lead to distorted results.

Considering the high commercial losses in the Indian power system, the Tariff Policy framed under Section 3 of Electricity Act 2003 has favoured the adoption of the AT&C loss method, as reproduced below:

> *"5(a) The State Commission may consider 'distribution margin' as basis for allowing returns in distribution business at an appropriate time. The Forum of Regulators should evolve a comprehensive approach on "distribution margin" within one year. **The considerations while preparing such an approach would, inter-alia, include issues such as reduction in Aggregate Technical and Commercial losses**, improving the standards of performance and reduction in cost of supply." **(Emphasis added)***

However, till date, only few SERCs like Delhi Electricity Regulatory Commission have adopted the AT&C loss approach for approving the ARR and tariff of distribution licensees. The Orissa Electricity Regulatory Commission has recognized AT&C Loss as a performance parameter for measuring, monitoring and controlling the efficiency of the operation of the distribution licensees, however, for approving the ARR and tariff, OERC has considered distribution loss targets and not the AT&C loss targets.

Further, it is not prudent to burden consumers who are paying bill on time for the licensees' inability to collect the billed amounts from certain consumers. Further, the inclusion of collection inefficiency by determining the tariffs on the basis of AT&C loss will result in further increase in the consumers' tariff, if collection efficiency is less than 100%. Considering this aspect and in view of issues discussed above, **it is proposed to continue with Distribution Loss approach for approving the ARR and tariff of Distribution Licensees in the State, with the trajectory of distribution loss being stipulated in the Multi-Year Tariff Order rather than being specified in the Regulations**.

6.4 Determination of Wheeling Charges

The wheeling charges of the Distribution Licensee are to be determined by the Commission on the basis of an application for determination of tariff made by the Distribution Licensee in accordance with the MYT Regulations.

In this context, the APTEL in Judgment dated July 3, 2012 ruled as under:

> *"70. Thus, in accordance with the statutory regulations, the State Commission is required to specify the wheeling charges in Rs/unit and fixed/demand charges in any combination so as to ensure the recovery of the wheeling cost from the wheeling consumers and not to burden the other retail consumers in accordance with the provisions of the Electricity Act, 2003.*
>
> *71. Thus, the principle of recovery of wheeling charges has already been laid down by this Tribunal and accepted by the State Commission in the Regulations. **Therefore, it would be***

> ***appropriate to direct the State Commission to determine the wheeling charges as a combination of fixed/demand charges in Rs. Per KW and variable charges in accordance with the regulatory provisions specifying the methodology to recover the wheeling charges***. *Accordingly directed.*
>
> *72. The Appellant is also directed to co-operate with State Commission by furnishing required particulars to the State Commission to enable it to determine the wheeling charges in the light of the findings of this Tribunal and to pass an order in accordance with the law. Thus, this issue is decided in favour of the Appellant."* ***(emphasis added)***

In view of the above, the Commission shall specify the Wheeling Charge of Distribution Wires Business of the Distribution Licensee in its Order passed under sub-section (3) of Section 64 of the Act. The revenue from Wheeling Charges paid by the distribution system users under the above provision shall be used to reduce the Aggregate Revenue Requirement of the Wires Business to be recovered from the retail consumers of the concerned Distribution Licensee. Further, wheeling charges payable by a distribution system user, other than the retail consumers getting electricity supply from the same Distribution Licensee, may comprise any combination of fixed/demand charges, and variable charges, as may be stipulated by the Commission.

7 Retail Supply of Electricity

7.1 O&M Expenses

While specifying the normative O&M expenses for the retail supply business, one of the aspects to be considered is whether the normative O&M expenses should be specified in a consolidated manner or separately, as employee expenses, A&G expenses, and Repair & Maintenance expenses. Both options have their merits and de-merits. If the O&M expenses are specified in a consolidated manner, the utility has the flexibility to manage its expenditure through own resources (which will increase the employee expenses) or through outsourcing (which will increase the A&G expenses), as appropriate. However, under this dispensation, the variation in the individual heads of employee expenses, A&G expenses, and Repair & Maintenance expenses are difficult to track, and there are occasions when the Commission may wish to consider these separately, due to specific treatment to be given for pay revision, etc. This issue also depends on the nature of the business. However, based on past experiences and after reviewing the best practices across states, the Commission proposes that O&M expenses shall be continued to be considered separately as per the existing JERC Regulations.

In view of the above, it is proposed that distribution licensee shall submit the required O&M expenses for the Control Period as a part of Multi-Year Tariff Petition. The O&M expenses for the base year will be approved by the Commission taking into account the latest available audited accounts, business plan filed, estimates of the actuals for the base year, prudence check and any other factors considered appropriate by the Commission. The O&M expenses for the n^{th} year of the Control Period shall be approved based on the formula given below:

$$\mathbf{O\&M_n = (R\&M_n + EMP_n + A\&G_n) \times (1 - X_n) + Terminal\ Liabilities}$$

Where,

$R\&M_n = K \times GFA_{n-1} \times (1+WPI_{inflation})$

$EMPn = (EMPn\text{-}1) \times (1+Gn) \times (1+CPI_{inflation})$

$A\&G_n = (A\&G_{n-1}) \times (1+CPI_{inflation})$

'K' is a constant (expressed in %). Value of K for each Year of the Control Period shall be determined by the Commission in the MYT Tariff Order based on Licensee's filing, benchmarking of repair and maintenance expenses, approved repair and maintenance expenses vis-à-vis GFA approved by the Commission in past and any other factor considered appropriate by the Commission;

$CPI_{inflation}$ – is the increase in Consumer Price Index (CPI) for immediately preceding three years before the base year;

$WPI_{inflation}$ – is the average increase in the Wholesale Price Index (CPI) for immediately preceding three years before the base year;

EMP_n – Employee expenses of the Transmission Licensee for the nth year;

$A\&G_n$ – Administrative and General expenses of the Transmission Licensee for the nth year;

$R\&M_n$ – Repair and Maintenance expenses of the Transmission Licensee for the nth year;

GFA_{n-1} – Gross Fixed Asset of the Transmission Licensee for the n-1th year;

X_n is an efficiency factor for nth year. Value of X_n shall be determined by the Commission in the MYT Tariff Order based on Licensee's filing, benchmarking, approved cost by the Commission in past and any other factor the Commission feels appropriate;

G_n is a growth factor for the nth year. Value of G_n shall be determined by the Commission in the MYT tariff order for meeting the additional manpower requirement based on Licensee's filings, benchmarking, approved cost by the Commission in past and any other factor that the Commission feels appropriate.

R&M expenses shall be indexed to WPI because R&M expenses mostly include purchases of industrial goods. The prices for these goods are more in line with WPI than CPI. Accordingly, employee and A&G expenses shall be indexed to CPI as the change in expenses for these components are more in line with CPI.

Further, the O&M expenses has been considered as a controllable parameter, therefore the variation in O&M expenses shall be dealt in accordance with Regulation 14 of JERC MYT Regulations 2021.

7.2 Norms of Working Capital for Retail Supply Business

All SERCs use a standard formula as norm for determination of working capital requirement, wherein O&M expenses as well as cost of maintenance spares is allowed, in addition to the receivables. Regarding inclusion of one month of O&M expenses as a part of the working capital requirement, as O&M expenses incurred for a given month are recoverable along with the tariff in the next month, the same needs to be a part of working capital. In addition, exclusion of the same may also have impact on the liquidity position of the utilities.

Further, the Regulations for Control Period starting from April 1, 2022 it is proposed to provide for a rebate of 1% if the payment is made within 30 days and a late payment surcharge of 1.5% in case the payment is delayed beyond 60 days. As the payments are to be made by the beneficiaries without surcharge within a period of 60 days, it is imperative that working capital towards 60 days receivables is provided.

Further, in order to obtain a better picture of existing norms, a sample of states spread across India were selected for review. The norms followed by the selected SERCs are as follows:

Table 3: Norms of Working Capital for Retail Supply Business adopted by SERCs

States	O&M Expenses	Maintenance spares	Receivables	Less: Power Purchase expenses
Uttarakhand	1 month	15% of O&M expenses for 1 month	2 months of expected revenue from sale of electricity at the prevailing tariffs - security deposit	1 month
Gujarat	1 month	1% of historical cost	1 month of expected revenue from sale of electricity at the prevailing tariffs - security deposit	

States	O&M Expenses	Maintenance spares	Receivables	__Less:__ Power Purchase expenses
Maharashtra	1 month	1% of the opening GFA for the Year	1.5 month of expected revenue from sale of electricity at the prevailing tariffs, incl. CSS and AS- security deposits in cash or equivalent	1 month, incl. transmission and SLDC charges
Punjab	1 month	15% of the O&M expenses	2 months of expected revenue sale of electricity at the prevailing tariff – security deposit	1 month

In view of the above, the following norms are proposed for the Control Period starting from April 1, 2022:

a) Operation and Maintenance expenses for one (1) month; plus
b) Maintenance spares at 40% of R&M expenses for one (1) month; plus
c) Receivables equivalent to two (2) months of the expected revenue from Consumers at the prevailing tariffs;
   Less
d) Power Purchase Cost for one (1) month; plus
e) Amount, if any, held as security deposits under clause (b) of sub-section (1) of Section 47 of the Act from Consumers except the security deposits held in the form of Bank Guarantees

7.3 Determination of Tariff

Currently, states have different and complex tariff structure with several consumer categories and sub-categories. Further, the tariff is not reflective of the actual cost incurred by the utilities. The Ministry of Power constituted two committees for simplification of tariff categories of consumers and rationalisation of tariff structure. Subsequently, changes were proposed in the Draft Tariff Policy issued in May 2018. The Central Electricity Authority had also issued a "consultation paper on open access", which identified tariff rationalisation as one of the issues.

The Delhi Electricity Regulatory Commission (DERC) also issued an approach paper on Tariff Rationalisation presenting the present structure of tariffs, issues and challenges with the current structure and the way forward:

"ARR of Distribution Licensees has two types of cost component based on their nature:

i) Fixed Cost: Fixed charges of Generating stations, Transmission charges, Return on Equity, Interest on Loan, Depreciation, Operation & Maintenance Charges etc.
ii) Variable Cost: Fuel Cost of Generating stations

Accordingly, the tariff for Distribution Licensees is also determined in two parts, comprising of Fixed Charge and Energy Charge.

Ideally the fixed cost should be recovered through fixed charges and variable cost should be recovered through energy charges of the tariff respectively. However, the present retail tariff applicable in most of the states in India includes only a part of the fixed cost into recovery as fixed *charges, whereas major portion of the fixed cost is recovered through energy charge component of the retail tariff."*

With this backdrop in mind, the Commission has proposed provisions in draft regulations, specifying broad principles for rationalisation of tariff. The foremost requirement is to assess the actual cost of supply to each category or sub-category of consumers. This shall help in analysing the current status cost coverage and cross subsidy and formulate a plan for rationalisation. The following provisions have been proposed in Regulations:

a) The Commission shall endeavour to determine cost of supply for each category/ sub-category of Consumers. The Commission shall endeavour to reduce gradually the cross-subsidy between Consumer categories with respect to the cost of supply in accordance with the provisions of the Act.

b) The tariff determination may be based on the following principles:

    i. The tariff for all categories shall be two part, consisting of fixed and variable charges.

    ii. The fixed charges in tariff shall progressively reflect actual fixed cost incurred by Distribution Licensee;

    iii. The overall Retail Supply tariff for different Consumer categories shall progressively reflect the cost of supply for different categories of Consumers;

    iv. The tariffs for residential Consumers shall be set considering the affordability of tariffs for various class of Consumers;

    v. The tariffs shall be set in such a manner that it may not present a tariff shock to any category of Consumers.