MAHARASHTRA ELECTRICITY REGULATORY COMMISSION

EXPLANATORY MEMORANDUM

ON

DRAFT MAHARASHTRA ELECTRICITY REGULATORY COMMISSION (MULTI YEAR TARIFF) REGULATIONS, 2019

May, 2019

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LIST OF ABBREVIATIONS

AAD	Advance against Depreciation
ACOS	Average Cost of Supply
ABT	Availability Based Tariff
AEML	Adani Electricity Mumbai Limited
ATE	Appellate Tribunal for Electricity
ATIL	Adani Transmission (India) Limited
EA 2003	Electricity Act, 2003
APR	Annual Performance Review
ARR	Aggregate Revenue Requirement
BEST	Brihanmumbai Electric Supply and Transport
CAGR	Compound Annual Growth Rate
CBG	Competitive Bidding Guidelines
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CFBC	Circulating Fluidised Bed Combustion
CIL	Coal India Limited
Ckt-km	Circuit Kilometres
COD	Commercial Operation Date
CPI	Consumer Price Index
CPRI	Central Power Research Institute
CTU	Central Transmission Utility
CUF	Capacity Utilisation Factor
DE	Design Energy
DISCOM	Distribution Companies
DSM	Demand Side Management
ECR	Energy Charge Rate
EE	Energy Efficiency
FAC	Fuel Adjustment Charges
FERV	Foreign Exchange Rate Variation
FGD	Flue Gas Desulphurisation
FOR	Forum of Regulators
FRL	Full Reservoir Level
GCV	Gross Calorific Value
GERC	Gujarat Electricity Regulatory Commission
GFA	Gross Fixed Asset

GoM	Government of Maharashtra
HT	High Tension
HVDC	High Voltage Direct Current
IIT	Indian Institute of Technology
IWC	Interest on Working Capital
InSTS	Intra-State Transmission System
JPTL	Jaigad Power Transco Ltd.
kWh	kilo Watt hour
LT	Low Tension
MDDL	Minimum Draw Down Level
MEGPTCL	Maharashtra Eastern Grid Power Transmission Company Ltd
MERC	Maharashtra Electricity Regulatory Commission
MNRE	Ministry of New and Renewable Energy
MoU	Memorandum of Understanding
MSEDCL	Maharashtra State Electricity Distribution Company Limited
MSETCL	Maharashtra State Electricity Transmission Company Limited
MSLDC	Maharashtra State Load Despatch Centre
MSPGCL	Maharashtra State Power Generating Company Limited
MYT	Multi Year Tariff
NAPAF	Normative Annual Plant Availability Factor
NEP	National Electricity Policy
NEEPCO	North Eastern Electric Power Corporation Limited
TP	Tariff Policy
OA	Open Access
O&M	Operation and Maintenance
PAF	Plant Availability Factor
PBR	Performance Based Regulation
PGCIL	Power Grid Corporation of India Limited
PLF	Plant Load Factor
PoC	Point of Connection
RE	Renewable Energy
REC	Rate of Energy Charges
RERC	Rajasthan Electricity Regulatory Commission
RInfra	Reliance Infrastructure
RInfra-G	Reliance Infrastructure Limited- Generation Business
RInfra-T	Reliance Infrastructure Limited- Transmission Business

RLDC	Regional Load Despatch Centre
ROE	Return on Equity
RPO	Renewable Purchase Obligation
R&M	Repair and Maintenance
SBBR	SBI Base Rate
SEB	State Electricity Board
SERC	State Electricity Regulatory Commission
SEZ	Special Economic Zone
SFOC	Secondary Fuel Oil Consumption
SHR	Station Heat Rate
SLDC	State Load Despatch Centre
SPTL	Sinnar Power Transmission Company Limited
STU	State Transmission Utility
TCR	Transmission Capacity Rights
ToD	Time of Day
TPC	Tata Power Company Limited
TPC-G	Tata Power Company Limited- Generation Business
TPC-T	Tata Power Company Limited- Transmission Business
TSC	Transmission Service Charges
TSU	Transmission System User
TTSC	Total Transmission System Cost
UERC	Uttarakhand Electricity Regulatory Commission
UI	Unscheduled Interchange
VIPL-T	Vidarbha Industries Power Limited
WPI	Wholesale Price Index

1 Introduction

1.1 Background & Regulatory Framework

As per Section 86 (1) (a) of the Electricity Act, 2003 ("EA 2003" or "the Act"), the State Electricity Regulatory Commissions (SERCs or Commissions) have been assigned the function of determining the tariff for generation, supply, transmission and wheeling of electricity, wholesale, bulk or retail, as the case may be, within the State.

The Electricity Act, 2003 (EA 2003), as amended from time to time, requires the appropriate Commission to be guided by **Multi-Year Tariff (MYT) principles** and the **principles and methodologies specified by the Central Electricity Regulatory Commission (CERC) for determination of the tariff applicable to Generating Companies and Transmission Licensees**, while specifying the Terms and Conditions for determination of tariff. Section 61 of the EA 2003 stipulates:

> *"61. 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****)*

CERC has recently notified the CERC (Terms and Conditions of Tariff) Regulations, 2019 [CERC MYT Regulations, 2019] for the Tariff Period from April 1, 2019 to March 31, 2024. In accordance with Section 61(a) of the Act, the Commission has been guided by the principles and methodologies specified by the CERC for determination of the tariff applicable to Generating Companies and Transmission Licensees, while framing the Tariff Regulations for the next Control Period. Also, the Commission has continued the approach of Multi-Year Tariffs, which have been in force in the State of Maharashtra from August 2005, in accordance with Section 61(f) of the Act.

Further, as per Section 62 of the Act, the Appropriate Commission has to determine the tariff for supply of electricity by a Generating Company to a Distribution Licensee, transmission, wheeling and retail sale of electricity, and may require the Licensee or Generating Company to furnish separate details in respect of generation, transmission and distribution of tariff. The relevant extract of Section 62 of the Act is reproduced herewith:

> *"62. (1) The Appropriate Commission shall determine the tariff in accordance with provisions of this Act for –*
>
> *(a) supply of electricity by a generating company to a distribution licensee:*
>
> *...*
>
> *(b) transmission of electricity;*
>
> *(c) wheeling of electricity;*
>
> *(d) retail sale of electricity:*
>
> *...*
>
> *(2) The Appropriate Commission may require a licensee or a generating company to furnish separate details, as may be specified in respect of generation, transmission and distribution for determination of tariff.*
>
> *…*
>
> *(5) The Commission may require a licensee or a generating company to comply with such procedures as may be specified for calculating the expected revenues from the tariff and charges which he or it is permitted to recover…"*

Also, the National Electricity Policy and Tariff Policy have been notified by the Ministry of Power, Government of India, which provides the guidelines for determination of the revenue requirement and tariff. The National Electricity Policy provides certain guidelines as regards performance norms and 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".

The Tariff Policy notified on January 28, 2016 stipulates as under:

"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…"*

The Maharashtra Electricity Regulatory Commission (MERC or Commission) notified the MERC (Terms and Conditions of Tariff) Regulations, 2005 on August 23, 2005 under Section 61 of the Act. Subsequently, the Commission on February 4, 2011, notified the Maharashtra Electricity Regulatory Commission (Multi Year Tariff) Regulations, 2011 for the Control Period of five (5) financial years from April 1, 2011 to March 31, 2016.

The Commission notified the first amendment to the MERC (Multi Year Tariff) Regulations, 2011 on October 21, 2011 related to deferment of the implementation of the MYT framework on account of difficulty in giving effect to the determination of tariff with effect from April 1, 2011 under MERC MYT Regulations, 2011. Accordingly, the Commission deferred the implementation of MYT framework for two years for MSPGCL, MSETCL and MSEDCL and one year for RInfra (G, T & D) and BEST. The Commission notified the second amendment to the MERC MYT Regulations, 2011 on February 17, 2014 related to operation of generating stations in case of fuel shortages and consequential impact on demonstration of declared

capacity and backing down of generation. The Commission notified the third amendment to the MERC MYT Regulations, 2011 on May 8, 2014 related to change in mechanism of sharing of gains or loss on account of uncontrollable factors and approval of Z-factor charge including Z_{FAC} and Z_{OUC}.

On December 8, 2015, the Commission notified the MERC (Multi Year Tariff) Regulations, 2015 [MERC MYT Regulations, 2015], which superseded the MERC (Multi Year Tariff) Regulations, 2011. The Commission notified the first amendment to the MERC MYT Regulations, 2015 on November 29, 2017 related to determination of normative Operation and Maintenance Expenses.

As the current MYT Control Period is coming to end on March 31, 2020, the MERC has formulated the draft Maharashtra Electricity Regulatory Commission (Multi Year Tariff) Regulations, 2019 (hereinafter referred as "draft MERC MYT Regulations, 2019) covering the Generation Business (Conventional), Transmission Business, Distribution Wires Business, Retail Supply Business, and SLDC for the next MYT Control Period.

As stated earlier, while formulating the draft MERC MYT Regulations, 2019, the Commission has been guided by the CERC MYT Regulations, 2019. The Commission has also been guided by the National Electricity Policy, Tariff Policy, relevant Regulations of this Commission and other SERC's, FOR Recommendations on MYT Framework, APTEL Judgments, etc., for the formulation of draft MERC MYT Regulations, 2019.

The Commission has proposed modifications to certain clauses vis-à-vis the clauses specified in the MERC MYT Regulations, 2015 (as amended from time to time) based on the experiences in implementation of the MYT Regulations in the previous Control Period, and in order to simplify/clarify/amend certain provisions as considered reasonable. **The rationale for the changes proposed in the MERC MYT Regulations have been elaborated in this Explanatory Memorandum. In cases where no change is proposed, the same has not been explicitly mentioned. Generally, only the clauses where any addition/modification is proposed in the MERC MYT Regulations, 2019 have been discussed in this Explanatory Memorandum.**

The Commission while formulating draft MERC MYT Regulation, 2019, has endeavoured to balance the interest of consumers, Generating Companies, Transmission Licensees, Distribution Licensees and SLDC. Based on the analysis, possible regulatory options for the next Control Period have been discussed in subsequent Chapters.

The Explanatory Memorandum is organised in the following Chapters:

Chapter 1: Introduction

Chapter 2: General Principles and Multi Year Tariff Framework

Chapter 3: Financial Principles

Chapter 4: Norms and Principles for determination of Revenue Requirement and Tariff for Generation Companies

Chapter 5: Norms and Principles for determination of Revenue Requirement and Tariff for Transmission Business

Chapter 6: Norms and Principles for determination of Revenue Requirement and Wheeling Charges for Distribution Wire Business

Chapter 7: Norms and Principles for determination of Revenue Requirement and Tariff for Retail Supply Business

Chapter 8: Norms and Principles for determination of Fees and Charges for the Maharashtra State Load Despatch Centre (MSLDC).

2 General Principles & Multi Year Tariff Framework

2.1 Objectives

This Chapter of the Explanatory Memorandum elaborates the General Principles for formulation of Regulations for approval of Aggregate Revenue Requirement (ARR) and Tariff under a Multi-year Tariff (MYT) framework for the fourth Control Period.

The broad objectives of any regulatory framework are to:

(a) 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;
(b) Address the risk sharing mechanism between Utilities and consumers based on controllable and uncontrollable factors;
(c) Ensure financial viability of the sector to attract investment, ensure growth and safeguard the interest of the consumers;
(d) Establish operational norms for Generation, Transmission, and Distribution businesses;
(e) Promote operational efficiency.

Long-Term Tariff principles are intended to give clarity to the Generating Companies, Transmission Licensees, Distribution Licensees, consumers, and the other stakeholders regarding the principles governing the determination of revenue requirement and tariffs in the State of Maharashtra.

For the Generating Companies and Licensees, the principles provide clarity on the regulatory framework applicable over the long-term, and help finance growth and operations better, and facilitate improvement in supply quality and customer service. Secondly, the design of efficiency incentives helps promote operational efficiency.

For consumers, improvement in operational efficiency translates into more cost-effective tariffs, as efficient licensees can provide better supply and service, and remain viable.

2.2 Prescribing Norms Vs Prescribing Principles in the Regulations

There are two options to specify trajectories for performance parameters under the Regulations, viz.:

(a) Prescribing operational and financial norms, based on the analysis of past performance levels vis-a-vis the approved levels and benchmarking with comparable entities across different States or within the State, as appropriate.

(b) Prescribing principles outlining the approach to be followed while determining the

ARR.

Both the approaches have their merits and demerits. However, prescribing norms based on the analysis of past performance levels vis-à-vis the approved trajectory of previous Control Period, provides clarity about the roadmap of tariff to the Utilities as well as to the consumers. Regulatory certainty is one of the key objectives of any MYT framework, and hence, it is preferable to specify norms rather than principles, wherever feasible.

In this context, the Forum of Regulators (FOR) Report on MYT framework recommends as under:

> *"6.1.1* ***Annual revision of performance norms and tariff might not be desirable****. During the first control period, which should not be more than three years, the opening levels of performance parameters should be specified as close to the actual level of performance as possible and* ***a trajectory of improvement of norms to desired level be provided with an incentive and disincentive mechanism to share efficiency gains with consumers."***

The FOR Report recommends that the norms should be specified as close to actual level of performance as possible. The FOR Report also underlines on specifying a trajectory to achieve desired levels of norms, which entails fixing of performance trajectory on normative basis rather than at actual levels for the second Control Period onwards.

Further, Para 5.3 (f) of the Tariff Policy stipulates as under:

> *"f) Operating Norms*
>
> ***Suitable performance norms of operations together with incentives and dis-incentives would need be evolved along with appropriate arrangement for sharing the gains of efficient operations with the consumers.*** *Except for the cases referred to in para 5.3 (h)(2),* ***the operating parameters in tariffs should be at "normative levels" only and not at "lower of normative and actuals"****. This is essential to encourage better operating performance. The norms should be efficient, relatable to past performance, capable of achievement and progressively reflecting increased efficiencies and may also take into consideration the latest technological advancements, fuel, vintage of equipments, nature of operations, level of service to be provided to consumers etc. Continued and proven inefficiency must be controlled and penalized….." (****emphasis added****)*

The Commission in the MERC MYT Regulations, 2015 had specified operational norms for Generation Business and Transmission Business as well as norms for O&M Expenses for Generation Business and Transmission Business. In the draft MERC (MYT) Regulations, 2019, it is proposed to continue with the same approach.

2.3 Commencement

The Commission, in the draft MERC MYT Regulations, 2019 has specified that these Regulations shall be applicable for all matters covered under the Regulations for the period with effect from April 1, 2020. The Commission has accordingly, replaced April 1, 2016 with April 1, 2020, at all appropriate places in the draft MERC MYT Regulations, 2019

2.4 Definitions

The Commission, in the draft MERC MYT Regulations, 2019 has modified some definitions and also added some definitions, as under:

1. The Commission has added the definition of "Bank Rate", as the same has been made applicable for payment of interest on Consumer Security Deposit, in accordance with the Act.

   *(10) "**Bank Rate**" shall mean the Bank Rate as declared by the Reserve Bank of India from time to time;*

2. The Commission has modified the definition of "Change in Law" by deleting clause (e) of Regulation 2(15) to exclude the occurrence of "coming into force or change in any bilateral or multilateral agreement or treaty between the Government of India and any other Sovereign Government…". The rationale for the same is that if any Generating Company or Transmission Licensee enters into any transaction with any Party in a foreign country, then such entity has to factor in the risks, and the consumer in the State of Maharashtra should not have to bear the risk of any subsequent development of any Agreement between the Government of India and any other Sovereign Government.

3. The Commission has added the definition of "Competitive Bidding", for greater clarity and to minimise ambiguity. The definition has been proposed based on the definition specified in the CERC Tariff Regulations, 2019, as reproduced below:

   "***(19) "Competitive Bidding"*** *means a transparent process for procurement of power, equipment, services and works in which bids are invited by the procurer by open advertisement covering the scope and specifications of the power requirement, equipment, services and works required, and the terms and*

conditions of the proposed contract as well as the criteria by which bids shall be evaluated, and shall include domestic competitive bidding and international competitive bidding;"

4. The "Cut-off Date" has been defined as under in the MERC MYT Regulations, 2015:

"Cut-off Date" means the 31st March of the Year ending after two Years of the Year of start of commercial operation of a Project and, in case a Project is declared to be under commercial operation in the last quarter of a year, shall mean the 31st March"

The implementation of the above clause could have been problematic, and CERC has simplified the definition to minimise ambiguity and avoid complexity. Accordingly, the definition of "Cut-Off Date" has been modified in line with the definition specified in the CERC Tariff Regulations, 2019, as reproduced below:

***"(23) "Cut-off Date"** means the last day of the calendar month after thirty-six months from the date of commercial operation of the project;"*

5. The Commission has added the definition of Extra High Tension and Low Tension and; modified definition of High Tension for the purpose of MYT Regulations.
The Extra High Tension is defined as under:

*" (34) **"Extra High Tension" (or "EHT")** means all voltages above 33 kiloVolt;"*

Also, the definition of High Tension is modified as under:

*"(46)**"High Tension" (or "HT")** means all voltages above and including 11 kiloVolt and up to and including 33 kiloVolt;"*

Also, the definition of Low Tension is added as under:

*" (52) **"Low Tension" (or "LT")** means all voltages below 11 kiloVolt;"*

6. The Commission has modified the definition of "Indian Governmental Instrumentality", for greater clarity and to minimise ambiguity. The definition has been proposed based on the definition specified in the CERC Tariff Regulations, 2019, as reproduced below:

*"(47) "**Indian Governmental Instrumentalit**y" means the Government of India, State Government and any Ministry or Department or Board or Agency controlled by Government of India or the Government of the State where the Project is located or regulatory or quasi-judicial authority constituted under the relevant statutes in India;"*

7. The Commission has notified the Maharashtra Electricity Regulatory Commission (Deviation Settlement Mechanism and Related matters) Regulations, 2019 on March 1, 2019. As a consequence, the parameter for measuring energy sent out is required to be modified from "actual generation" to "scheduled generation". Accordingly, the Commission has modified the definition of "Plant Load Factor" as reproduced below:

> *"(66) **"Plant Load Factor"** (or "**PLF")**, in relation to a thermal Generating Station or Unit for a given period, means the total sent-out energy corresponding to scheduled generation during such period, expressed as a percentage of sent-out energy corresponding to installed capacity in that period, and shall be computed in accordance with the following formula:*
>
> $$\text{Plant Load Factor (\%)} = 100 \times \sum_{i=1}^{N} SG_i \; / \; \{ N \times IC \times (1 - AUX_n) \} \%$$
>
> *where - N = number of time blocks in the given period*
>
> *SG = Scheduled Generation in MW for the i^{th} time block in such period*
>
> *IC = Installed Capacity of the Generating Station in MW*
>
> *AUX_n = Normative Auxiliary Consumption in MW, expressed as a percentage of gross generation;"*

8. On the same grounds, the Commission has modified the definition of "Pool Account" to include the accounts under Deviation Settlement Mechanism as reproduced below:

> *"(67) **"Pool Account"** means the accounts for payments relating to Unscheduled Interchanges ('UI Account') applicable under the Inter-State Availability Based Tariff (ABT) mechanism or Intra-State ABT Settlement Charges as identified under the Intra-State ABT mechanism operating in the State, or Reactive Energy Exchanges (Reactive Energy Account) or Deviation Settlement Mechanism under the Maharashtra Electricity Regulatory Commission (Deviation Settlement Mechanism and Related matters) Regulations, 2019 or any other such Accounts, which may be operated by the MSLDC in accordance with the Regulations or directions of the Commission;"*

9. The Commission has added the definition of "Revised Emission Standards" for thermal generating stations, for greater clarity and to minimise ambiguity. The definition has

been proposed based on the definition specified in the CERC Tariff Regulations, 2019, as reproduced below:

> *"(72) **"Revised Emission Standards"** in respect of thermal generating station means the revised norms notified as per Environment (Protection) Amendment Rules, 2015 or any other Rules as may be notified from time to time;"*

10. In order to address the consequential changes on account of notification of the Maharashtra Electricity Regulatory Commission (Deviation Settlement Mechanism and Related matters) Regulations, 2019, the Commission has added the definition of "Scheduled Energy" for greater clarity and to minimise ambiguity. The definition has been proposed based on the definition specified in the CERC Tariff Regulations, 2019, as reproduced below:

> *"(76) **"Scheduled Energy"** means the quantum of energy scheduled by the concerned Load Despatch Centre to be injected into the grid by a generating station for a given time period;"*

11. The Commission has added the definition of "Scheduled Generation" for greater clarity and to minimise ambiguity. The definition has been proposed based on the definition specified in the CERC Tariff Regulations, 2019, as reproduced below:

> *"(77) **"Scheduled Generation" or "SG"** at any time or for any period or time block means schedule of ex-bus generation in MW or MWh, given by the concerned Load Despatch Centre;*
>
> ***Note**:*
>
> *For open cycle gas turbine generating station or a combined cycle generating station if the average frequency for any time-block, is below 49.52 Hz but not below 49.02 Hz and the scheduled generation is more than 98.5% of the declared capacity, the scheduled generation shall be deemed to have been reduced to 98.5% of the declared capacity, and if the average frequency for any time-block is below 49.02 Hz and the scheduled generation is more than 96.5% of the declared capacity, the scheduled generation shall be deemed to have been reduced to 96.5% of the declared capacity. In such an event of reduction of scheduled generation of gas turbine generating station, the corresponding drawal schedule of beneficiaries shall be corrected in proportion to their scheduled drawal with adjustment of transmission losses on post facto basis."*

12. The Commission has simplified the definition of "Useful Life" as reproduced below:

*"(87) **"Useful Life"** in relation to a Unit of a Generating Station, transmission system, distribution system and communication system from the date of commercial operation shall mean the following, namely:-*

i.	*Coal/Lignite based thermal generating Station:*	*25 years;*
ii.	*Gas/Liquid fuel based thermal Generating Station:*	*25 years;*
iii.	*Hydro Generating Station including Pumped Storage Hydro Generating Station:*	*40 years;*
iv.	*AC and DC sub-Station:*	*35 years;*
v.	*Gas Insulated sub-Station:*	*35 years;*
vi.	*Transmission line (including HVAC and HVDC):*	*35 years;*
vii.	*Distribution line:*	*35 years;*
viii.	*Communication System:*	*15 years:*

Provided that the useful life for AC and DC sub-Stations and Gas Insulated sub-Station for which Notice Inviting Tender was floated before 01.04.2016 shall be considered as 25 years:

Provided further that the extension of life of the projects beyond the completion of their Useful Life shall be decided by the Commission;"

2.5 Control Period

The Control Period means a multi-year period typically ranging from 3 to 5 years, fixed by the Commission from time to time for the duration of which, the principles for determination of Aggregate Revenue Requirement (ARR) and tariff will be specified in the Regulations.

As stated earlier, the Act stipulates that a Multi-Year Tariff (MYT) framework has to be specified for determination of ARR and Tariffs. The Tariff Policy has stipulated a five-year MYT framework, after the initial Control Period.

In the MERC MYT Regulations, 2011, the Control Period was defined as five years, from April 1, 2011 to March 31, 2016. However, due to practical difficulties in implementation, the Commission had deferred the implementation of the MYT framework by two years for MSPGCL, MSETCL and MSEDCL and one year for other Utilities due to which the third Control Period was effectively of four (4) financial years duration for majority of the Utilities regulated by the Commission. Further, the CERC notifies the Tariff Regulations for every 5-year period, i.e., 2009-2014, 2014-2019, 2019-24, etc., and the CERC Tariff Regulations were expected to be notified in the beginning of 2019. Hence, the Commission had specified the third Control Period of 4 years from April 1, 2016 to March 31, 2020, as this would enable the

Commission to be guided by the CERC Tariff Regulations while formulating the MYT Regulations for the next Control Period, in accordance with Section 61(a) of the Act.

The CERC has recently notified the CERC Tariff Regulations, 2019 on March 7, 2019 for the Control Period of five (5) financial years from April 1, 2019 to March 31, 2024. Since the CERC will be notifying the Tariff Regulations for the subsequent five-year period from 2024-2029 in the beginning of 2024, in case a five-year Control Period is now adopted by the Commission, it would enable the Commission to be guided by the CERC Tariff Regulations while formulating the MYT Regulations for the next Control Period. Further, a five-year Control Period would give clarity on the ARR and tariff determination process for a longer tenure, thereby introducing a corresponding amount of regulatory certainty to the process.

Hence, it is proposed to have a Control Period of five (5) financial years, over the period from April 1, 2020 to March 31, 2025. Accordingly, the Control Period has been defined as under in the draft MERC MYT Regulations, 2019:

> *"(22) "**Control Period**" means the period comprising five Years from April 1, 2020 to March 31, 2025, and as may be extended by the Commission"*

2.6 Multi-Year Tariff Framework

Regulation 4 of the MERC MYT Regulations, 2015 specified the following MYT framework applicable till March 31, 2020, in accordance with the specified 4-year Control Period:

(a) Tariff determination for each year of the Control Period, at the beginning of the Control Period;
(b) True-up for the first year of the Control Period and provisional true-up for the second year of the Control Period at the time of MTR;
(c) Provision for Mid-Term Review (MTR) at the end of two years, i.e., the ARR and tariff determined in the MYT Order for the third and fourth year of the Control Period is subject to revision after MTR;
(d) True-up for the second and third year of the Control Period and provisional true-up for the fourth year of the Control Period at the time of MYT Order for the subsequent Control Period.

As stated earlier, it is proposed to have a Control Period of five years from April 1, 2020 to March 31, 2025. It is proposed to continue with the approach of provisional true-up of the current year at the time of tariff determination, as it provides the base values for the ensuing

period and also helps to minimise the carrying cost to be allowed at the time of true-up. Accordingly, the Commission has incorporated the corresponding changes in the MYT framework with respect to MTR, true-up, and provisional true-up, as under:

(a) Tariff determination for each year of the Control Period, at the beginning of the Control Period;
(b) True-up for the first and second year of the Control Period and provisional true-up for the third year of the Control Period at the time of MTR;
(c) Provision for Mid-Term Review (MTR) at the end of three years, i.e., the ARR and tariff determined in the MYT Order for the fourth and fifth year of the Control Period is subject to revision after MTR;
(d) True-up for the third and fourth year of the Control Period and provisional true-up for the fifth year of the Control Period at the time of MYT Order for the subsequent Control Period.

Accordingly, the MYT framework for the fourth Control Period is proposed to be modified as under:

*"4.1 The Commission shall determine the Tariff and Fees and Charges for matters covered under clauses (i), (ii), (iii), (iv), (v), (vi), (vii), and (viii) of Regulation 3.1**Error! Reference source not found.**, under a Multi-Year Tariff framework with effect from April 1, 2020.*

4.2 The Multi-Year Tariff framework shall be based on the following elements, for computation of Aggregate Revenue Requirement and expected revenue from Tariff and Charges for Generating Companies, Transmission Licensees, Distribution Wires Business, Retail Supply Business, and Fees and Charges of MSLDC:

(i) A Multi-Year Tariff Petition comprising the forecast of Aggregate Revenue Requirement, expected revenue from existing Tariff or Fees and Charges in case of MSLDC, expected revenue gap, and proposed Tariff or Fees and Charges for each year of the Control Period, shall be submitted by the Generating Company or Licensee or MSLDC:

…;

(ii) Determination of the Aggregate Revenue Requirement and Tariff or Fees and Charges for Generating Companies, Transmission Licensees, Distribution Wires Business, Retail Supply Business, and MSLDC by the Commission for each year of the Control Period, at the start of the Control Period:

…;

(iii) Petition for Mid-term Review of operational and financial performance vis-à-vis the approved forecast for the first three years of the Control Period; and revised forecast of Aggregate Revenue Requirement, expected revenue from existing Tariff, expected revenue gap, and proposed category-wise Tariffs for the fourth and fifth year of the Control Period, shall be submitted by the Generating Company or Licensee or MSLDC;

(iv) True-up for the first and second years of the Control Period based on audited accounts and provisional true-up for the third year of the Control Period of operational and financial performance vis-à-vis the approved forecast for the respective years shall be submitted by the Generating Company or Licensee or MSLDC along with its Petition for Mid-term Review;

(v) Determination of the revised Aggregate Revenue Requirement and Tariff or Fees and Charges for Generating Companies, Transmission Licensees, Distribution Wires Business, Retail Supply Business, and MSLDC by the Commission for the fourth and fifth year of the Control Period based on the Mid-term Review;

(vi) True-up for the first and second years of the Control Period, provisional true-up for the third year of the Control Period of operational and financial performance vis-à-vis the approved forecast for the respective years, and categorization of variation in performance as those caused by factors within the control of the Petitioner (controllable factors) and by factors beyond its control (uncontrollable factors) by the Commission, along with the Mid-term Review;

(vii) *…"*

2.7 Petitions to be filed in the Control Period

In the earlier Regulations, it is specified that Petitions are to be filed by November 30 of the respective year. Based on the experience of the Commission in the previous Control Periods and with the aim of ensuring timely issuance of Orders, the Commission has proposed to specify timeline as November 1 for Generating Companies and Transmission Licensees.

The timelines for filing of different Petitions during the fourth Control Period, the scope of the Petitions, and the applicable MYT Regulations for true-up for different years, have been proposed as under in the draft MYT Regulations, 2019.

Petition	Details	Timeline
Multi Year Tariff Petition	• Truing-up for FY 2017-18 and FY 2018-19 and provisional Truing-up for FY 2019-20 under MERC MYT Regulations, 2015; • ARR for each year from FY 2020-21 to FY 2024-25 under MERC MYT Regulations, 2019; • Revenue from the sale of power at existing Tariffs and charges and projected revenue gap for each year of the Control Period under MERC MYT Regulations, 2019; • Proposed category-wise Tariff for each year of the Control Period under MERC MYT Regulations, 2019	November 1, 2019 for Generating Companies, Transmission Licensees, and SLDC, and November 30, 2019 for Distribution Licensee
Mid Term Review Petition	• Truing-up for FY 2019-20 under MERC MYT Regulations, 2015 • Truing-up for FY 2020-21 and FY 2021-22 and provisional Truing-up for FY 2022-23 under MERC MYT Regulations, 2019 • Revised forecast of ARR, expected revenue from existing Tariff and charges, expected revenue gap, and proposed tariff for the fourth and fifth years of Control Period under MERC MYT Regulations, 2019	November 1, 2022 for Generating Companies, Transmission Licensees, and SLDC, and November 30, 2022 for Distribution Licensee
Truing-up Petitions	• Truing-up for FY 2022-23 and FY 2023-24 under MERC MYT Regulations, 2019 • Provisional Truing-up for FY 2024-25 under MERC MYT Regulations, 2019	November 1, 2024 for Generating Companies, Transmission Licensees, and SLDC, and November 30, 2024 for Distribution Licensee

The proviso permitting filing of a Petition at any time during the Control Period in case of variation in uncontrollable factors that may result in sudden, steep, and sustained increase in tariff, is proposed to be retained.

Further, the Commission is of the view that Generating Companies, Licensee and SLDC should adhere to the timelines for filing the Petition as specified in the MYT Regulations. In the past, it has been observed that, Utilities have delayed filing of Multi Year Tariff Petition as well as Mid Term Review Petition. This further delays the proceedings of the Petition and consequently, the issuance of Order. This further affects the recovery of Aggregate Revenue Requirement as per revised approved Tariff. Hence, in order to bring discipline in timely filing of the Petition, the Commission has proposed not to allow the corresponding revenue loss and associated carrying cost due to consequential delay in issue of the Order. Accordingly, the following proviso is added:

"Provided also that if the Petition is not filed within the specified timelines and/or data sought by the Commission for processing the Petition is not submitted within the stipulated time, then the corresponding revenue loss and associated carrying cost due to consequential delay in issue of the Order, shall not be allowed to the Generating Company or Transmission Licensee or Distribution Licensees or SLDC, as the case may be:"

2.8 Multi-Year Tariff Petition

The scope of the MYT Petition to be filed in accordance with the draft MERC MYT Regulations, 2019 has been retained as per Regulation 6 of the MERC MYT Regulations, 2015.

2.9 Mid-Term Review

In the Mid-Term Review (MTR), based on the actual performance and expenses vis-à-vis the normative levels, the Commission modifies the ARR and Tariff for the remaining years of the Control Period. Hence, for greater clarity, it is proposed to add the following provisos to Regulation 8.2, detailing the scope of the MTR Petition:

"8.2 The scope of the Mid-term Review shall be a comparison of the actual operational and financial performance vis-à-vis the approved forecast for the first three years of the Control Period; and revised forecast of Aggregate Revenue Requirement, expected revenue from existing Tariff, expected revenue gap, and proposed category-wise Tariffs for the fourth and fifth year of the Control Period:

Provided that as part of the Mid-term Review, the Commission may inter-alia modify the category-wise sales, power purchase expenses, operational performance norms or trajectory, O&M expenses, capital expenditure related expenses, principles/basis of

tariff categorisation, applicability of charges, Generation Tariff, Transmission Tariff, Wheeling Charges, and category-wise Tariff, as considered appropriate based on the data made available for the first three years of the Control Period:

Provided further that necessary justification for the modifications made in the Mid-term Review shall be elaborated in the Mid-term Review Order."

2.10 Controllable and Uncontrollable factors

While formulating the MYT framework, it is essential to clearly specify the controllable factors and uncontrollable factors and their treatment, since, the impact on the Utility due to uncontrollable factors is generally considered as a pass-through element in tariffs, while the impact of efficiency gain or loss on account of identified controllable factors has to be adjusted between the Utility and the consumers in a specified manner.

Regulation 9 of the draft MERC MYT Regulations, 2019 specifies the various controllable and uncontrollable factors to be considered and Regulations 10 and 11 provide the mechanism for treatment of gains or losses arising on account of such controllable and uncontrollable factors, respectively.

2.10.1 Controllable Factors

Controllable Factors are those considered to be under the Utility's control.

Regulation 9.2 (a) of the MERC MYT Regulations, 2015 specifies that change in Capitalisation on account of time and/or cost overrun/inefficiencies in the implementation of capital expenditure projects, which are not attributable to an approved change in scope of such project or change in statutory levies or force majeure events, shall be considered as controllable, since the Utility is responsible for any delay in the project completion and the impact of the delay in terms of cost should not be passed on to consumers, except in specific circumstances. This is because the delay in capitalisation leads to higher interest during construction and allied expenses. Such change in capitalisation would also impact the other heads of ARR such as Interest Expenses, Depreciation and Return on Equity.

However, the Regulation does not intend to share loss on account of time and cost overruns or inefficiencies with consumers. Rather, it would be dealt on case-to-case basis. This has to be undertaken at the time of prudence check of the capital cost. In view of the above, variation in capitalisation on account of time and cost overrun or inefficiencies as well as interest charges, Return on Equity and Depreciation on account of such variation has been deleted from the list of Controllable factors. Further, a proviso has been added to prudence check of capital cost of the project, which has been discussed subsequently in next Chapter.

The Commission has specified the indicative list of Controllable factors in Regulation 9.2 of the draft MERC MYT Regulations, 2019 for the next Control Period, i.e., from April 1, 2020 to March 31, 2025, as under:

> *"9.2 Variations or expected variations in the performance of the Petitioner, which may be attributed by the Commission to controllable factors include, but are not limited to the following:*
>
> *(a) Variation in technical and commercial losses;*
>
> *(b) Variation in operational norms;*
>
> *(c) Variation in amount of interest on working capital;*
>
> *(d) Variation in Operation & Maintenance expenses;*
>
> *(e) Variation in Coal transit losses."*

2.10.2 Uncontrollable Factors

Uncontrollable Factors are those factors, which are beyond the control of the Utility. Regulation 9.1 of the MERC MYT Regulations, 2015 specifies the list of controllable factors.

The Commission has observed that there is significant variation in the inter-State Transmission Charges, levied on Point-of-Connection (PoC) basis, due to various reasons, and the Distribution Licensee/s are not able to pass on the impact of the variation on a timely basis. Hence, it is proposed to include "Variation in inter-State Transmission Charges" in the list of Uncontrollable factors, and enable pass through of the variation through the Z_{FAC} mechanism.

Accordingly, the Commission has specified the Uncontrollable Factors in Regulation 9.1 in the draft MERC MYT Regulations, 2019 as under:

> "9.1 *The "uncontrollable factors" shall comprise the following factors, which were beyond the control of, and could not be mitigated by the Petitioner, as determined by the Commission:*
>
> *(a) Force Majeure events;*
>
> *(b) Change in law;*
>
> *(c) Variation in fuel cost on account of variation in price of primary and/or secondary fuel prices;*
>
> *(d) Variation in sales;*

(e) Variation in the cost of power purchase due to variation in the rate of power purchase, subject to clauses in the power purchase agreement or arrangement approved by the Commission;

(f) Variation in inter-State Transmission Charges;

(g) Variation in market interest rates for long-term loan; and

(h) Variation in freight rates."

2.11 Mechanism of Sharing of Gains and losses on account of uncontrollable and Controllable Factors

2.11.1 Sharing of Gains and Losses on account of Uncontrollable Factors

Regulation 10 of MERC MYT Regulations, 2015 specifies the method for allowing the gains or losses on account of uncontrollable factors as an adjustment in tariff. As discussed earlier, it is proposed to pass through the "Variation in inter-State Transmission Charges" through the Z_{FAC} mechanism. Further, it has been clarified that if the cumulative distribution losses of the Distribution Losses exceed the level approved by the Commission, the amount of Z_{FAC} corresponding to the excess distribution losses (in kWh terms) shall be deducted from the total Z_{FAC} recoverable. Also, the years in which the Z_{OUC} may be required to be passed through, have been modified to the second, third and fifth year of the Control Period, to factor in the change of the Control Period to five years from four years. As variation in inter-State Transmission Charges has been included under Z_{FAC}, the same has been removed from the scope of pass through under Z_{OUC}. Accordingly, the corresponding changes have been proposed in Regulation 10, as under, in the draft MERC MYT Regulations, 2019.

"10.1 The aggregate gain or loss to a Generating Company on account of variation in cost of fuel from the sources considered in the Tariff Order, including blending ratio of coal procured from different sources, shall be passed through as an adjustment in its Energy Charges on a monthly basis, as specified in Regulation 48.6.

10.2 The aggregate gain or loss to a Distribution Licensee on account of variation in cost of fuel, power purchase, and inter-State Transmission Charges, covered under Regulation 9.1, shall be passed through under the Fuel Adjustment Charge (FAC) component of the Z-factor Charge (Z_{FAC}), as an adjustment in its Tariff on a monthly basis, as specified in these Regulations and as may be determined in orders of the Commission passed under these Regulations, and shall be subject to ex-post facto approval by the Commission on a quarterly basis:

Provided that the Z_{FAC} for the first month of the first year of the Control Period shall require the prior approval of the Commission, based on prudence check;

Provided further that the Distribution Licensee shall submit, in the stipulated formats, details of the variation between expenses incurred and those approved by the Commission, and the detailed computations and supporting documents as may be required for verification by the Commission for the first month of the first year of the Control Period, for prior approval of $Z_{FAC;}$

Provided also that the Distribution Licensee shall submit the details of variation in fuel costs relating to power generated from own generation Stations and cost of power procured, and inter-State Transmission Charges for the first month of the first year of the Control Period, after completion of the first month.

10.3 The ZFAC component shall be applicable to the entire sales of a Distribution Licensee without any exemption to any consumer.

10.4 The ZFAC component shall be computed and charged on the basis of actual variation in cost of fuel and power purchase, and inter-State Transmission Charges relating to power procured during any month subsequent to such costs being incurred, in accordance with these Regulations, and shall not be computed on the basis of estimated or expected variations in fuel and/or power purchase costs.

10.5 After approval by the Commission of the ZFAC for the first month of the first year of the Control Period, the Distribution Licensee shall submit such details, in the stipulated formats, of the variation between expenses incurred and the figures approved, and the detailed computations and supporting documents as may be required for verification by the Commission for the subsequent months of the Control Period for post-facto approval of ZFAC:

Provided that the first quarter of the first year of the Control Period shall include the first month of the first year of the Control Period, for which prior approval of Z_{FAC} is required;

Provided further that the Distribution Licensee shall submit the details of variation in fuel costs relating to power generated from its own generation stations, cost of power procured, and inter-State Transmission Charges for the subsequent months of the Control Period on a quarterly basis within 60 days of the close of each quarter, for post facto approval;

Provided also that the Distribution Licensee shall submit the Z_{FAC} levied to all consumers for the preceding quarter vis-a-vis the Z_{FAC} recoverable, along with the detailed computations and supporting documents as may be required, for verification by the Commission:

Provided also that the Distribution Licensee shall provide details of the Commission's approval of levy of Z_{FAC} on its internet website.

10.6 The formula for computation of the FAC component of Z-factor Charge is as follows:

Z_{FAC} *(Rs crore) =* $F + C + B$,

Where,

Z_{FAC} = *Z-factor Charge component for FAC;*

F = *Change in fuel cost of own generation, cost of power purchase, and inter-State Transmission Charges as covered under Regulation 9.1;*

C = *Carrying Cost for any under recovery/over recovery, computed at the Base Rate prevailing at the beginning of the month, plus 150 basis points;*

B = *Adjustment factor for over-recovery/under-recovery.*

10.7 The calculation for FAC to be charged for the month "n" is as follows:

$Z_{FAC\ n}$ *(Rs crore)* $= F_{n-2} + C_{n-2} + B_{n-2,}$

Where,

F_{n-2} = *Change in fuel cost of own generation, cost of power purchase, and inter-State Transmission Charges, for the month "n-2", and shall be computed as*

F (Rs. Crore) $= A_{FC,Gen} + A_{FC,PP} + A_{TC}$,

Where,

$A_{FC,Gen}$ = *Change in fuel cost of own generation, to be computed based on the directives and norms approved by the Commission, including heat rate, auxiliary consumption, etc.;*

$A_{FC,PP}$ = *Change in variable and/or fixed cost of power procured from other sources, which would be allowed to the extent it satisfies the criteria prescribed in these Regulations and the prevailing Tariff Order, and subject to applicable norms;*

A_{TC} = *Change in inter-State Transmission Charges;*

C_{n-2} = *Carrying cost for any under recovery/over recovery for the month "n-2";*

B_{n-2} *(Rs. Crore)* $= Z_{FAC\ n-4} - R_{n-2}$

Where:

B_{n-2} = *Adjustment factor for over-recovery / under-recovery for the month "n-2";*

Z_{FACn-4} = Z_{FAC} *for the month "n-4";*

R_{n-2} = Z_{FAC} *for the month "n-4" actually recovered in the month "n-2":*

10.8 The total Z_{FAC} recoverable as per the formula specified above shall be recovered from the actual sales in terms of "Rupees per kilowatt-hour":

Provided that, in case of unmetered consumers, the Z_{FAC} shall be recoverable based on estimated sales to such consumers, computed in accordance with such methodology as may be stipulated by the Commission:

Provided further that, where the actual cumulative distribution losses of the Distribution Licensee exceed the level approved by the Commission, the amount of Z_{FAC} corresponding to the excess distribution losses (in kWh terms) shall be deducted from the total Z_{FAC} recoverable.

10.9 The Z_{FAC} per kWh for a particular Tariff category/sub-category/consumption slab shall be computed as per the following formula:

*$Z_{FAC\ Cat}$ (Rs/kWh) = [Z_{FAC} / (Metered sales + Unmetered consumption estimates + Excess distribution losses)] * k * 10,*

Where:

$Z_{FAC\ Cat}$ = Z_{FAC} component for a particular Tariff category/sub-category/consumption slab in 'Rupees per kWh' terms;

k = Average Billing Rate / ACOS;

Average Billing Rate = Average Billing Rate for a particular Tariff category/sub-category/consumption slab under consideration in 'Rupees per kWh' as approved by the Commission in the Tariff Order:

Provided that the Average Billing Rate for the unmetered consumers shall be based on the estimated sales to such consumers, computed in accordance with such methodology as may be stipulated by the Commission:

ACOS = Average Cost of Supply in 'Rupees per kWh' as approved for recovery by the Commission in the Tariff Order:

Provided that the monthly ZFAC shall not exceed 20% of the variable component of Tariff or such other ceiling as may be stipulated by the Commission from time to time:

Provided further that any under-recovery in the Z_{FAC} on account of such ceiling shall be carried forward and shall be recovered by the Distribution Licensee over such future period as may be directed by the Commission.

10.10 The consequential impact of decisions of higher Courts or Tribunals or Review Orders passed by the Commission on the Generating Company or Licensee shall be passed through under the 'Other Uncontrollable Cost' component of the Z-factor Charge (Z_{OUC}) as an adjustment in the Tariff on a yearly basis for the second, third and fifth Years of the Control Period, as may be determined in the Order of the Commission passed under these Regulations.

10.11 The impact of change in the intra-State transmission charges payable by the Distribution Licensee for the second, third and fifth Years of the Control Period shall be passed through under the Z_{OUC} as an adjustment in the Tariff of the Distribution Licensee on a yearly basis, as may be determined in the Order of the Commission passed under these Regulations.

10.12 The Z_{OUC} shall be determined based on a Petition filed by the concerned Generating Company or Licensee.

10.13 The consequential impact of decisions of higher Courts or Tribunals or Review Orders passed by the Commission on the Generating Company or Licensee, and the impact of change in the intra-State transmission charges payable by the Distribution Licensee, for the first and fourth Years of the Control Period shall be addressed in the Multi-Year Tariff Order and Mid-term Review Order, respectively."

2.11.2 Mechanism for sharing of Gains and Losses on account of Controllable Factors

Regulation 11 of the MERC MYT Regulations, 2015 specifies the method of sharing the gains and losses on account of controllable factors between the Generating Company or Licensee and the Beneficiaries. The same clauses are proposed to be retained in the MERC MYT Regulations, 2019.

2.12 Deviation from Ceiling Tariff

CERC, in the CERC Tariff Regulations, 2019, has specified an enabling clause permitting Generating Companies and Transmission Licensees to charge lower than approved tariff based on mutual agreement, which is required to be intimated to the Commission. Further, CERC has specified that in case the lower tariffs are charged due to under-recovery of depreciation after repayment of loans, then such balance depreciation shall be permitted to be recovered after the useful life of the asset.

The Commission has proposed a similar clause for Generating Companies and Transmission Licensees in the State of Maharashtra, except for the clause related to recovery of balance depreciation after useful life.

The proposed clauses are as under:

"17.1 The tariff determined in these Regulations shall be a ceiling tariff, and the Generating Company or Transmission Licensee and their Beneficiaries may mutually agree to charge a lower tariff.

17.2 The Generating Company or Transmission Licensee, may opt to charge a lower tariff for a period not exceeding the validity of these Regulations on agreeing to deviation from operational parameters, reduction in Operation and Maintenance expenses, reduced Return on Equity and incentive specified in these Regulations.

17.3 The deviation from the ceiling tariff determined by the Commission, shall come into effect from the date agreed to by the Generating Company or Transmission Licensee and the Beneficiaries.

17.4 The Generating Company and the Beneficiaries of a Generating Station or the Transmission Licensee and the Beneficiaries shall be required to intimate the Commission for charging lower tariff in accordance with Regulation 17.1 to 17.3 above. The details of the accounts and the tariff actually charged under Regulation 17.1 to 17.3 shall be submitted at the time of true up.

17.5 The revenue loss on account of charging lower than approved tariff shall be borne entirely by the Generating Company or Transmission Licensee and the impact of such revenue loss shall not be passed on to the Beneficiaries, in any form."

A similar clause already exists for Retail Supply Business in the MERC MYT Regulations, 2015, and no changes are proposed to this Clause.

3 Financial Principles

3.1 Financial Prudence

Regulation 22 of the MERC MYT Regulations, 2015 specifies the framework for assessing the Financial Prudence exercised by the Utilities, while determining the ARR and Tariff. The Financial Prudence is to be assessed with regard to the following factors:

(a) revenue;
(b) revenue expenditure;
(c) capital expenditure.

The Regulations provided that the Commission may disallow a part of the ARR, as an efficiency measure, if it finds the exercise of such prudence to have been deficient.

For proper monitoring of inventory and inventory management within prudence of revenue expenditure, it is proposed to add a proviso requiring submission of Cost Audit Report with due certification along with the true-up Petition, to ensure that the company is following optimum inventory management as proposed. The proposed proviso in the draft MERC MYT Regulations, 2019 is as under:

"*Provided also that the Generating Company or Licensee shall submit the Cost Audit Report along with the true-up Petition to justify the revenue expenses incurred as well as inventory management policies.*"

It has also been observed that some Generating Companies either over-estimate or under-estimate the generation for the future years, leading to mismatch while preparing the Energy Balance for the Distribution Licensee. Hence, it is proposed to add a clause requiring the Generating Company to project generation realistically, as reproduced below:

> *"(b) whether projected generation is based on realistic estimates, and adequate justification has been provided for any anomalous increase in generation projected by the Generating Company;"*

Similarly, it has also been observed that some Generating Companies and Licensees either over-estimate or under-estimate the capital expenditure and capitalisation for the future years, leading to significant tariff impact. Hence, it is proposed to add a clause requiring projection of capital expenditure and capitalisation realistically, as reproduced below:

> "*(a) whether projected capital expenditure and capitalisation is based on realistic estimates, and adequate justification has been provided for any anomalous increase in*

capital expenditure and capitalisation projected by the Generating Company or Licensee;"

3.2 Capital Cost and Capital Structure

Regulation 23 of the MERC MYT Regulations, 2015 specifies the components of capital cost. The Commission proposes to include additional provisos in line with CERC Tariff Regulations, 2019, detailing the exclusions from the capital cost of existing and new projects, viz.,

(a) Assets not in use;
(b) Decapitalised assets;
(c) Expenses incurred by project developer for getting the project site allocated by the State Government for hydro project;
(d) Proportionate cost of land being used for generating renewable energy;
(e) Any grant received from Central or State Government for execution of the project.

Further, the ceiling limit for initial spares are specified under Regulation 23.9 of MERC MYT Regulations, 2015. The Commission has proposed to continue the same ceiling limit for initial spares and has proposed a new ceiling limit for static synchronous compensator as 6%.

As discussed in earlier Chapter, the proviso has been added to prudence check of the capital cost regarding the treatment of gain and loss on account of variation in capitalisation, due to time and cost overruns.

The Commission, under the existing MERC MYT Regulations, 2015, approves the capital expenditure projects having value more than 10 Crore, under Detailed Project Report (DPR) schemes. The capitalisation under non-DPR schemes is limited to 20% of DPR capitalisation during the Control Period. It is proposed to continue with the same limit. However, in order to avoid double accounting, it is proposed to add a proviso to specify that Generating Company, Licensee and MSLDC should ensure that expenses that would normally be classified as O&M expenses are not categorised under non-DPR schemes. In order to have clear demarcation of activities, it is also proposed to add a proviso to specify the list of activities that can be undertaken under O&M, separately for Generation Business, Transmission Business and Distribution Business, based on a separate study and after public consultation before November 1, 2022.

Further, in case of assets being reutilised or assets which have already been put to use after COD, being utilised in the regulated business at a later date, it is proposed to incorporate clauses to ensure that only the depreciated capital cost of such assets are considered.

It is also proposed to add a requirement that the Distribution Licensee shall submit documentary evidence in support of its claim of assets being put to use, which requirement is already there for Generation Business and Transmission Licensees, and the process of verification that the Commission may undertake.

Accordingly, the Commission proposes the following provisions related to Capital Cost in the draft Regulations:

*" **24. Capital Cost and Capital Structure***

24.1 Capital cost for a capital investment Project shall include:

(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 this Regulation;

(c) expenses incurred by the Licensee on obtaining right of way, as admitted by the Commission after prudence check;

(d) additional capitalisation determined under Regulation 24;

(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:

Provided that any gain or loss on account of foreign exchange rate variation pertaining to the loan amount availed up to the date of commercial operation shall be adjusted only against the debt component of the capital cost:

Provided further that the capital cost of the assets forming part of the Project but not put to use or not in use, shall be excluded from the capital cost:

Provided also that the Generating Company or Transmission Licensee or Distribution Licensee shall submit documentary evidence in support of its claim of assets being put to use:

Provided also that the Commission may undertake a sample check to verify the assets put to use as submitted by the Generating Company or Licensee or SLDC, independent of the tariff determination process:

*Provided also that any capital expenditure incurred based on the specific requirement of a Generating Company or Licensee shall be substantiated with necessary documentary evidence of such request and undertaking received~~.~~**:***

Provided also that 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, as declared in the tariff petition;

(b) De-capitalised Assets after the date of commercial operation on account of replacement or removal on account of obsolescence or shifting from one project to another project:

Provided that in case replacement of transmission asset is recommended by State Transmission Utility, such asset shall be decapitalised only after its redeployment;

Provided further that unless shifting of an asset from one project to another is of permanent nature, there shall be no de-capitalization of the concerned assets.

(c) In case of hydro generating stations, any expenditure incurred or committed to be incurred by a project developer for getting the project site allotted by the State Government by following a transparent process;

(d) Proportionate cost of land of the existing project which is being used for generating power from generating station based on renewable energy; and

(e) Any consumer contribution or grant received from the Central or State Government or any statutory body or authority for the execution of the project which does not carry any liability of repayment.

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

… … …

Provided further that the entire gain to the Generating Company or Licensee or MSLDC on account of variations in capitalisation, in terms of variation in Interest and Finance Charges, Return on Equity, and Depreciation, shall be passed on as a rebate in Tariff over such period as may be stipulated in the Order of the Commission after prudence check:

Provided also that the loss to the Generating Company or Licensee or MSLDC on account of variations in capitalisation, in terms of variation in Interest and Finance Charges, Return on Equity, and Depreciation, shall be shared between the Generating Company or Licensee or MSLDC and the respective Beneficiary or consumer in the manner stipulated by the Commission in its Order after prudence check.

…..

24.4 The capital cost of the concerned asset/s shall be considered after deducting the amount of accumulated depreciation computed till the period of asset utilisation for unregulated

business or for the period the assets remain unutilised, for the purpose of tariff determination, in the following instances:

a) The asset/s have been used for a period of time for unregulated business or the asset/s have become part of the asset base of the regulated business after lapse of time with respect to the COD of the asset;

b) If the asset has not been put to use for the regulated business after COD.

.....

24.7 The amount of capitalisation against non-DPR schemes for any Year shall not exceed 20% or such other limit as may be stipulated by the Commission through an Order, of the amount of capitalisation approved against DPR schemes for that Year:

...

Provided further that the Generating Company or Licensee or MSLDC should ensure that expenses that would normally be classified as O&M expenses are not categorised under non-DPR schemes.

Provided also that the Commission shall prescribe the list of activities that can be undertaken under O&M, separately for Generation Business, Transmission Business, and Distribution Business, based on a separate study and after due regulatory process, before November 1, 2022.

.....

24.10 The capital cost may include initial spares capitalised as a percentage of the Plant and Machinery cost up to the cut-off date, subject to the following ceiling norms:

(a) Coal based/lignite fired Generating Stations: 4.0%;

(b) Gas turbine/combined cycle Generating Stations: 4.0%;

(c) Hydel Generating Stations, including pumped storage hydel generating Stations: 4.0%;

(d) Transmission System and Distribution System

(i) Transmission Line & Distribution Line: 1.0%;

(ii) Transmission sub-Station & Distribution sub-Station (green-field): 4.0%;

(iii) Transmission sub-Station (brown-field): 6.0%;

(iv) Series compensation devices and HVDC sub-Station: 4.0%;

(v) Gas Insulated sub-Station (GIS): 5.0%;

(vi) Communication System: 3.5%;

(vii) Static Synchronous Compensator: 6.0%.

"

3.3 Additional Capitalization

The MERC MYT Regulations specify the following types of Additional Capitalisation:

(a) capital expenditure within the original scope of work, after the date of commercial operation and up to the cut-off date;
(b) capital expenditure in respect of a new Project within the original scope of work after the cut-off date;
(c) capital expenditure after the cut-off date.

The Commission proposes to clearly segregate the additional capitalisation within the original scope and upto cut-off date, additional capitalisation within original scope and after cut-off date, and additional capitalisation beyond the original scope, in line with the CERC Tariff Regulations, 2019.

Further, the Commission proposes an enabling provision for Additional Capitalisation on account of revision of emission standards in line with the CERC Tariff Regulations, 2019.

The Commission proposes to clarify that the impact of additional capital expenditure would be considered during the next tariff determination process.

Therefore, the Commission proposes the following provisions for Additional Capitalisation in the draft MERC Tariff Regulations, 2019:

"*25.1 The capital expenditure, actually incurred or projected to be incurred, on the following counts within the original scope of work, after the date of commercial operation and up to the cut-off date, may be admitted by the Commission subject to prudence check:*

(i) Undischarged liabilities recognized to be payable at a future date;

(ii) Works deferred for execution;

(iii) Procurement of initial capital spares within the original scope of work, in accordance with the provisions of Regulation 24;

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

(v) Change in law or compliance of any existing law and:

(vi) Force majeure events:

Provided that the details of works included in the original scope of work along with estimates of expenditure, liabilities recognized to be payable at a future date and the works deferred for execution shall be submitted along with the Petition for determination of final Tariff after the date of commercial operation of the Generating Unit/Station or transmission system.

25.2 The capital expenditure incurred or projected to be incurred in respect of a new Project on the following counts within the original scope of work after the cut-off date may be admitted by the Commission, subject to prudence check:

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

(ii) Change in law or compliance of any existing law;

(iii) Deferred works relating to ash pond or ash handling system in the original scope of work;

(iv) Any liability for works executed prior to the cut-off date, after prudence check of the details of such undischarged liability, total estimated cost of package, reasons for such withholding of payment and release of such payments, etc.;

(v) Force majeure events;

(vi) Liability for works admitted by the Commission after the cut-off date to the extent of discharge of such liabilities by actual payments; and

(vii) Raising of ash dyke as a part of ash disposal system:

Provided that in case of replacement of assets deployed under the original scope of the existing project after cut-off date, the additional capitalization may be admitted by the Commission, 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.

25.3 The capital expenditure, in respect of existing generating Station or the transmission system including communication system, incurred or projected to be incurred on the following counts 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 the 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;

(v) Deferred works relating to ash pond or ash handling system in addition to the original scope of work, on case to case basis;

(vi) Usage of water from sewage treatment plant in thermal generating station:

Provided that any expenditure, which has been claimed under Renovation and Modernisation or repairs and maintenance under O&M expenses, shall not be claimed under this Regulation.

25.4 The additional capital expenditure required to be undertaken by the existing generating station for compliance of the Revised Emissions Standards, may be admitted by the Commission, subject to prudence check based on the following details to be submitted by the Generating Company:

(i) details of proposed technology as specified by the Central Electricity Authority;

(ii) scope of work;

(iii) phasing of expenditure;

(iv) schedule of completion;

(v) estimated completion cost including foreign exchange component, if any;

(vi) detailed computation of indicative impact on tariff to the beneficiaries; and

(vii) any other information considered to be relevant by the Generating Company:

Provided that the Commission may grant approval after due consideration of the reasonableness of the cost estimates, financing plan, schedule of completion, interest during

construction, use of efficient technology, cost-benefit analysis, and such other factors, as may be considered relevant by the Commission.

25.5 Impact of additional capitalisation on Tariff, if any, shall be considered during the subsequent tariff determination process."

3.4 Debt - Equity Ratio

Regulation 26 of the MERC MYT Regulation, 2015 specifies the debt-equity ratio to be considered.

The capital expenditure made by Licensees and Generation Companies should be done at an optimum debt:equity ratio, in order to balance the need for providing sufficient returns that can be earned by Licensees and Generation Companies and protecting the interest of consumers. Since, it is proposed to adopt Equity as the Rate Base for Utilities in Maharashtra, it is necessary to specify the normative Debt-Equity ratio. The existing MERC MYT Regulations, 2015 specify the normative debt: equity ratio of 70:30. In case the actual equity employed is less than 30% of the capital cost, then actual equity is considered for determination of tariff. In case the actual equity employed is more than 30% of the capital cost, then the equity in excess of 30% is considered as normative loan for determination of tariff.

Other SERCs have followed the same normative debt:equity ratio for tariff determination in their respective States. In this context, Clause 5.3 (b) of Tariff Policy stipulates:

> "*For financing of future capital cost of projects, a Debt: Equity ratio of 70:30 should be adopted. Promoters would be free to have higher quantum of equity investments. The equity in excess of this norm should be treated as loans advanced at the weighted average rate of interest and for a weighted average tenor of the long term debt component of the project after ascertaining the reasonableness of the interest rates and taking into account the effect of debt restructuring done, if any. In case of equity below the normative level, the actual equity would be used for determination of Return on Equity in tariff computations*. "

It is proposed to continue with the said provision of Debt - Equity ratio of 70:30 for tariff determination of Generation Companies, Transmission Licensee and Distribution Licensees during the next Control Period, which is also in line with CERC Tariff Regulations, 2019.

The existing Tariff Regulations provide return on entire equity, even after the asset has been fully depreciated. Hence, the Commission proposes to consider the equity after completion of

useful life of the asset by reducing the same with the balance depreciation after repayment of loan in respect of the original project cost, in line with CERC Tariff Regulations, 2019.

Further, the existing Regulations specify that the entity shall submit "documentary evidence for the actual deployment of equity and explain the source of funds for the equity". The Commission proposes to introduce a proviso to implement this requirement.

In the regulated power sector, depreciation is used as a source of funds to meet the repayment obligations in order to minimise debt risk, as the cash flow of the regulated business is limited to the ARR approved by the Commission, which does not include the amount required for repayment of loan. It is hence, proposed to explicitly state that the depreciation is being allowed for repayment of loans. If there is no outstanding of actual or normative loans, then such depreciation beyond 70% or actual debt component amounts to the equity investment also being repaid, once the loans are repaid. However, Return on Equity is being allowed for the equity investment, even after the entire loan has been repaid. The Commission is of the view that depreciation beyond 70% of capital cost or actual debt component, amounts to undue enrichment to the Utility. Hence, it would be appropriate to utilise such depreciation for reduction/repayment of equity.

In view of the above, the Commission proposes the following provision for Debt-Equity Ratio in the draft Regulations:

"27.1 For a capital investment Scheme declared under commercial operation on or after April 1, 2020, debt-equity ratio as on the date of commercial operation shall be 70:30 of the amount of capital cost approved by the Commission under Regulation 24, after prudence check for determination of Tariff:

Provided that the equity investment to be considered in any year shall not exceed the difference between the cumulative return on equity allowed by the Commission in previous years and the cumulative equity investment approved by the Commission in previous years, unless the Generating Company or Licensee or MSLDC submits documentary evidence for the actual deployment of equity and explain the source of funds for the equity:

Provided further that once the individual asset is depreciated to the extent of seventy percent or to the extent of actual debt component used for funding such asset in case the debt funding is higher than seventy percent of the asset cost, the equity capital shall be reduced to the extent of depreciation allowed beyond seventy percent of the asset cost or beyond actual debt component in case the debt funding is higher than seventy percent of the asset cost:

Provided also that if the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan for the Generating Company or Licensee or MSLDC for determination of Tariff:

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

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

Explanation.- The premium, if any, raised by the Generating Company or the Licensee while issuing share capital and investment of internal resources created out of its free reserves, for the funding of the Scheme, shall be reckoned as paid up capital for the purpose of computing return on equity, provided such premium amount and internal resources are actually utilised for meeting the capital expenditure of the Generating Station or the transmission system or the distribution system, and are within the ceiling of 30% of capital cost approved by the Commission.

27.2 In case of the Generating Company or Licensee, if any fixed asset is capitalised on account of capital expenditure Scheme prior to April 1, 2020, the debt-equity ratio allowed by the Commission for determination of Tariff for the period ending March 31, 2020 shall be considered:

Provided that in case of retirement or replacement or de-capitalisation of the assets, the balance equity capital invested in the regulated Business approved in accordance with Regulation 27.1, shall be deducted from the regulatory equity of the Business:

Provided further that in case of retirement or replacement or de-capitalisation of the assets, the debt capital approved as mentioned above, shall be reduced to the extent of outstanding debt component based on documentary evidence, or the outstanding normative loan component, as the case may be, of the original cost of such assets.

…

27.4 In case of generating station or a transmission system including communication system or distribution network asset, which has completed its useful life as on or after 1.4.2020, the accumulated depreciation as on the completion of the useful life less cumulative repayment of loan shall be utilized for reduction of the equity."

3.5 Depreciation

Regulation 27 of the MERC MYT Regulations, 2015 specifies the principles for computing depreciation. The MERC MYT Regulations, 2015 has specified the straight-line method for

determination of depreciation expenses for Generation, Transmission, Distribution Wire and Retail Supply business, and a residual value of 10%. The depreciation rates are in line with the depreciation rates specified by CERC, the weighted average rate of which comes to approximately 5.28%. The Tariff Policy stipulates that the depreciation rates specified by the CERC should be adopted for generation and transmission business, and may be adopted for the distribution business also, after suitable modification to be undertaken by the Forum of Regulators.

Further, as discussed in earlier Section, the Depreciation allowed in each year beyond seventy percent or actual debt component, is utilised for reduction in equity during the year.

Accordingly, the following clauses are proposed for Depreciation in the draft MERC MYT Regulations, 2019:

"28.1 The Generating Company, Licensee, and MSLDC shall be permitted to recover depreciation on the value of fixed assets used in their respective Businesses, computed in the following manner:

(a) The approved original cost of the fixed assets shall be the value base for calculation of depreciation:

Provided that the depreciation shall be allowed on the entire capitalised amount of the new assets after reducing the approved original cost of the retired or replaced or de-capitalised assets.

(b) Depreciation shall be computed annually based on the straight line method at the rates specified in the ***Annexure I*** *to these Regulations:*

Provided that the Generating Company or Licensee or MSLDC shall ensure that once the individual asset is depreciated to the extent of seventy percent, remaining depreciable value as on 31st March of the year closing shall be spread over the balance Useful Life of the asset including the Extended Life, as provided in this Regulation:

Provided further that the Generating Company or Licensee or SLDC shall submit all such details or documentary evidence as may be required, to substantiate the above claims.

(c) The salvage value of the asset shall be considered at 10 per cent of the allowable capital cost and depreciation shall be allowed upto a maximum of ninety per cent of the allowable capital cost of the asset:

Provided that the Generating Company or Licensee or SLDC shall submit certification from the Statutory Auditor for the capping of depreciation at ninety per cent of the allowable capital cost of the asset:

Provided further that the salvage value of Information Technology equipment and computer software shall be considered at 0 per cent of the allowable capital cost.

….

28.3 In case of existing assets, the balance depreciable value as on April 1, 2020, shall be worked out by deducting the cumulative depreciation as admitted by the Commission up to March 31, 2020, from the gross depreciable value of the assets:

….

28.6 The Generating Company or Licensee or SLDC shall submit the depreciation computations separately for assets added upto March 31, 2020 and assets added on or after April 1, 2020.

28.7 Depreciation allowed for each year of the Control Period from FY 2020-21 to FY 2024-25 shall be deemed to be equal to the loan repayment, up to the ceiling of seventy percent of asset cost or actual debt component used for funding such asset in case the debt funding is higher than seventy percent of the asset cost:

Provided that depreciation allowed for each year of the Control Period from FY 2020-21 to FY 2024-25 beyond seventy percent of asset cost or actual debt component used for funding such asset in case the debt funding is higher than seventy percent of the asset cost, shall be deemed to be equal to repayment of equity during that year."

3.6 Return on Equity

Regulation 28 of the MERC MYT Regulations, 2015 specifies the principles for allowing Return on Equity (RoE). The MERC MYT Regulations, 2015 specifies the rate of return on equity for Generating Companies, Transmission Licensees, SLDC, and Distribution Wires business as 15.5% and for Retail Supply Business as 17.5%.

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, keeping in view his risk-return profile.

Returns are allowed on the Rate Base of Utilities for the investments made by Utilities in the regulated business. The Commission in existing MERC MYT Regulations, 2015 has adopted Return on Equity approach, where the rate base is equal to the equity invested in the business. Most of the State Electricity Regulatory Commissions (SERCs) in India have adopted the RoE approach for providing returns, which is a tried and tested approach and is also easy to

implement. CERC has also been following the RoE approach. In CERC Tariff Regulations, 2019, Return on Equity approach has been adopted for providing return on investment.

Hence, it is proposed that the present approach used by the Commission, i.e., RoE approach, be continued for the next Control Period.

Clause (d) of Section 61 of the Act provides that the Commission while specifying the terms and conditions for determination of tariff, shall be guided by the principle of "safeguarding of consumers interest and at the same time, recovery of cost of electricity in a reasonable manner".

The Capital Asset Pricing Model (CAPM) is typically used to determine the cost of equity. It is recognised that this model will not give the exact rate of return on equity, as it is based on the assumption of data which is taken as input. However, the CAPM gives an approximate rate of return on equity, which can be used to take an informed decision on rate of return on equity.

The CAPM describes the relationship between the expected return and risk of investing in a security. It shows that the expected return on a security is equal to the risk-free return plus a risk premium, which is based on the beta of that security. CAPM can be summarized according to the following formula:

Required (or expected) Return = Risk Free Rate + (Market Return – Risk Free Rate) x Beta.

CERC in Draft Regulations, 2019 has considered the yield on zero coupon Government securities as Risk Free rate. The Risk-Free rate has been considered as average of the yield on 10-year government securities yield for the period April, 2017 to March, 2018, i.e., 6.97% and for first quarter of FY 2018-19 is 7.76%. In the last 12 months or so, the 10-year government securities yield has been showing an increasing trajectory and has increased to 7.76%, after touching a 10-year low of 6.97% in FY 2017-18.

In order to compute the Market Risk Premium (Rm), the return expected by the market has been estimated by assuming the past returns provided by the equity market, as it mirrors the expectations of the investors. The average annual growth rate of the BSE Sensex over the period of 2001–2019 (Q-1) works out to around 17.00%.

Beta is a measure of the volatility, or systematic risk, of a security or a portfolio in comparison to the market as a whole. For computing the Beta for CAPM formula, the Beta for the infrastructure sector has been considered based on information from NIFTY, which works out to 0.97.

In the initial years, debt-equity ratio is close to normative debt: equity ratio of 70:30 and this high debt-equity ratio during the construction phase means higher risk for the equity holders during this period and hence, the expected returns are higher. However, once the asset is put to

use, the debt-equity ratio will reduce due to debt repayments made during the term of the loan and hence, reduce the risk for the equity holder. Once all the debt is re-paid, the financial risk is reduced to that of servicing only working capital requirements. As the risk profile reduces over the life of the project, the Commission is of the view that actual debt-equity ratio of the Companies is a good proxy of the financial risk involved through the life of the project.

Based on the CAPM model, CERC has computed the cost of equity for regulated entities in the power sector to be in the range of 12%-15%, and has continued the RoE rate of 15.5% for Generating Companies and Transmission Licensees.

However, the Risk-Free Rate (Average of 10-year yield of Zero Coupon Government Securities) has reduced from 7.99% in FY 2014-15 to 6.97% in FY 2018-19, while the average long-term interest rates have reduced from a range of 11.75% - 14.60% in FY 2014-15 to 9.25%-12.51% in FY 2018-19. As the Rate of RoE is formulated at a premium to the interest rates, considering the higher risk of equity vis-à-vis debt, it follows that there is a need to appropriately reduce the Rate of RoE.

It is observed that in major States like Gujarat, Tamil Nadu, Haryana, and Kerala, the rate of RoE is allowed at 14% for Generating Companies, Transmission Licensees, and Distribution Licensees. Considering the cost of equity, which works out to 12-15%, the lower rate of RoE prevalent in quite a few States, and the need to strike a balance between the viability of the Utility and interest of the consumers, it is proposed to reduce the Base Rate of RoE to 14% for Generating Companies, Transmission Licensees, SLDC, and Distribution Wires business. The Base rate of RoE for the Retail Supply Business is proposed at 15.5%, in view of the higher risks involved in the Business, as compared to the other Businesses.

Further, in CERC Tariff Regulations, 2019, RoE in respect of additional capitalization after cut-off date beyond the original scope excluding additional capitalization due to Change in Law is now being allowed at the weighted average rate of interest on actual loan portfolio. The provision related to additional capitalisation after cut-off date is proposed to be adopted since many generating stations are undertaking capital expenditure year on year and availing RoE.

Further, there have been instances in the past, when State-owned Generating Companies and Transmission Licensees have asked for lower than normative rate of RoE. A separate proviso has been added to address such situations, wherein the lower rate of RoE shall be considered based on the proposal of the Utility, with the caveat that part/full RoE foregone by the Utility for any year shall not be claimable at the time of True Up.

The Commission is of view that the above specified lower Rate of RoE should be considered as base returns and opportunities are to be given to Generating Companies and Distribution

Licensees to earn additional returns over and above this base return based on operational performances. For Transmission Licensee, the Commission is of view that there is no requirement for providing additional return because of lower risk in business.

For Generating Companies, the additional returns have been proposed based on achievement of ramp rate in line with CERC Tariff Regulations, 2019 and Mean Time between Outages. CERC Tariff Regulations, 2019 has specified the following aspects:

i. There is a penal provision for reduction of rate of RoE by 1% for new projects commissioned without RGMO/FGMO, data telemetry, communication system, lacking based on report submitted by the LDC. The Commission has proposed such penal provision in the draft MERC MYT Regulations, 2019.
ii. The rate of RoE shall be reduced by 0.25% in case of failure to achieve the ramp rate of 1% per minute. An additional rate of RoE of 0.25% shall be allowed for every incremental ramp rate of 1% per minute, subject to ceiling of additional rate of return on equity of 1.00%. The Commission has proposed such provision in the draft MERC MYT Regulations, 2019.

The above said provisos have been incorporated in draft Regulations. Further, Mean Time between Outages shall be monitored in order to promote the continuous operation of Generating Station/Unit without any forced outages. Continuous operation of Generating station/unit without any interruption for longer period is acknowledged as outstanding performance and additional returns have been proposed.

For Distribution Licensee, the additional return has been proposed based on asset turnover ratio, in order to optimise the utilisation of distribution assets. Asset turnover ratio shall be computed as the ratio of Energy Wheeled by the distribution system in Million Units to the Gross Fixed Assets of the combined Distribution Wires Business and Retail Supply Business in Rupees Crore. The Commission shall determine the Asset Turnover ratio for Distribution Licensee in the respective MYT Order.

Further, as discussed in the earlier Section of this Chapter, the depreciation after seventy percent shall be utilised for repayment/reduction of equity. The proviso regarding the reduction of equity has been incorporated.

Accordingly, the following modifications are proposed for Return on Equity in the draft MERC MYT Regulations, 2019:

"*29.1 Base Return on Equity for the Generating Company, Transmission Licensee, Distribution Wires Business and MSLDC shall be allowed on the equity capital determined in accordance with Regulation 27 for the assets put to use, at the rate of 14 per cent per annum*

in Indian Rupee terms, and for the Retail Supply Business, Return on equity capital shall be allowed on the amount of equity capital determined in accordance with Regulation 27 at the rate of 15.5 per cent per annum in Indian Rupee terms:

Provided that in case the Generation Company or Licensee or MSLDC claims Return on Equity at a rate lower than the normative rate specified above for any particular year, then such claim for lower Return on Equity shall be unconditional:

Provided further that such claim for lower Return on Equity shall be allowed subject to the condition that the reduction in Return on Equity shall be foregone permanently for that year and shall not be allowed to be recouped at the time of Mid-Term Review or true-up as applicable.

29.2 The Base Return on Equity shall be computed in the following manner:

(a) Return at the allowable rate as per this Regulation, applied on the amount of equity capital at the commencement of the Year; plus

(b) Return at the allowable rate as per this Regulation, applied on 50 per cent of the equity capital portion of the allowable capital cost, for the investments put to use in Generation Business or Transmission Business or Distribution Business or MSLDC, for such Year:

Provided that Base Return on Equity in respect of additional capitalization after cut-off date beyond the original scope excluding additional capitalization due to Change in Law, shall be computed at the weighted average rate of interest on actual loan portfolio of the generating station or the transmission system:

29.3 In case of a new project, the rate of Return on Equity shall be reduced by 1.00% for such period as may be decided by the Commission, if the generating station or transmission system is found to be declared under commercial operation without commissioning of any of the Restricted Governor Mode Operation (RGMO) or Free Governor Mode Operation (FGMO), data telemetry, communication system up to load dispatch centre or protection system based on the report submitted by the SLDC;

29.4 In case of existing generating station, as and when any of the requirements under Regulation 29.3 are found lacking based on the report submitted by the SLDC, rate of Return on Equity shall be reduced by 1.00% at the time of true-up, for the period for which the deficiency continues;

29. 5 In case of a thermal generating station, with effect from 1.4.2020, at the time of true-up:

a) rate of Return on Equity shall be reduced by 0.25% in case of failure to achieve the ramp rate of 1% per minute, for the year in which such ramp rate is not achieved;

b) an additional rate of Return on Equity of 0.25% shall be allowed for every incremental ramp rate of 1% per minute achieved over and above the ramp rate of 1% per minute, subject to ceiling of additional rate of return on equity of 1.00%, for the year in which such ramp rate is achieved:

c) an additional rate of Return on Equity shall be allowed as per the following schedule:

(i) 0.25% for Unit/Station that achieves Mean Time Between Failure (MTBF) of at least 90 days;

(ii) 0.50% for Unit/Station that achieves Mean Time Between Failure (MTBF) of at least 180 days;

(iii) 1.00% for Unit/Station that achieves Mean Time Between Failure (MTBF) of at least 240 days:

Provided that the Mean Time Between Failure (MTBF) shall be computed as provided in ***Annexure-III*** *to these Regulations.*

ii. In case of Distribution Wires Business, an additional rate of Return on Equity shall be allowed at the time of true-up as per the following schedule:

a) 0.25% for annual improvement in the Asset Turnover Ratio by at least 2%;

b) 0.50% for annual improvement in the Asset Turnover Ratio by at least 5%;

c) 0.75% for annual improvement in the Asset Turnover Ratio by at least 8%;

d) 1.00% for annual improvement in the Asset Turnover Ratio by at least 10%,

Where the Asset Turnover Ratio shall be computed as the ratio of Sales of Energy Wheeled by the distribution system in Million Units to the Gross Fixed Assets of the combined Distribution Wires Business and Retail Supply Business in Rupees Crore:

Provided that the Asset Turnover Ratio shall be determined by the Commission in the respective Multi-Year Tariff Order."

3.7 Interest on Loan

Regulation 29 of the MERC MYT Regulations, 2015 specifies the principles for allowing interest on long-term loans, with interest being calculated based on weighted average Rate of Interest of actual loan portfolio during the year for truing up and repayment of loan being considered equal to the depreciation.

It is proposed to clarify that the actual weighted average interest of the actual long-term loan portfolio shall be considered for computing the interest expenses.

In the existing Regulations, Interest during Construction (IDC) incurred on account of excess drawal of debts is allowed or disallowed, partly or fully, subject to prudence check. It has also been seen that in many cases, there is a time and/or cost over-run, which results in higher Interest during Construction (IDC), and therefore, higher Capital Cost. In case of delay in project execution, excess IDC may be partly/fully disallowed based on APTEL Judgment, however, the impact of the delay on the supply of electricity should be avoided. It is proposed that allowance of IDC in the capital cost shall be subject to justification and submission of documentary evidence.

Under the provisions for Refinancing of loans in the existing Regulations, net savings on interest and such benefit shall be shared between beneficiaries and Utilities in the ratio of 2:1, and the costs associated with such refinancing shall be borne by the beneficiaries. However, it is proposed that such refinancing of loans should be unconditional, beneficial to the entity and should be at the best terms of interest rate available at the market when refinancing is done by the beneficiary. It is proposed that refinancing should be done from banks and financial institutions recognised by Reserve Bank of India (RBI). It has also been observed that the interest cost has increased as a result of refinancing, which though disallowed by the Commission, leads to a situation where there is lack of clarity regarding the interest rate to be considered. It is hence, proposed to clarify that in such cases, the SBI MCLR shall be considered as the rate of interest.

Accordingly, the following modifications are proposed in the draft MERC MYT Regulations, 2019:

"... ...

30.3 The loan repayment during each year of the Control Period from FY 2020-21 to FY 2024-25 shall be deemed to be equal to the depreciation allowed for that year, up to the ceiling of seventy percent of asset cost or actual debt component used for funding such asset in case the debt funding is higher than seventy percent of the asset cost.

...

30.5 The rate of interest shall be the weighted average rate of interest computed on the basis of the actual long-term loan portfolio at the beginning of each year:

Provided that at the time of Truing-up, the weighted average rate of interest computed on the basis of the actual long-term loan portfolio during the concerned year shall be considered as the rate of interest:

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

Provided also that if the Generating Company or the Licensee or the MSLDC, as the case may be, does not have actual long-term loan even in the past, the weighted average rate of interest of its other Businesses regulated by the Commission shall be considered:

Provided also that if the Generating Company or the Licensee or the MSLDC, as the case may be, does not have actual long-term loan, and its other Businesses regulated by the Commission also do not have actual long-term loan even in the past, then the weighted average rate of interest of the entity as a whole shall be considered:

Provided also that if the entity as a whole does not have actual long-term loan, then the Base Rate at the beginning of the respective year shall be considered as the rate of interest for the purpose of allowing the interest on the normative loan…

30.9 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 drawal 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 based on the justification to be submitted by the Generating Company or Transmission Licensee or Distribution Licensee along with documentary evidence, as applicable:

…

Provided also that the Commission may also take into consideration the impact of time overrun on the supply of electricity to the concerned Beneficiary.

30.10 The Generating Company or the Licensee or the MSLDC, as the case may be, shall make every effort to re-finance the loan as long as it results in net savings on interest and in that event, the costs associated with such re-financing shall be borne by the Beneficiaries and the net savings shall be shared between the Beneficiaries and them in the ratio of 2:1, subject to prudence check by the Commission:

Provided that refinancing shall not be done if it results in net increase on interest:

Provided further that if refinancing is done and it results in net increase on interest, then the rate of interest shall be considered equal to the Base Rate as on the date on which the Petition for determination of Tariff is filed:

Provided also that the re-financing shall not be subject to any conditions that are not in line with standard loan documents:

Provided also that the Generating Company or the Licensee or the MSLDC, as the case may be, shall submit documentary evidence of the costs associated with such re-financing:

Provided also that the net savings in interest shall be computed after factoring all the terms and conditions, and based on the weighted average rate of interest of actual portfolio of loans taken from Banks and Financial Institutions recognised by the Reserve Bank of India, before and after re-financing of loans:

Provided also that the net savings in interest shall be calculated as an annuity for the term of the loan, and the annual net savings shall be shared between the entity and Beneficiaries in the specified ratio."

3.8 Interest on Working Capital

Regulation 31 of the MERC MYT Regulations, 2015 specifies the principles for computing the normative working capital requirement for different regulated Businesses and the Interest on Working Capital (IoWC) to be allowed thereon.

It is proposed to clarify that while computing working capital requirement for the ensuing year, the normative O&M expenses shall be considered, and at the time of True up, revised normative O&M expenses shall be considered.

Some Generating Companies have submitted in the past that they have to pay for the fuel in advance, and hence, the payables for fuel should not be deducted, while computing the working capital requirement. The Commission is of the view that in case the Fuel Supply Agreement provides for payment of fuel cost in advance, either for the full month or part of the month, then to that extent, the payables for fuel should not be deducted while computing the working capital requirement, provided the advance payment is actually made and substantiated by documentary evidence. A proviso has been introduced to this effect.

Further, the prevailing Regulations provides the cost of fuel towards stock for 15 days for pit-head generating stations and 30 days for non pit-head generating stations or maximum of fuel stock storage capacity, whichever is lower. In this context, CERC Tariff Regulations, 2019 has reduced cost of fuel towards stock to 10 days for pit-head generating stations and 20 days for non-pit head generating stations. In the interest of consumers, the Commission has decided to adopt the approach adopted by CERC and accordingly modified the proviso for computation of cost of coal towards stock.

It is also proposed to clarify that at the time of true-up, the working capital shall be computed based on the actual average fuel stock or normative fuel stock, whichever is lower, so that only appropriate working capital requirement is allowed.

It is also proposed to clarify that while computing working capital requirement, the receivables for all Businesses shall be considered based on the Charges approved in the Tariff Order after excluding incentives, if any. At the time of true-up, the actual revenue excluding incentive, if any, shall be considered. The incentive is an efficiency gain, over and above the approved ARR, and working capital interest is not required to be allowed on this amount.

Further, it is proposed to incorporate the proviso that, in case actual interest on working capital exceeds the normative interest on working capital, then the interest expenses incurred for funding of Regulatory Assets approved by the Commission shall be deducted from the actual interest on working capital, before sharing of the efficiency gain or efficiency loss, as the carrying cost on the Regulatory Asset is being allowed separately.

Further, since DPC is not considered as Non-Tariff Income, it should not be allowed as an expense also. Hence, the Commission proposes to clarify that the DPC shall be deducted from actual interest on working capital, before sharing of the efficiency gain or efficiency loss.

The consequential changes on account of the shift from actual generation to scheduled generation have also been incorporated.

Accordingly, the following modifications are proposed in the draft MERC MYT Regulations, 2019:

"*32.1 Generation*

(a) In case of coal based/lignite-fired Generating Stations, working capital shall cover:

(i) Cost of coal or lignite and limestone towards stock, if applicable, for ten days for pit-head Generating Stations and twenty days for non-pit-head Generating Stations, for generation corresponding to target availability, or the maximum coal/lignite stock storage capacity, whichever is lower;

…

(iv) Normative Operation and Maintenance expenses for one month;

(v) Maintenance spares at one per cent of the opening Gross Fixed Assets for the Year; and

(vi) Receivables for sale of electricity equivalent to forty-five days of the sum of annual fixed charges and energy charges approved in the Tariff Order for ensuing year/s, computed at target availability and excluding incentive, if any:

minus

(vii) Payables for fuel (including oil and secondary fuel oil) to the extent of thirty days of the cost of fuel computed at target availability, depending on the modalities of payment:

Provided that in case the Fuel Supply Agreement provides for payment of cost of fuel in advance, the payables for fuel shall not be deducted for the purpose of computing the working capital requirement to the extent of actual payment of such advance, as substantiated by documentary evidence:

Provided further that for the purpose of Truing-up, the working capital shall be computed based on the scheduled generation or target availability of the generating Station, whichever is lower:

Provided also that for the purpose of Truing up, the working capital shall be computed based on the actual average stock of coal or lignite and limestone or normative stock of coal or lignite and limestone of the generating Station, whichever is lower:

Provided also that for the purpose of Truing-up for any year, the working capital requirement shall be re-computed on the basis of the values of revised normative Operation & Maintenance expenses and actual Revenue from sale of electricity excluding incentive, if any, and other components of working capital approved by the Commission in the Truing-up before sharing of gains and losses;

(b) In case of oil-fired Generating Stations, working capital shall cover:

(i) ...

(iii) Normative Operation and Maintenance expenses for one month;

(iv) Maintenance spares at one per cent of the opening Gross Fixed Assets for the Year; and

(v) Receivables for sale of electricity equivalent to forty-five days of the sum of annual fixed charges and energy charges approved in the Tariff Order for ensuing year/s, computed on target availability and excluding incentive, if any:

minus

(vi) Payables for fuel to the extent of thirty days of the cost of fuel computed at target availability, depending on the modalities of payment:

Provided that for the purpose of Truing-up, the working capital shall be computed based on the scheduled generation or target availability of the generating Station, whichever is lower:

Provided further that for the purpose of Truing-up for any year, the working capital requirement shall be re-computed on the basis of the values of revised normative Operation & Maintenance expenses and actual Revenue from sale of electricity excluding incentive, if any, and other components of working capital approved by the Commission in the Truing-up before sharing of gains and losses;

(c) In case of Open Cycle Gas Turbine/Combined Cycle Generating Stations, working capital shall cover:

(i) ...

(iii) Normative Operation and maintenance expenses for one month;

(iv) Maintenance spares at one per cent of the opening Gross Fixed Assets for the Year; and

(v) Receivables for sale of electricity equivalent to forty-five days of the sum of annual fixed charges and energy charges approved in the Tariff Order for ensuing year/s, computed on target availability and excluding incentive, if any:

minus

(vi) Payables for fuel (including liquid fuel stock) to the extent of thirty days of the cost of fuel computed at target availability, depending on the modalities of payment:

Provided that for the purpose of Truing-up, the working capital shall be computed based on the scheduled generation or target availability of the generating Station, whichever is lower:

Provided further that for the purpose of Truing-up for any year, the working capital requirement shall be re-computed on the basis of the values of revised normative Operation & Maintenance expenses and actual Revenue from sale of electricity excluding incentive, if any, and other components of working capital approved by the Commission in the Truing-up before sharing of gains and losses;

(d) In case of Hydro power Generating Stations including pumped storage hydel electric generating Station, working capital shall cover:

(i) Normative Operation and maintenance expenses for one month;

(ii) Maintenance spares at one per cent of the opening Gross Fixed Assets for the Year; and

(iii) Receivables for sale of electricity equivalent to forty-five days of the annual fixed charges for ensuing year/s, approved in the Tariff Order, computed on normative capacity index and excluding incentive, if any:

Provided that for the purpose of Truing-up for any year, the working capital requirement shall be re-computed on the basis of the values of revised normative Operation & Maintenance expenses and actual Revenue from sale of electricity excluding incentive, if any, and other components of working capital approved by the Commission in the Truing-up before sharing of gains and losses;

….

32.2 Transmission

(a) The working capital requirement of the Transmission Licensee shall cover:

(i) Normative Operation and maintenance expenses for one month;

(ii) Maintenance spares at one per cent of the opening Gross Fixed Assets for the Year; and

(iii) One and a half months equivalent of the expected revenue from transmission charges at the Tariff approved in the Order for ensuing year/s;

minus

(iv) Amount held as security deposits in cash, if any, from Transmission System Users:

Provided further that for the purpose of Truing-up for any year, the working capital requirement shall be re-computed on the basis of the values of revised normative Operation & Maintenance expenses and actual Revenue from sale of electricity excluding incentive, if any, and other components of working capital approved by the Commission in the Truing-up before sharing of gains and losses;

….

32.3 Distribution Wires Business

(a) The working capital requirement of the Distribution Wires Business shall cover:

(i) Normative Operation and maintenance expenses for one month;

(ii) Maintenance spares at one per cent of the opening Gross Fixed Assets for the Year; and

(iii) One and half months equivalent of the expected revenue from charges for use of Distribution Wires at the Tariff approved by the Commission for ensuing year/s;

minus

(iv) Amount held as security deposits in cash from Distribution System Users:

Provided further that for the purpose of Truing-up for any year, the working capital requirement shall be re-computed on the basis of the values of revised normative Operation & Maintenance expenses and actual Revenue from sale of electricity excluding incentive, if any, and other components of working capital approved by the Commission in the Truing-up before sharing of gains and losses;

….

32.4 Retail Supply of Electricity

(a) The working capital requirement of the Retail Supply Business shall cover:

(i) Normative Operation and maintenance expenses for one month;

(ii) Maintenance spares at one per cent of the opening Gross Fixed Assets for the Year; and

(iii) One and half months equivalent of the expected revenue from sale of electricity at the Tariff approved by the Commission for ensuing year/s, and including revenue from cross-subsidy surcharge and additional surcharge, if any;

minus

(iv) Amount held as security deposits in cash from retail supply consumers;

(v) One month equivalent of cost of power purchased, including the Transmission Charges and SLDC Charges, based on the annual power procurement plan:

Provided that in case of power procurement from own Generating Stations of the Retail Supply Business, no amount shall be reduced from working capital requirement towards payables, to the extent of supply of power by the Generation Business to the Retail Supply Business, in the computation of working capital in accordance with these Regulations:

Provided further that for the purpose of Truing-up for any year, the working capital requirement shall be re-computed on the basis of the values of revised normative Operation & Maintenance expenses and actual Revenue from sale of electricity excluding incentive, if any, and other components of working capital approved by the Commission in the Truing-up before sharing of gains and losses;

….

32.5 MSLDC

(a) The working capital requirement of the MSLDC shall cover:

(i) Operation and maintenance expenses for one month;

(ii) One and a half months equivalent of the expected revenue from levy of Annual Fixed Charges approved by the Commission for ensuing year/s:

Provided further that for the purpose of Truing-up for any year, the working capital requirement shall be re-computed on the basis of the values of revised normative Operation & Maintenance expenses and actual Revenue from sale of electricity excluding incentive, if any, and other components of working capital approved by the Commission in the Truing-up before sharing of gains and losses;

.....

32.6 For the purpose of Truing-up for each year, the variation between the normative interest on working capital computed at the time of Truing-up and the actual interest on working capital incurred by the Generating Company or Licensee or MSLDC, substantiated by documentary evidence, shall be considered as an efficiency gain or efficiency loss, as the case may be, on account of controllable factors, and shared between it and the respective Beneficiary or consumer as the case may be, in accordance with Regulation 11:

Provided that the Delayed Payment Surcharge and Interest on Delayed Payment billed by the Generating Company or Licensee or MSLDC shall be deducted from the actual interest on working capital, before sharing of the efficiency gain or efficiency loss, as the case may be:

Provided also that if actual interest on working capital exceeds the normative interest on working capital, then the interest expenses incurred for funding of Regulatory Assets approved by the Commission shall be deducted from the actual interest on working capital, before sharing of the efficiency gain or efficiency loss, as the case may be."

3.9 Interest on Security Deposit

As per Regulation 29.11 of the MERC MYT Regulations, 2015, the interest on security deposit is payable at Base Rate plus 150 basis points.

However, Section 47(4) of the Electricity Act 2003 stipulates interest on security deposit as follows:

> *"47(4) The distribution licensee shall pay interest equivalent to the bank rate or more, as may be specified by the concerned State Commission, on the security referred to in*

sub-section (1) and refund such security on the request of the person who gave such security"

As per the Act, interest shall be payable on Consumer Security Deposit (CSD) at the Bank Rate stipulated by RBI or any other rate specified by the Commission. Further, most SERCs have retained the clause from the Act for interest on CSD.

The rate of Interest on CSD works out to around 10.05% presently, i.e., 8.55% + 1.5%, whereas Bank Rate of RBI is lower at 6.50%. This interest cost is a pass-through cost in the ARR and there appears to be no merit in allowing the higher interest rate on one side, which results in increasing the ARR, and hence, tariff. It is hence, proposed to revise the rate of interest on CSD to RBI Bank Rate.

The Bank Rate has been defined as RBI Bank Rate, as stated earlier. The following provision along with changes and addition is proposed:

"*31.11 Interest shall be allowed only on the amount held in cash as security deposit from Transmission System Users, Distribution System Users and Retail consumers at the Bank Rate as on 1st April of the Year for which the interest is payable:*"

3.10 Carrying Cost

Regulation 32 in the existing Regulations specifies the Carrying Cost as follows:

"*The Commission shall allow Carrying Cost or Holding Cost, as the case may be, on the admissible amounts, with simple interest, at the weighted average Base Rate prevailing during the concerned Year, plus 150 basis points.*"

Carrying cost is to be computed considering the net entitlement approved during the truing up exercise after deducting the incentive approved after the true-up year for Licensees. Incentive is to be deducted, as the incentive becomes due only after True up and hence, the Licensee was not required to fund this from other sources till its recovery.

Accordingly, the following clauses are proposed in the draft MERC MYT Regulations, 2019:

"*The Commission shall allow Carrying Cost or Holding Cost, as the case may be, on the admissible amounts, with simple interest, at the weighted average Base Rate prevailing during the concerned Year, plus 150 basis points:*

Provided that Carrying Cost or Holding Cost shall be allowed on the net entitlement after sharing of efficiency gains and losses as approved after true-up:

Provided further than in case of Transmission Licensees, the Transmission Incentive shall be deducted from the net entitlement, for the purpose of computing Carrying Cost or Holding Cost.

Provided also than in case of Distribution Licensees, the Incentive on account of Distribution Losses, as applicable, shall be deducted from the net entitlement, for the purpose of computing Carrying Cost or Holding Cost"

3.11 Income Tax

As per Regulation 33 of MERC MYT Regulations, 2015, Income Tax shall be recoverable based on the actual tax paid by the entity. This aspect is proposed to be explicitly stated in the draft MERC MYT Regulations, 2019.

The Profit Before Tax (PBT) approach for computing Income Tax is considered only for entities like RInfra (now AEML), TPC, etc., which have multiple businesses. For entities like MSETCL and MSPGCL, actual Income Tax paid less Income Tax on the identified heads, viz., efficiency gains, Other Business, etc., is considered.

Certain clarificatory provisos on the method of computing Regulatory PBT are proposed to be included, in order to clarify the treatment.

Also, since the actual Income Tax paid by the Utility is to be reimbursed through ARR and Tariff, the Utility should not earn any profit on account of being allowed higher Income Tax through tariff as compared to the Income Tax actually paid. In case of entities engaged in multiple Businesses, there have been instances where the Income Tax allowed for the regulated Business/es is higher than the Income Tax paid by the Company as a whole. This amounts to unjust enrichment. Hence, a proviso is proposed to be included to limit the Income Tax recoverable by the regulated Business to the actual Income Tax paid by Company as a whole, and also to specify that if no Income Tax has been paid by the Company as a whole, then no Income Tax shall be recoverable from the Beneficiary/ies of the regulated business.

Accordingly, following provision for Income tax is proposed in the draft Regulations:

"*34.1 The Income Tax actually paid by the Generating Company or Licensee or MSLDC for the regulated business shall be reimbursed through the Tariff charged to the Beneficiary/ies, subject to the conditions stipulated in Regulations 34.2 to 34.5.*

…

34.4 Variation between the Income Tax actually paid or Income Tax on regulatory Profit Before Tax of the regulated Business of Generating Company or Licensee or MSLDC, as

applicable, and the Income Tax approved by the Commission for the respective Year after truing up, shall be allowed for recovery as part of the Aggregate Revenue Requirement at the time of Mid-term Review or Truing-up, subject to prudence check:

Provided that Profit or Loss calculated after taking into account all the components of Aggregate Revenue Requirement (except Income Tax) and revenue approved by the Commission as specified in these Regulations shall be considered as Regulatory Profit or Loss for that year at the time of Mid-Term Review or Truing-up subject to prudence check:

Provided further that at the time of true-up, no Income Tax shall be considered on the amount of income from Delayed Payment Charges or Interest on Delayed Payment or Income from Other Business, as well as on the income from any source that has not been considered for computing the Aggregate Revenue Requirement:

Provided also that at the time of true-up, no Income Tax shall be considered on the amount of efficiency gains and incentive approved by the Commission, irrespective of whether or not the amount of such efficiency gains and incentive are billed separately:

Provided also that Income Tax of regulated business shall not exceed the actual Income Tax paid by the Company as a whole:

Provided also that if no Income Tax has been paid by the Company as a whole, then no Income Tax shall be recoverable from the Beneficiary/ies of the regulated business."

3.12 Contribution to Contingency Reserves

Regulation 34 of the MERC MYT Regulations, 2015 specifies the principles for allowing Contribution to Contingency Reserves.

It is observed during the past that certain Licensees have not invested the allowed amount in specified securities, within the specified timeframe of six months from the close of the Year. In the existing Regulations, there is no penalty for the Licensee in such cases except for charging the Licensee the holding cost. In this regard, it is proposed to add the following provisos in the draft MERC MYT Regulations, 2019:

"*35.1 Where the Licensee has made a contribution to the Contingency Reserve, a sum not less than 0.25 per cent and not more than 0.5 per cent of the original cost of fixed assets shall be allowed annually towards such contribution in the calculation of Aggregate Revenue Requirement:*

…

Provided also that if the Licensee does not invest the amount of contribution to Contingency Reserves in authorised securities within a period of six months of the close of the Year, then the contribution allowed in the calculation of Aggregate Revenue Requirement shall be disallowed at the time of true-up:

Provided also that if the Licensee does not invest the amount of contribution to Contingency Reserves in authorised securities for two consecutive Years, then the contribution to Contingency Reserves shall not be allowed in the calculation of Aggregate Revenue Requirement from the subsequent Year onwards."

3.13 Rebate, Incentive, and Penalties

The Rebate, incentive and penalties are specified in Regulation 35 of MERC MYT Regulations, 2015.

In order to encourage digital payments, it is proposed to incorporate digital payment discount of 0.25% in the Regulations. Accordingly, following proviso is proposed to be added in the draft MERC MYT Regulations, 2019:

"*36.3 A discount on the monthly bill (excluding taxes and duties) shall be provided to Low Tension category consumers for payment of electricity bills through various modes of digital payment such as credit cards, debit cards, UPI, BHIM, internet banking, mobile banking, mobile wallets, etc.*

Provided that the rate of such discount shall be stipulated by the Commission in the relevant Tariff Order"

3.14 Delayed Payment Charges

Regulation 36 of the MERC MYT Regulations, 2015 specifies the principles for Delayed Payment Charges and Interest on Delayed Payment Charges.

In this regard, it is proposed to reduce the ceiling rate of DPC and linked it to Marginal Cost of Funding Lending Rate. The rate of Interest on Working Capital has been specified as MCLR plus 150 basis points. The Delayed Payment Charges rate proposed are higher than the rate of Interest on Working Capital.

Accordingly, the following modifications are proposed in the draft MERC MYT Regulations, 2019:

"*37.1 In case the payment of bills of generation Tariff or transmission charges or MSLDC Fees and Charges by the Beneficiary is delayed beyond a period of 30 days from the date of billing,*

Delayed Payment Charge at the Base Rate as on 1st of the respective month plus 350 basis points per annum on the billed amount shall be levied for the period of delay by the Generating Company or the Transmission Licensee or MSLDC, as the case may be, notwithstanding anything to the contrary as may have been stipulated in the Agreement or Arrangement with the Beneficiaries.

37.2 In case the payment of bills of retail Tariff by the consumers is delayed beyond a period of 15 days for High Tension consumers and Extra High Tension Consumers and 21 days for Low Tension consumers from the date of billing, Delayed Payment Charge on the billed amount, including the taxes, cess, duties, etc., shall be levied at the rate of 1.25% on the billed amount on the billed amount for the first month of delay:

Provided that for delay in payment of bills of retail Tariff beyond 60 days and up to 90 days from the date of billing, Interest on Delayed Payment on the billed amount, including the Delayed Payment Charges, taxes, cess, duties, etc., shall be levied at the rate of 12% per annum:

Provided further that for delay in payment of bills of retail Tariff beyond 90 days from the date of billing, Interest on Delayed Payment on the billed amount, including the Delayed Payment Charges, taxes, cess, duties, etc., shall be levied at the rate of 15% per annum.

… … …"

4 Norms and Principles for determination of Revenue Requirement and Tariff for Generation Companies

This Chapter deals with the issues related to the tariff applicable for a Generating Company supplying power to the Distribution Licensees in the State of Maharashtra.

4.1 Background

The Maharashtra State Power Generating Company Limited (MSPGCL), The Tata Power Company Limited - Generation Business (TPC-G) and Adani Electricity Mumbai Limited - Generation Business (Formerly Reliance Infrastructure Ltd.- Generation Business) are the Generating Companies in the State of Maharashtra, who own and operate generating stations in the State and supply power to Distribution Licensees on a long-term basis based on tariff approved by the Commission. MSPGCL also operates various hydel generating stations, which are owned by the Water Resources Department of Government of Maharashtra (GoM) and have been handed over to MSPGCL for operation and maintenance, for which MSPGCL pays lease rent approved by the Commission.

In the second Control Period, MSPGCL has commissioned new Generating Units, viz., Khaparkheda Unit 5 and Bhusawal Unit 4 and 5, for which the tariff has been determined by applicable MYT Regulations. The Vidarbha Industries Power Limited – Generation Business (VIPL-G) had also entered into Power Purchase Agreement with RInfra-D and the Commission had approved the capital cost and determined its tariff in the second Control Period.

During the third Control Period, MSPGCL has commissioned new Generating Units, viz, Koradi Units 8,9 &10, Chandrapur Unit 8 & 9 and Parli Unit 8.

The summary of generating stations and their installed capacity is given in the following Tables:

Table 1: Generating Stations of MSPGCL

Station / Unit	No of Units	Installed Capacity	
		Capacity of each Unit in MW	Total Capacity in MW
Coal based and Gas based Thermal			
Uran (Gas)			**672**
Unit 5,6,7,8	*4*	*108*	*432*
WHR_AO, WHR_BO	*2*	*120*	*240*
Khaperkheda			**1340**
Unit 1,2,3,4	*4*	*210*	*840*
Unit 5	*1*	*500*	*500*
Paras			**500**

Station / Unit	No of Units	Installed Capacity	
		Capacity of each Unit in MW	Total Capacity in MW
Unit 3 & 4	*2*	*250*	*500*
Bhusawal			**1210**
Unit 3	*1*	*210*	*210*
Unit 4 & 5	*2*	*500*	*1000*
Nashik			**630**
Unit 3,4,5	*3*	*210*	*630*
Parli			**1170**
Unit 4,5	*2*	*210*	*420*
Unit 6,7,8	*3*	*250*	*750*
Koradi			**2400**
Unit 6,7	*2*	*210*	*420*
Unit 8,9,10	*3*	*660*	*1980*
Chandrapur			**2920**
Unit 3,4	*2*	*210*	*420*
Unit 5,6,7,8,9	*5*	*500*	*2500*
Sub-Total			**10842**
Hydel			
Koyna			*1956*
Vaitarna	1	60	*60*
Bhira	2	40	*80*
Tillari	1	66	*66*
Others			*168*
Ghatghar Pump storage	2	125	**250**
Sub-Total			**2580**
Total			**13422**

Table 2: Generating Stations of TPC-G

Sr. No	Station Name	Type and Fuel	Status	Unit Details	Capacity
1	Trombay	Thermal - Coal/Oil	Operational	Unit-5 (1 x 500 MW)	1430 MW
		Thermal - Oil/Gas	Standby	Unit-6 (1 x 500 MW)	
		Thermal - Gas	Operational	Unit-7 (1 x 180 MW)	
		Thermal - Coal	Operational	Unit-8 (1 x 250MW)	
2	Khopoli	Hydel	Operational		72 MW
3	Bhivpuri	Hydel	Operational		75 MW
4	Bhira	Hydel	Operational		300 MW
Total					**1877 MW**

Table 3: Generating Stations of AEML-G

Sr. No	Station Name	Type and Fuel	Status	Unit Details	Capacity
1	Dahanu	Thermal- Coal	Operational	2 x 250 MW	500 MW

Table 4: Generating Stations of VIPL-G

Sr. No	Station Name	Type and Fuel	Status	Unit Details	Capacity
1	Butibori	Thermal - Coal	Operational	2 x 300 MW	600 MW

The Commission proposes to determine Generation tariffs using a performance-based approach linked to efficiency parameters, which would be used to provide incentives based on actual performance.

4.2 Common Issues for Thermal and Hydel Generating Stations

4.2.1 Procedure for determination of Tariff

The MERC MYT Regulations, 2015 provides for determination of provisional tariff for the Unit or Stage or Generating Station as a whole, based on the Capital Expenditure incurred up to the Commercial Operation Date (COD), and additional Capital Expenditure incurred, duly certified by the Statutory Auditors. Such provisional tariff shall be applicable from the date of commercial operation till the final tariff is approved by the Commission. It also provides that the Generating Company may file a Petition for provisional tariff within six months of the anticipated date of commercial operation.

The Commission in the draft MERC MYT Regulations, 2019 has not proposed any changes in this aspect for the next Control Period.

4.2.2 Renovation and Modernisation

The MERC MYT Regulations, 2015 specifies the treatment on Renovation & Modernization. The Commission has not proposed any changes in the present provisions regarding Renovation and Modernization.

4.2.3 Treatment for Deviation Settlement Mechanism

The Commission has notified the MERC (Deviation Settlement Mechanism and related matters) Regulations, 2019 on March 1, 2019. As per these Regulations, the scheduling and billing shall be based on scheduled energy instead of actual energy, which is applicable as per present intra-State ABT mechanism.

The MERC MYT Regulations, 2015 provides for consideration of actual energy generated as per the then applicable intra-State ABT mechanism. However, in view of the implementation

of MERC DSM Regulations, the following changes are proposed in the MERC MYT Regulations, 2019:

The determination of generation tariff, truing up for respective year of the Control Period, sharing of gains and losses and incentive for higher generation shall be allowed based on scheduled energy.

The Billing to Distribution Licensee shall be based on scheduled generation.

Further, since MYT Regulations shall recognise only scheduled injection/drawal and not actual injection/drawal, it is proposed that any variation between actual net injection and scheduled net injection for generating stations and variation between actual net drawal and scheduled net drawal for the beneficiaries shall be treated as per MERC DSM Regulations, 2019. Accordingly, the following separate and new Regulation is proposed:

"54 Deviation Charges

54.1 Variations between actual net injection and scheduled net injection for the generating stations, and variations between actual net drawal and scheduled net drawal for the Beneficiary/ies shall be treated as their respective deviations, and charges for such deviations shall be governed by the Maharashtra Electricity Regulatory Commission (Deviation Settlement Mechanism and Related matters) Regulations, 2019:

Provided that the Deviation Charges paid or earned by the Generating Company/ies in accordance with Regulation 9 of the Maharashtra Electricity Regulatory Commission (Deviation Settlement Mechanism and Related matters) Regulations, 2019 and Additional Charges for Deviation in accordance with Regulation 10 of the Maharashtra Electricity Regulatory Commission (Deviation Settlement Mechanism and Related matters) Regulations, 2019, shall not be recoverable/adjusted from the Beneficiary/ies through Tariff:

Provided further that the Deviation Charges paid or earned by the Distribution Licensees in accordance with Regulation 9 of the Maharashtra Electricity Regulatory Commission (Deviation Settlement Mechanism and Related matters) Regulations, 2019 shall be recoverable/adjusted from the Beneficiary/ies through Tariff:

Provided also that the Additional Charges for Deviation paid or earned by the Distribution Licensees in accordance with Regulation 10 of the Maharashtra Electricity Regulatory Commission (Deviation Settlement Mechanism and

Related matters) Regulations, 2019, shall not be recoverable from the Beneficiary/ies through Tariff.

54.2 Actual net deviation of every Generating Station and Beneficiary shall be metered in accordance with Regulation 10 of the Maharashtra Electricity Regulatory Commission (Deviation Settlement Mechanism and Related matters) Regulations, 2019."

4.2.4 Sale of Infirm Power

As regards the sale of infirm power, Regulation 9(9) of MERC DSM Regulations, 2019 specifies the charges payable for deviation for infirm power injected into grid. Accordingly, the existing Regulation 42 of MYT Regulations, 2015 is proposed to be modified as under:

*"**43 Sale of Infirm Power***

The supply of Infirm Power shall be accounted as deviation and shall be paid at Charges for Deviation for Infirm Power in accordance with the Maharashtra Electricity Regulatory Commission (Deviation Settlement Mechanism and Related matters) Regulations, 2019:

Provided that any revenue earned by the Generating Company from supply of Infirm Power after accounting for the fuel cost shall be used for reduction in Capital Cost and shall not be treated as revenue."

4.3 Norms and Principles for Thermal Generating Stations

4.3.1 Components of Tariff

The tariff determined by the Commission is the primary source of revenue for a Generating Company and hence, the mechanism of cost recovery needs to be designed to ensure full cost recovery at normative levels prescribed by the Commission.

Typically, the Tariff for sale of electricity from a thermal power Generating Station comprises two parts, viz., Annual Fixed Charge and Energy Charge. The variable charge component is intended to recover the fuel costs for the primary fuel and secondary fuel consumption at normative parameters, in case of thermal generating stations.

As per MERC MYT Regulations, 2015, Energy Charges shall comprise primary fuel and secondary fuel cost. The Annual Fixed Charges comprises the following components:

(a) Operation & Maintenance Expenses;

(b) Depreciation;
(c) Interest on Loan Capital;
(d) Interest on Working Capital;
(e) Return on Equity Capital;
(f) Income Tax;

Less:

(g) Non-Tariff Income.
(h) Other Income

Further, prior period income/expenses shall be allowed at the time of Truing-up based on audited accounts, on a case to case basis, subject to prudence check.

The Commission in the draft MYT Regulations, 2019 has not proposed any changes in this aspect for the next Control Period, except to clarify the philosophy of allowing prior period income/expenses, as under:

"Provided further that prior period income/expenses shall be allowed by the Commission at the time of Truing-up based on audited accounts, on a case to case basis, if the income/expenses in that prior period have been allowed on actual basis, subject to prudence check:".

4.3.2 Operational Norms for Thermal generating Stations

The MERC MYT Regulations, 2015 specifies the various norms of operation for thermal Generating Stations. The norms and their impact on tariff have been summarised in the following table:

Table 5: Operational Norms for Generation Utility

Norms of Operation	Impact given in tariff
Plant Availability Factor (PAF)	Recovery of Annual Fixed Charges
Plant Load Factor (PLF)	Incentive for higher generation
Station Heat Rate (SHR)	Sharing of gains and losses on account of controllable factors
Auxiliary Consumption	Sharing of gains and losses on account of controllable factors
Secondary Fuel Oil Consumption (SFOC)	Sharing of gains and losses on account of controllable factors
Transit Loss (%)	Sharing of gains and losses on account of controllable factors

It is noted that CERC Tariff Regulations, 2019 has not specified separate norms for new Generating Stations and existing Generating Stations, and has specified the same norm for each performance parameter for both new as well as existing Generating Stations, and relaxed norms have been specified for few old Generating Stations of NTPC, Neyveli Lignite Corporation, Damodar Valley Corporation and North Eastern Electric Power Corporation Limited (NEEPCO) based on past performance.

It is proposed to adopt a similar approach and the same norm has been specified for each Performance parameter, which would be applicable to new as well as existing Generating Stations and relaxed norms have been specified for few Generating Stations. In the draft MERC MYT Regulations, 2019, the Commission has proposed the operational norms for existing as well as new generating stations. Further, norms for old generating stations of MSPGCL have been specified as per the recommendations of CPRI and based on actual performance. The Commission has analysed the actual performance of existing generating stations for deciding the proposed norms for next Control Period.

The approach adopted for the above norms of operation in the proposed Regulations is discussed below:

Plant Availability Factor

The MERC MYT Regulations, 2015 specifies the target Availability for full recovery of Annual Fixed Charges as 85%, for existing and new generating stations, with exceptions for MSPGCL's Generating stations.

As regards the normative availability for full recovery of fixed charges, it is proposed to retain the normative availability for recovery of fixed costs as 85% for all the existing and new generating stations.

The relaxed norms have been specified for some of MSPGCL's existing Generation Stations as 72% for Koradi TPS and 80% for Chandrapur TPS, Nashik TPS, Bhusawal TPS excluding Unit No. 4 and 5 and Parli TPS excluding Unit 6 and 7.

For MSPGCL Generating Stations, where relaxed norms have been specified, the actual performance parameters of Generating Stations for past five years, i.e., from FY 2012-13 to FY 2016-17 has been analysed as against the normative target availability. The following Table provides the comparison of actual availability with the normative availability for Generating stations in State of Maharashtra:

Table 6: Comparison of actual availaibilty with normative availaibilty

Particulars	Normative					Actual submitted					Average of FY 13 to 17
	FY 13	FY 14	FY 15	FY 16	FY 17	FY 13	FY 14	FY 15	FY 16	FY 17	
MSPGCL											
Bhusawal	80%	80%	80%	80%	80%	57.84%	59.90%	45.64%	66.51%	80.82%	62.14%
Chandrapur	80%	80%	80%	80%	80%	70.97%	57.68%	74.34%	77.51%	79.20%	71.94%
Khaperkheda	80%	85%	85%	85%	85%	75.61%	68.37%	84.83%	81.84%	87.85%	79.70%
Koradi	73.94%	72%	72%	72%	72%	48.42%	47.90%	60.45%	64.39%	61.15%	56.46%
Nasik	78.58%	80%	80%	80%	80%	83.45%	84.39%	86.57%	92.96%	91.76%	87.83%
Parli	44.32%	28.08%	80%	80%		44.32%	28.08%	33.93%	11.18%		29.38%
Uran	80%	85%	85%	85%	85%	63.86%	56.94%	63.13%	52.42%	58.88%	59.05%
Paras Unit 3 & 4	80%	85%	85%	85%	85%	74.36%	83.26%	81.40%	91.64%	76.81%	81.49%
Parli Unit 6 & 7	43.38%	57.14%	85%	85%	85%	43.38%	57.14%	87.76%	23.92%	46.05%	51.65%
Khaperkheda Unit # 5	34.39%	85%	85%	85%	85%	34.39%	65.17%	88.14%	88.11%	89.54%	73.07%
Bhusawal Unit # 4 & 5	-	-	85%	85%	85%	-	-	81.18%	89.09%	93.49%	87.92%
Koradi Unit 8, 9 & 10				85%	85%				58.63%	56.50%	57.57%
Chandrapur Units 8 & 9	-	-	-	-	85%	-	-	-	-	69.26%	69.26%
Parli Unit 8	-	-	-	-	85%	-	-	-	-	4.28%	4.28%
TPC-G											
Unit 4	85%	85%	85%	85%	85%	0.00%	100.00%	0.00%	0.00%	0.00%	20.00%
Unit 5	85%	85%	85%	85%	85%	98.00%	97.96%	85.07%	95.25%	88.55%	92.97%
Unit 6	85%	85%	85%	85%	85%	96.69%	85.51%	99.96%	92.99%	99.56%	94.94%
Unit 7	85%	85%	85%	85%	85%	98.00%	86.19%	77.34%	93.69%	98.33%	90.71%
Unit 8	85%	85%	85%	85%	85%	93.57%	77.74%	36.61%	94.72%	97.40%	80.01%
AEML-G DTPS	85%	85%	85%	85%	85%	102.37%	101.36%	91.60%	96.60%	99.51%	98.29%
VIPL-G DTPS	-	-	85%	85%	85%	-	-	84.83%	97.27%	91.78%	91.29%

As seen from the above Table, all the Generating Unit/Stations of TPC-G, AEML-G and VIPL-G have achieved the normative availability as specified by the Commission in the MYT Regulations, 2015. However, actual availability achieved by MSPGCL's Stations is lower than the normative availability, except for Nashik Station for three years, i.e., for FY 2014-15 to FY 2016-17.

The Availability norms specified for MSPGCL's old stations are relaxed norms. These existing norms for old stations of MSPGCL were fixed considering the recommendation of Central Research Power Institute (CPRI). Also, it was anticipated that the coal availability was likely to improve during the present Control Period, due to anticipatory measures taken by MSPGCL to improve the availability of coal. In spite of this, the actual availability is lower than relaxed norms. Hence, for next Control Period, the Commission does not intend to give further relaxation in availability norms and proposes to continue with the existing norms for Koradi TPS excluding Unit No. 8, 9 and 10, Chandrapur TPS excluding Unit No. 8 and 9, Bhuswal TPS excluding Unit 4 & 5 and Parli TPS excluding Unit 6, 7 & 8. Regarding Khaperkheda TPS

and Nashik TPS, the Commission has observed that actual performance has improved in past years. Hence, relaxed norms are not proposed for Khaperkheda TPS and Nashik TPS for the next Control Period.

In light of the foregoing, it is proposed that target availability for full recovery of Annual Fixed Charges for the next Control Period shall be **85% for all Thermal Generating Stations** except those covered in the following table:

Table 7: Target Availaibility for Old Generating Stations of MSPGCL

Particulars	Target Availability
Koradi TPS excluding Unit No. 8, 9 and 10	72.00 %
Chandrapur TPS excluding Unit No. 8 and 9	80.00 %
Bhusawal TPS excluding Unit No. 4 and 5	80.00 %
Parli TPS excluding Unit No. 6, 7 and 8	80.00 %

Further, it is specified in the definition of Availability that the Availability of a thermal Generating Station or Unit for any period shall not exceed hundred per cent.

Plant Load Factor (PLF)

As discussed above, the normative Plant Load Factor is linked to the incentive on generation. The MERC MYT Regulations, 2015 specify the target PLF for incentive as 85%.

Based on the analysis of actual performance of Generating Stations for past period, it is observed that PLF for all the Generating Stations of MSPGCL (including the new Units) is lower than the normative PLF of 85%, whereas PLF for TPC-G Units and AEML-G's Dahanu is higher than the normative PLF of 85%, except for TPC-G Unit 6, which is on Standby mode.

The MERC MYT Regulations, 2015 specifies that Incentive shall be payable at a flat rate of 25.0 paise/kWh for actual energy generation in excess of ex-bus energy corresponding to target Plant Load Factor.

The Commission has retained the philosophy of providing Incentive for actual generation higher than the target PLF, as the Commission is of the view that incentive has to be provided based on the actual performance of Generating Station/unit, irrespective of its scheduled generation or commitment. Further, higher incentive has been proposed for peak-period. It is proposed to continue with the existing Regulation with certain modifications and specify target Plant Load Factor for incentive as 85%.

The proposed Regulations are shown below:

"49.8 Incentive shall be payable at a flat rate of 50.0 paise/kWh for actual energy generation in excess of ex-bus energy corresponding to target Plant Load Factor during peak hours and at a flat rate of 25.0 paise/kWh for actual energy generation in excess of ex-bus energy corresponding to target Plant Load Factor during off-peak hours, on a cumulative basis within each Season (High Demand Season or Low Demand Season, as the case may be), as specified in Regulation 45.3 of these Regulations."

Gross Station Heat Rate

Station Heat Rate (SHR) is an indicator of power plant efficiency and it depends on the age, generation capacity, and technology of the generating unit. CERC, in its Tariff Regulations 2019, has considered the technology, configuration, and operating level of different power plants and accordingly different SHR has been fixed for thermal and gas turbine/combined cycle power plants. The practice followed by CERC covers all the dimensions of a generating Unit, which may have a bearing on the SHR. The experience of many other Generating Companies/SERCs and the data available in this regard suggests that the various factors affecting the Heat Rate are vintage, size, past generating history, past maintenance practices, condition of plant, etc.

The Commission in MERC MYT Regulations, 2015 specified SHR for existing and new generating stations having different Unit sizes, viz., 200/210/250 MW sets, 300 MW Sets and 500 MW sets, except MSPGCL's old stations. The Commission has specified the SHR for MSPGCL's old stations based on the recommendations of CPRI and proposed measures to be taken for improvement of performance of those generating stations.

The existing MERC MYT Regulations, 2015 specify the norms for SHR for existing Generating Station as under:

Particulars	200/210/250 MW sets	300 MW Sets	500 MW and above sets
Station Heat Rate	2450 kcal/kWh	2400 kcal/kWh	2375 kcal/kWh

It is proposed to specify the SHR for existing Generating Stations in line with norms stipulated in CERC Tariff Regulations, 2019, except for 500 MW sets. For 500 MW sets, CERC has relaxed norms to 2390 kcal/kWh. However, the Commission does not intend to relax the norm for 500 MW sets. Accordingly, the SHR norm for existing Stations except for the old Generating Stations of MSPGCL and TPC-G Unit 5 is shown in the Table below:

Particulars	200/210/250 MW sets	300 MW Sets	500 MW and above sets
Station Heat Rate	2430 kcal/kWh	2400 kcal/kWh	2375 kcal/kWh

In respect of 500 MW Units, where the boiler feed pumps are electrically operated, the gross Station Heat Rate shall be 40 kcal/kWh lower than the gross Station Heat Rate specified above. Also, it is further clarified that, for Generating Stations having combination of 200/210/250 MW sets and 300 MW and 500 MW sets, the normative gross Station Heat Rate shall be the weighted average Station Heat Rate.

Further, the Commission has analysed the past performance of the thermal generating stations of TPC-G, RInfra-G and MSPGCL in the context of SHR as shown in the Table below:

Table 8: Comparison of actual and normative Station Heat Rate of Existing Stations/Units (kcal/kWh)

Particulars	Normative					Actual submitted				
	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17
MSPGCL										
Bhusawal	2791.50	2774.56	2743.21	2739.46	2761.00	2788.39	2775.30	2721.10	2717.24	2730.45
Chandrapur	2698.31	2704.37	2679.52	2683.63	2688.00	2660.74	2708.63	2669.02	2669.75	2607.45
Khaperkheda	2612.68	2624.15	2607.54	2606.70	2606.00	2608.50	2628.48	2597.28	2611.27	2594.44
Koradi	2825.52	2862.02	2844.75	2854.39	2864.00	2849.14	2863.89	2767.21	2689.58	2743.92
Nasik	2756.50	2735.84	2718.58	2715.26	2727.00	2731.70	2701.48	2697.72	2692.45	2709.23
Parli	2837.99	2801.19	2841.30	2850.35	0.00	2837.99	2801.19	2803.98	2863.70	0.00
Uran	2000.68	2017.00	2021.00	2025.00	2023.00	2020.42	1996.73	2019.49	2041.56	2025.09
Paras Unit # 3 & 4	2500	2450	2450	2450	2450	2479.95	2463.11	2454.91	2443.10	2446.17
Parli Unit # 6 & 7	2625.22	2497.81	2450	2450	2450	2625.22	2497.81	2448.90	2447.34	2455.56
Khaperkheda Unit # 5	2802.40	2472.13	2425	2425	2375	2802.40	2534.82	2431.89	2418.94	2372.95
Bhusawal Unit # 4 & 5	-	-	2434.06	2434.06	2375	-	-	2479.20	2419.99	2417.40
Koradi Unit 8, 9 & 10	-	-	-	2,264.66	2,222.13	-	-	-	2,407.35	2,325.80
Chandrapur Units 8 & 9	-	-	-	-	2318.58	-	-	-	-	2308.70
Parli Unit 8	-	-	-	-	2352.83	-	-	-	-	3610.47
TPC-G										
Unit 4	2576	-	-	-	-	-	-	-	-	-
Unit 5	2583	2591	2573	2581	2525	2476	2501	2507	2520	2516
Unit 6	2524	2566	2647	2594	2544	2510	2649	2846	3054	-

Particulars	Normative					Actual submitted				
	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17
Unit 7	2013	2017	2021	2085	2023	1960	1998	1968	2136	1996
Unit 8	2450	2450	2450	2450	2450	2299	2260	2274.91	2300	2296
AEML-G										
DTPS	2355	2360	2365	2371	2450	2293	2322	2305	2303	2297
VIPL-G										
Unit 1& 2			2401	2401	2400	-	-	2457	2425	2358

As seen from the above Table, there is no pattern which can be seen in the case of MSPGCL's Stations, i.e., for some years MSPGCL Stations had higher SHR while for some years the SHR was lower.

In the case of TPC-G, only Unit 6 (Oil & Gas) had higher SHR from FY 2013-14 to FY 2015-16, while for remaining Units the SHR was much lower than the normative parameters.

In the case of AEML-G, the SHR of the DTPS Station from FY 2012-13 to FY 2016-17 was lower than normative.

It is noted that CPRI, in its Study Report, has specified the trajectory for SHR for old stations of MSPGCL till FY 2017-18 assuming some immediate measures, medium-term measures, long-term measures and Renovation and Modernization for improving the performance of the Station. Based on these recommendations, SHR norms were proposed in MYT Regulations, 2015, with further degradation assumed as recommended by CPRI. It has been observed that annual degradation has been given to old stations in MYT Regulations, 2015 considering ongoing implementation of measures proposed by CPRI. For next Control Period, the Commission is not proposed any degradation during the Control Period in line with the approach adopted in CERC Tariff Regulations, 2019. Further, the actual performance data submitted by the Generating Companies reveals that there is no degradation in the SHR with the passage of time. Hence, SHR norms approved for FY 2019-20 has been considered as norms for next Control Period for MSPGCL's Old Stations. The proposed norms for SHR for MSPGCL's generating Stations are as under:

Table 9: Station Heat Rate norms for MSPGCL's Generating Stations

(kcal/kWh)

Koradi excluding Unit No. 8, 9 and 10	Khaperkheda excluding Unit No. 5	Chandrapur excluding Unit No. 8 and 9	Nashik	Bhusawal excluding Unit No. 4 and 5	Parli excluding Unit No. 6, 7 and 8
2622	2630	2688	2754	2787	2886

Also, SHR norm for TPC-G Unit 5 is proposed as 2549 kcal/kWh. Regarding the gas stations, viz., Uran and TPC-G Unit 7, SHR norm of 2035 kcal/kWh has been proposed for combined cycle operation for next Control Period, which is same norm specified for FY 2019-20.

It is noted that MERC MYT Regulations, 2015 does not specify SHR norm for open cycle operation of gas generating stations. TPC-G Unit 7 was operated in open cycle operation during FY 2015-16 on account of forced outage of STG exciter failure. The Commission, while undertaking the true-up for the same year, in its Order dated September 12, 2018 in Case No. 65 of 2018, had approved SHR of 2900 kcal/kWh for Open Cycle mode, in line with CERC Tariff Regulations, 2014. In view of this, the Commission, in present draft MYT Regulations, 2019 has also proposed SHR norm of 2900 kcal/kWh for Open Cycle mode operation of gas generating stations.

Further, for new generating stations, the MERC MYT Regulations, 2015 provides for computation of Gross Station Heat Rate as 1.045 times of the Design Heat Rate of Station/unit. CERC Tariff Regulations, 2019 has revised the norms to reflect the current operational efficiencies of the stations by increasing the margin above Design Heat rate to 5.00% from the current level of 4.50%. It is proposed to adopt the approach followed by CERC. Hence, Gross SHR for new generating stations shall be 1.05 times of Design Heat rate of Station/unit.

The Design SHR have been specified for all specifications and configurations as specified in CERC Tariff Regulations, 2019, as under:

Pressure Rating (kg/cm2)	**150**	**170**	**170**	**247**
SHT/RHT (^{0}C)	535/535	537/537	537/565	537/565
Type of Boiler Feed Pump	Electrical Driven	Turbine driven	Turbine driven	Turbine driven
Maximum Turbine Cycle Heat Rate (kcal/kWh)	1955	1950	1935	1900
Minimum Boiler Efficiency				

Pressure Rating (kg/cm2)	**150**	**170**	**170**	**247**
Sub-Bituminous Indian Coal	0.86	0.86	0.86	0.86
Bituminous Imported Coal	0.89	0.89	0.89	0.89
Maximum Design Unit Heat Rate (kcal/kWh)				
Sub-Bituminous Indian Coal	2273	2267	2250	2222
Bituminous Imported Coal	2197	2191	2174	2135

Pressure Rating (kg/cm2)	**247**	**270**	**270**
SHT/RHT (^{0}C)	565/593	593/593	600/600
Type of Boiler Feed Pump	Turbine driven	Turbine driven	Turbine driven
Maximum Turbine Cycle Heat Rate (kcal/kWh)	1850	1810	1800
Minimum Boiler Efficiency			
Sub-Bituminous Indian Coal	0.86	0.865	0.865
Bituminous Imported Coal	0.89	0.895	0.895
Maximum Design Unit Heat Rate (kcal/kWh)			
Sub-Bituminous Indian Coal	2151	2105	2081
Bituminous Imported Coal	2078	2034	2022

Auxiliary Consumption

The existing definition of Auxiliary Consumption in the MERC MYT Regulations, 2015 as under:

> ***"Auxiliary Energy Consumption"*** *in relation to a period, in case of a generating Station or Unit, means the quantum of energy consumed by its auxiliary equipment, such as equipment used for operating plant and machinery, including switchyard of the generating Station and the transformer losses within the generating Station, and shall be expressed as a percentage of the sum of gross energy generated at the generator terminals of all the Units of the Generating Station:*

Provided that it shall not include energy consumed for supply of power by the generating Station to its housing colony and other facilities, and for construction works at the generating Station; "

It is proposed to continue the same definition of Auxiliary Consumption for Generating station.

Coal Based Generating Stations

The MERC MYT Regulations, 2015 specify the norm of Auxiliary Consumption for coal based Generating Stations as under:

Auxiliary consumption	***With Natural Draft cooling tower or without cooling tower***
(i) 200 MW series	*8.50%*
(ii) 300/330/350/500 MW & above	
Steam driven boiler feed pumps	*5.25 %*
Electrically driven boiler feed pumps	*7.75%*

For existing and new Generating Unit/Stations, the Auxiliary Consumption norm is proposed in accordance with the norms specified in CERC Tariff Regulations, 2019 for various technologies and Unit sizes as under:

(a) Coal-based generating stations:

Auxiliary consumption	**With Natural Draft cooling tower or without cooling tower**
(i) 200 MW series	8.50%
(ii) 300/330/350/500 MW & above	
Steam driven boiler feed pumps	5.75%
Electrically driven boiler feed pumps	8.00%

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

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

Type of Dry Cooling System	**(% of gross generation)**
Direct cooling air cooled condensers with mechanical draft fans	1.00%
Indirect cooling system employing jet condensers with pressure recovery turbine and natural draft tower	0.50%

As regards the Auxiliary Consumption for Flue Gas Desulphurisation (FGD), CERC Tariff Regulations, 2019 has not specified any specific or relaxed norm. It may be noted that AEML-G has commissioned the FGD Plant at DTPS in FY 2007-08 and TPC-G has commissioned the FGD Plant at Unit-8 in FY 2008-09 (which is not operational at present). The existing MYT Regulations, 2015 specify that additional Auxiliary Consumption on account of FGD shall be allowed on case to case basis after prudence check.

The Commission, in the past Tariff Orders of DTPS, has approved the Auxiliary Consumption for FGD separately in addition to normative Auxiliary Consumption applicable for the Unit/Station. The Commission has analysed the actual auxiliary consumption of FGD for period from FY 2012-13 to FY 2016-17 as under:

Table 10: Auxiliary consumption of FGD

Particulars	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	Average (FY 13 to FY 17)
Actual Gross Generation (MU)	4,381.75	4,109.20	3,997.24	3,824.84	3,742.53	4,011.11
Actual FGD Consumption (MU)	54.54	51.15	47.85	45.12	45.89	48.91
FGD % of Actual	1.24%	1.24%	1.20%	1.18%	1.23%	1.22%

From the above table, it is observed that an additional 1.22% Auxiliary Consumption is recorded over and above the auxiliary consumption excluding FGD. It is proposed to specify normative Auxiliary consumption of FGD. However, during the tariff proceedings of the next Control period, the Commission will review the actual consumption considering the upgradation in technology and peculiarity of every plant.

Accordingly, the following proviso is proposed to be added:

> *"Provided also that for thermal Generating Stations with Flue Gas De-sulphuriser (FGD), additional Auxiliary Energy Consumption shall be allowed as follows:*
>
> *200/250 MW series:1.2%*
>
> *300/330/350/500 MW & above: 1.0%"*

Regarding the actual performance of TPC-G and AEML-G, it has been observed that the actual Auxiliary Consumption for the Generating Units of TPC-G (except Unit 6) and AEML-G for the last five years (i.e., FY 2012-13 to FY 2016-17) has been lower than the normative value of Auxiliary Consumption specified by the Commission.

The following table shows the past performance of the Thermal generating stations of MSPGCL in the context to Auxiliary Consumption:

Table 11: Actual Auxiliary consumption of MSPGCL Generating Stations

Particulars	Normative					Actual submitted					
	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18
Bhusawal	10.8%	10.8%	10.8%	9.9%	10.9%	11.3%	12.4%	14.5%	10.9%	13.63%	12.95%
Chandrapur	8.9%	8.8%	8.8%	8.7%	8.7%	9.4%	9.8%	9.0%	8.3%	7.59%	7.42%
Khaperkheda	9.8%	9.7%	9.7%	9.7%	9.7%	10.5%	11.6%	10.7%	10.8%	10.46%	11.45%
Koradi	10.8%	10.8%	10.8%	10.8%	10.8%	13.3%	14.1%	13.1%	13.1%	15.33%	15.25%
Nasik	11.8%	13.4%	13.5%	13.4%	11.0%	11.0%	11.1%	11.2%	10.8%	10.81%	10.66%
Parli	12.8%	12.8%	14.2%	14.6%	-	12.8%	12.8%	12.7%	16.2%	0.00%	
Uran	2.4%	3.0%	3.0%	3.0%	3.0%	2.2%	2.9%	2.4%	3.0%	2.79%	2.86%
Paras Unit # 3 & 4	9.0%	8.5%	8.5%	8.5%	8.5%	10.0%	10.7%	11.3%	10.7%	10.29%	9.87%
Parli Unit # 6 & 7	12.2%	11.1%	8.5%	8.5%	8.5%	12.2%	11.1%	10.6%	10.2%	10.10%	10.61%
Khaperkheda Unit # 5	11.3%	6.0%	6.0%	6.0%	6.0%	11.3%	7.0%	6.4%	6.3%	5.9%	6.20%
Bhusawal Unit # 4 & 5	-	-	6.0%	6.0%	6.0%			7.2%	6.4%	6.7%	6.40%
Koradi Unit 8, 9& 10	-	-	-	-	6.0%				7.8%	7.3%	7.63%
Chandrapur Unit 8 & 9	-	-	-	-	8.5%					6.8%	6.10%

The norms for auxiliary consumption for MSPGCL's old stations are relaxed norms. These existing norms for old stations of MSPGCL were fixed considering the recommendation of CPRI. Also, it has been anticipated that recommendations of CPRI will be implemented for improving the performance of old generating stations. However, the actual auxiliary consumption is higher than relaxed norms except for Nashik and Chandrapur TPS. Hence, for next Control Period, the Commission does not intend to give further relaxation in auxiliary consumption norms and proposes to continue with the existing norms for Koradi TPS excluding Unit No. 8, 9 and 10, Khaparkehda TPS excluding Unit No. 5, Bhusawal TPS excluding Unit 4 & 5 and Parli TPS excluding Unit 6, 7 & 8. Regarding Nashik TPS and Chandrapur TPS, the Commission has observed that actual performance has been improved in past years. Hence, revised relaxed norms are proposed for Nashik TPS and Chandrapur TPS for next Control Period.

In view of this, norms for Auxiliary consumption for old generating stations for MSPGCL are proposed as under:

Table 12: Norms for Auxiliary Consumption for Old Generating Stations of MSPGCL

Stations	Auxiliary Energy Consumption
Koradi TPS excluding Unit No. 8, 9 and 10	10.81%

Stations	Auxiliary Energy Consumption
Khaperkheda TPS excluding Unit No. 5	9.70%
Chandrapur TPS excluding Unit No. 8 and 9	7.80%
Nashik TPS	10.75%
Bhusawal TPS excluding Unit No. 4 and 5	10.96%
Parli TPS excluding Unit No. 6, 7 and 8	12.65%

Gas Turbine/Combined Cycle Generation Stations

The MERC MYT Regulations, 2015 specifies the norm for auxiliary consumption for Gas Turbine/Combine Cycle Generating Station as under:

"Combined Cycle Generation Station: 3%

Open Cycle Generation Station: 1%"

The actual performance existing Gas Generating Stations viz. Uran and TPC-G Unit 7 is better than the normative auxiliary consumption specified.

It is proposed to consider the norm for Auxiliary Consumption for Gas Turbine /Combine Cycle Generating Station in line with CERC Tariff Regulations, 2019, as under:

Gas Turbine/Combined Cycle generating stations:

(i) Combined cycle : 2.75%

(ii) Open cycle : 1.0%

Lignite Fired Generating Stations

Since, no Lignite Fired Generating Station exists in the State, it is proposed to consider the norm for Auxiliary Consumption in line with CERC Tariff Regulations, 2019, as under:

"Lignite-fired thermal generating stations:

Auxiliary Energy Consumption for Lignite-fired thermal Generating Stations/Units shall be 0.5 percentage points higher than the auxiliary energy consumption norms of coal based Generating Stations:

Provided that for the lignite fired stations using CFBC technology, the auxiliary energy consumption norms shall be 1.5 percentage points higher than the auxiliary energy consumption norms of coal based Generating Stations:"

Secondary Fuel Oil Consumption

The MERC MYT Regulations, 2015 specify the norm for Secondary Fuel Oil Consumption as under:

"i. Coal-based generating stations: 0.50 ml/kWh

ii. Lignite-Fired generating stations except stations based on CFBC technology: 2.0 ml/kWh

iii. Lignite-Fired generating stations based on CFBC technology: 1.00 ml/kWh"

The Secondary Fuel Oil Consumption norm is proposed in accordance with the norms specified in CERC Tariff Regulations, 2019 as under, with exceptions discussed separately:

(a) *Coal-based generating stations : 0.50 ml/kWh*
(b) *Lignite-Fired generating stations except stations based on CFBC technology : 1.5 ml/kWh*
(c) *Lignite-Fired generating stations based on CFBC technology : 1.00 ml/kWh*

The Commission has analysed the performance of Generating Stations vis-a-vis normative Secondary Fuel Oil Consumption levels during the third Control Period.

The Generating Units of TPC-G have the capability to utilise multiple fuels, whereas most of the other generating stations in the State of Maharashtra are not designed to utilise multiple fuels. More importantly, TPC-G fires liquid fuels as primary fuel also, and hence, it is not possible to distinguish between primary fuel and secondary fuel oil consumption.

The average Secondary Fuel Oil Consumption of AEML-G for the last three years is 0.11 ml/kWh, which is substantially lower than the Secondary Fuel Oil consumption norm of 0.50 ml/kWh specified by the Commission.

The following Table shows the past performance of the Thermal generating stations of MSPGCL in the context of secondary fuel oil consumption:

Table 13: Actual Secondary Fuel Oil Consumption of MSPGCL Generating Stations

Particulars	Normative					Actual submitted					
	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18
MSPGCL											
Bhusawal	2.00	5.38	2.00	2.00	2.00	3.63	5.39	2.81	1.02	1.69	1.30
Chandrapur	2.00	2.97	2.00	2.00	2.00	1.56	3.01	1.32	0.80	1.15	1.02
Khaperkheda	2.00	6.05	2.00	2.00	2.00	5.99	7.64	1.13	1.42	0.99	3.23

Particulars	Normative					Actual submitted					
	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18
Koradi	2.81	7.07	2.81	2.81	2.81	6.92	8.00	2.56	2.12	4.45	8.31
Nasik	3.00	3.00	3.00	3.00	1.50	1.48	1.11	0.97	0.73	0.64	0.82
Parli	7.40	2.65	2.00	2.00	-	7.40	2.65	1.00	3.21	-	
Uran	2.00	1.00	1.00	1.00	0.50	1.61	1.22	1.19	0.52	0.50	0.50
Paras Unit # 3 & 4	6.59	1.40	1.00	1.00	0.50	6.59	1.40	0.75	0.93	2.74	1.61
Parli Unit # 6 & 7	15.32	2.92	1.00	1.00	0.50	15.32	3.24	0.67	0.33	0.47	0.63
Khaperkheda Unit # 5	-	-	1.00	1.00	0.50	-	-	0.87	0.44	0.50	0.41
Bhusawal Unit # 4 & 5	-	-	-	1.00	0.50	-	-	-	3.02	1.59	2.53
Bhusawal Unit # 5	-	-	-	-	0.50	-	-	-	-	2.94	0.92

The norms for Secondary Fuel Oil Consumption (SFOC) for MSPGCL's old stations are relaxed norms. These existing norms for old stations of MSPGCL were fixed considering the recommendation of CPRI. Also, it was anticipated that recommendations of CPRI will be implemented for improving the performance of old generating stations. The actual SFOC is lower than relaxed norms except for Koradi TPS excluding Unit No. 8, 9 and 10, and Parli TPS excluding Unit No. 6, 7 and 8. For the next Control Period, the Commission does not intend to give further relaxation in SFOC norms and proposes to continue with the existing norms for Koradi TPS excluding Unit No. 8, 9 and 10, and Parli TPS excluding Unit No. 6, 7 and 8. Regarding other Stations, the Commission has observed that actual performance has been improved in past years. Hence, revised relaxed norms are proposed for next Control Period.

In view of this, norms for Secondary Fuel oil consumption for old generating stations for MSPGCL are proposed as under:

Table 14: Norms for Secondary Fuel Oil Consumption for Old Generating Stations of MSPGCL

Stations	Secondary Fuel Oil Consumption (ml/kWh)
Koradi TPS excluding Unit No. 8, 9 and 10	2.81
Khaperkheda TPS excluding Unit No. 5	1.20
Chandrapur TPS excluding Unit No. 8 and 9	1.00
Nashik TPS	1.00
Bhusawal TPS excluding Unit No. 4 and 5	1.40

Stations	Secondary Fuel Oil Consumption (ml/kWh)
Parli TPS excluding Unit No. 6, 7 and 8	2.00

Transit Loss

Transit and handling losses occur in fuel transportation, especially for coal transportation. These losses happen mainly due to pilferage, leakage, weight reduction due to moisture evaporation, improper stacking, etc., and the losses are higher in load centre based generating stations as compared to that in pit head stations.

For transit loss norms for Generating Unit/Stations, the MERC MYT Regulations, 2015 specify as under:

> *"44.19 Transit and handling losses –*
> *Normative transit and handling losses for coal/lignite based Generating Stations, as a percentage of quantity of coal or lignite dispatched by the coal/lignite supply company during the month shall be:*
>
> *(a) Pit head Generating Stations : 0.2%*
>
> *(b) Non-pit head Generating Stations : 0.8%*
>
> *Provided that in case of pit head stations if coal or lignite is procured from sources other than the pit head mines, which is transported to the Station through rail, normative transit loss of 0.8% shall be applicable:*
>
> *Provided further that the above norms shall be applicable for domestic coal and washed coal:*
>
> *Provided also that in case of imported coal, the normative transit and handling losses shall be 0.2%:*
>
> *Provided also that for procurement of coal on delivery basis, no transit and handling loss shall be allowed."*

The Commission has proposed to continue with the existing norms for Transit and handling losses in line with the approach adopted by CERC Tariff Regulations, 2019.

4.3.3 Operation and Maintenance Expenses for Thermal Generating Stations

MERC MYT Regulations, 2015 specified the norms in terms of Rs. Lakh per MW for generating stations/unit that achieved COD on or after August 26, 2005. However, for other generating stations that achieved COD before August 26, 2005, principles have been specified

for determination of O&M Expenses for the Control Period based on past approved O&M Expenses.

O&M expenses for Generating Stations/Units that achieved COD before August 26, 2005

The principles specified in MERC MYT Regulations, 2015 for O&M expense are reproduced below:

> *"**45 Operation and maintenance expenses***
>
> ***45.1 Generating Stations/Units that achieved COD before August 26, 2005***
>
> *a) The Operation and Maintenance expenses for Generating Stations which achieved COD before the date of coming into effect of the MERC (Terms and Conditions of Tariff) Regulations, 2005, shall be computed in accordance with this Regulation.*
>
> *b) The Operation and Maintenance expenses excluding water charges and including insurance shall be derived on the basis of Final Trued-up Operation and Maintenance expenses after adding/deducting the sharing of efficiency gains/losses, for the year ending March 31, 2016, excluding abnormal expenses, if any, subject to prudence check by the Commission, and shall be considered as the Base Year Operation and Maintenance expenses.*
>
> *c) The O&M expenses for each subsequent year shall be determined by escalating the base expenses for FY 2015-16, by an inflation factor with 50% weightage to the average yearly inflation derived based on the monthly Wholesale Price Index of the past five financial years as per the Office of Economic Advisor of Government of India and 50% weightage to the average yearly inflation derived based on the monthly Consumer Price Index for Industrial Workers (all-India) of the past five financial years as per the Labour Bureau, Government of India, as reduced by an efficiency factor of 1% or as may be stipulated by the Commission from time to time, to arrive at the permissible Operation and Maintenance expenses for each year of the Control Period:*
>
> *Provided that, in the Truing-up of the O&M expenses for any particular year of the Control Period, an inflation factor with 50% weightage to the average yearly inflation derived based on the monthly Wholesale Price Index of the past five financial years (including the year of Truing-up) and 50% weightage to the average yearly inflation derived based on the monthly Consumer Price Index for Industrial Workers (all-India) of the past five financial years (including the year of Truing-up), as reduced by an efficiency factor of 1% or as may be stipulated by the Commission from time to time, shall be applied to arrive at the permissible Operation and Maintenance Expenses for that year.*

e) Water Charges shall be allowed separately as per actuals, based on water consumption depending upon type of plant, type of cooling water system etc., subject to prudence check:

Provided that in the MYT Order, the Commission shall provisionally approve the Water Charges for each year of the Control Period based on the actual Water Charges as per latest Audited Accounts available for the Generating Company, subject to prudence check."

CERC Tariff Regulations, 2019 has specified the common norm for all the existing and new plants except for few very old plants like Tanda TPS, Talcher TPS, Badarpur TPS Unit 1 to 3 of NTPC and Chandrapura TPS Unit 1 to 3 and Durgapur TPS Unit 1 of DVC.

It may be noted that in the MERC MYT Regulations, 2015, the Commission had specified the principles for the determination of O&M expenses for Generating Stations/units that achieved COD before August 26, 2005. It is one of the objectives of the MYT framework to move from the methodology of specifying the principle to specifying norms for performance parameters and controllable factors. However, these Generating Stations are old Stations and are commissioned before the Regulatory regime. Hence, it would be difficult to specify the norms for such Stations. On the other hand, Generating Stations or Units, which are commissioned after commencement of the Regulatory regime in the State, have been allowed O&M expenses as per the norms specified in the Tariff Regulations. In view of this, it is proposed to continue with the existing approach for specifying principle for Generating Stations/units that achieved COD before August 26, 2005.

Further, for proposing the principles for O&M Expenses, the Commission has taken into account the amendment to MYT Regulations, 2015 wherein the base expenses have been changed for determination of O&M Expenses. In similar manner, for determination of O&M Expenses for next Control Period, at time of MYT Order, the average of O&M Expenses for the period from FY 2016-17 to FY 2018-19 is required to be considered to arrive at base expenses for FY 2019-20. However, during Mid Term Review, the actual approved expenses for FY 2019-20 would be available since truing up of FY 2019-20 would be carried out in the same proceedings. Hence, the revised normative expenses are required to be determined at time of Mid-term Review for whole Control Period considering the revised value for FY 2019-20 approved after truing up.

The proposed Regulations for determination of O&M expenses for Generating Stations/units that achieved COD before August 26, 2005 is as under:

"45.1 Generating Stations/Units that achieved COD before August 26, 2005

a) The Operation and Maintenance expenses for Generating Stations which achieved COD before the date of coming into effect of the MERC (Terms and Conditions of Tariff) Regulations, 2005, shall be computed in accordance with this Regulation.

b) The Operation and Maintenance expenses excluding water charges and including insurance shall be derived on the basis of the average of the Trued-up Operation and Maintenance expenses after adding/deducting the share of efficiency gains/losses, for the three Years ending March 31, 2019, excluding abnormal Operation and Maintenance expenses, if any, subject to prudence check by the Commission:

Provided that the average of such Operation and Maintenance expenses shall be considered as Operation and Maintenance expenses for the Year ended March 31, 2018, and shall be escalated at the respective escalation rate for FY 2018-19 and FY 2019-20, to arrive at the Operation and Maintenance expenses for the base year ending March 31, 2020:

Provided further that the escalation rate for FY 2018-19 and FY 2019-20 shall be computed by considering 50% weightage to the average yearly inflation derived based on the monthly Wholesale Price Index [2011-12 series] of the respective past five financial years as per the Office of Economic Advisor of Government of India and 50% weightage to the average yearly inflation derived based on the monthly Consumer Price Index [2011-12 series] for Industrial Workers (all-India) of the respective past five financial years as per the Labour Bureau, Government of India:

Provided also that at the time of true-up for each Year of this Control Period, the Operation and Maintenance expenses, excluding water charges and including insurance, shall be derived on the basis of the Final Trued-up Operation and Maintenance expenses after adding/deducting the sharing of efficiency gains/losses, for the base year ending March 31, 2020, excluding abnormal expenses, if any, subject to prudence check by the Commission, and shall be considered as the Base Year Operation and Maintenance expenses.

c) The Operation and Maintenance expenses for each subsequent year shall be determined by escalating these Base Year expenses of FY 2019-20 by an inflation factor with 50% weightage to the average yearly inflation derived based on the monthly Wholesale Price Index [2011-12 series] of the respective past five financial years as per the Office of Economic Advisor of Government of India and 50% weightage to the average yearly inflation derived based on the monthly Consumer

Price Index [2011-12 series] for Industrial Workers (all-India) of the past five financial years as per the Labour Bureau, Government of India, as reduced by an efficiency factor of 1% or as may be stipulated by the Commission from time to time, to arrive at the permissible Operation and Maintenance expenses for each year of the Control Period:

Provided that, in the Truing-up of the O&M expenses for any particular year of the Control Period, an inflation factor with 50% weightage to the average yearly inflation derived based on the monthly Wholesale Price Index [2011-12 series] of the respective past five financial years (including the year of Truing-up) and 50% weightage to the average yearly inflation derived based on the monthly Consumer Price Index [2011-12 series] for Industrial Workers (all-India) of the respective past five financial years (including the year of Truing-up), as reduced by an efficiency factor of 1% or as may be stipulated by the Commission from time to time, shall be applied to arrive at the permissible Operation and Maintenance Expenses for that year.

d) *Water Charges shall be allowed separately as per actuals, based on water consumption depending upon type of plant, type of cooling water system etc., subject to prudence check:*

Provided that in the MYT Order, the Commission shall provisionally approve the Water Charges for each year of the Control Period based on the actual Water Charges as per latest Audited Accounts available for the Generating Company, subject to prudence check."

Further, in order to have greater clarity regarding the treatment of impact of Wage Revision and treatment of provisioning of expenses, the following clauses are proposed:

e) *"The impact of Wage Revision, if any, may be considered at the time of true-up for any Year, based on documentary evidence and justification to be submitted by the Petitioner:*

Provided that if actual employee expenses are higher than normative expenses on this account, then no sharing of efficiency losses shall be done to that extent:

Provided further that efficiency gains shall not be allowed by deducting the impact of Wage Revision and comparison of such reduced value with normative value.

f) *Provisioning of expenses shall not be considered as actual expenses at the time of true-up, and only expenses as actually incurred shall be considered."*

O&M expenses for Generating Stations/Units that achieved COD on or after August 26, 2005

The existing Regulations allow the O&M expenses for new Generating Stations based on per MW norms. CERC Tariff Regulations, 2019 also allow the O&M expenses for new Generating Stations on the basis of per MW norms. Hence, existing approach of specifying per MW norms is being retained.

Norms for Coal based Generating Stations

The MERC MYT Regulations, 2015 specify the norm for O&M expenses for Coal based new generating station on per MW basis, as reproduced below:

"

a) For Coal based Generating Station

Rs. Lakh/MW

Particulars	*200/210/250 MW sets*	*300/330/350 MW Sets*	*500 MW and above Sets*	*600 MW Sets and above*
FY 2016-17	*23.80*	*19.70*	*15.59*	*14.03*
FY 2017-18	*24.99*	*20.68*	*16.37*	*14.73*
FY 2018-19	*26.24*	*21.71*	*17.19*	*15.47*
FY 2019-20	*27.55*	*22.80*	*18.05*	*16.24*

Provided that for the Generating Stations having combination of above Sets, the weighted average value for operation and maintenance expenses shall be allowed: …"

It may be noted that CERC Tariff Regulations, 2019 specify per MW basis O&M expenses norm for new coal-based generation station for five categories: (i) 200/210/250 MW sets (iii) 300/330/350 MW sets (iii) 500 MW sets (iv) 600 MW and above sets and (v) 800 MW and above sets. The existing MERC MYT Regulations, 2015 specify the norms for four categories. Further, MSPGCL generating stations commissioned during present Control Period are within the applicable categories specified in present Regulations. Further, it is proposed to provide the norms for 800 MW Sets on the basis of CERC norms.

The following approach has been considered for norms for new Coal based Generating station:

(i) For computation of norms for various categories, the actual O&M expenses for existing generating stations have been considered. The category-wise generating stations considered are as under:
   a. 200/210/250 MW sets- Paras Unit 3 & 4, Parli Unit 6, 7 & 8 and TPC-G Unit 8
   b. 300/330/350 MW sets- VIPL-G Butibori Unit 1 & 2

c. 500 MW sets - Bhusawal Unit 4 & 5, Chandrapur Unit 8&9 and Khaparkheda Unit 5
d. 600/660 MW sets – Koradi Unit 8, 9 & 10

(ii) The actual O&M expenses, subject to prudence check of the Commission, have been considered for FY 2015-16 to FY 2017-18 for analysis purposes. The actual O&M expenses norms for the category has been computed based on weighted average of installed capacity. In case of MSPGCL's Generating Stations, the Commission has considered the O&M Expenses of Rs. 2301.25 Crore for FY 2016-17, which was actual O&M Expenses approved after true-up. The O&M Expenses have been apportioned to Generating Stations in proportion of O&M expenses of Rs. 2751.13 Crore as submitted by MSPGCL in their Mid Term Review Petition.

(iii) The three-year average of actual O&M expenses norms achieved on per MW basis for these categories has been computed and considered as norms for FY 2016-17.

(iv) Average of actual O&M expense norm considered for FY 2016-17, have been escalated at the inflation factor of 2.57% for FY 2017-18, 2.31% for FY 2018-19 and 3.55% for FY 2019-20 to arrive at actual expense norm for FY 2019-20. The derivation of these escalation indices is explained in the Chapter on Transmission Tariff.

(v) Further, the norms derived for the end of third Control Period, i.e., for FY 2019-20 have been escalated at escalation rate of 3.55% for each year of the fourth Control Period.

The proposed norms are for new Generating Stations coming up in the next Control Period, hence, the consideration of actual O&M expenses, subject to prudence check, would reflect the reasonable cost of O&M for such new generating Stations.

As discussed earlier, these proposed norms shall also be applicable to the Generating Stations or Unit commissioned after the effectiveness of the MERC (Terms and Conditions of Tariff) Regulations, 2005.

CERC in its CERC Tariff Regulations, 2019 has specified the multiplying factor for arriving at norms of O&M expenses for additional Units in respective Unit sizes for the Units whose COD occurs on or after the April 1, 2019. In view of this, it is proposed to consider same multiplying factor as specified by CERC.

The proposed O&M expenses norm for New Coal based Generating Stations is shown below:

"For Coal based Generating Stations:

Rs. Lakh/MW

Particulars	***200/210/250 MW Sets***	***300/330/350 MW Sets***	***500 MW Sets***	***600/660 MW Sets***	***800 MW and above sets***
FY 2020-21	*26.58*	*21.06*	*18.52*	*14.98*	*13.48*
FY 2021-22	*27.52*	*21.81*	*19.18*	*15.51*	*13.95*
FY 2022-23	*28.50*	*22.58*	*19.87*	*16.06*	*14.45*
FY 2023-24	*29.51*	*23.38*	*20.57*	*16.63*	*14.96*
FY 2024-25	*30.56*	*24.22*	*21.30*	*17.22*	*15.50*

Provided that for the Generating Stations having combination of above Sets, the weighted average value for operation and maintenance expenses shall be allowed:

Provided further that the norms shall be multiplied by the following factors for arriving at norms of O&M expenses for additional Units in respective Unit sizes for the Units whose COD occurs on or after 1.4.2020 in the same Station:

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

Norms for Lignite based Generating Stations

The MERC MYT Regulations, 2015 specify the following norms for new Lignite based generation stations for second Control Period:

"

b) For Lignite based Generating Stations:

Rs. Lakh/MW

Particulars	*Lignite based Unit/Stations*
FY 2016-17	*17.84*
FY 2017-18	*18.73*
FY 2018-19	*19.66*
FY 2019-20	*20.65*

As there is no Lignite based Generating Stations in State of Maharashtra till now, hence, there is no actual data available for the same. In view of the above, it is proposed to modify the existing norm for Lignite based Generating Stations in proportion to the norm specified in CERC Tariff Regulations, 2014 and CERC Tariff Regulations, 2019. The proportion is applied on the existing norm for FY 2019-20. Further, such norms for FY 2019-20 have been escalated

at the escalation rate of 3.55% to arrive at the O&M expense norm for each year of the third Control Period.

The proposed norm for Lignite based Generating Stations is shown below:

"For Lignite based Generating Stations:

Rs. Lakh/MW

Particulars	***Lignite based Unit/Stations***
FY 2020-21	*17.07*
FY 2021-22	*17.68*
FY 2022-23	*18.31*
FY 2023-24	*18.96*
FY 2024-25	*19.63*

Norms for Gas Turbine/Combined Cycle Generating Stations

The MERC MYT Regulations, 2015 specify norms for Gas Turbine and Combined Cycle Generating Stations for the second Control Period as under:

"

c) Gas Turbine/Combined Cycle Generating Stations

Particulars	*Gas Turbine/Combined Cycle Generating Stations*		*Small Gas Turbine Generating Stations (less than 50 MW Unit size)*
	With warranty spares for 10 years	*Without warranty spares*	*Without warranty spares*
FY 2016-17	*14.56*	*17.67*	*14.04*
FY 2017-18	*15.29*	*18.56*	*14.74*
FY 2018-19	*16.06*	*19.48*	*15.48*
FY 2019-20	*16.86*	*20.46*	*16.25*

The categorisation is proposed in accordance with the category being followed in CERC Tariff Regulations, 2019 for specifying the norm for Gas Turbine/Combined Cycle Generating Stations.

Further, for specifying the norms for Gas Turbine/Combined Cycle Generating Stations and Small Gas Turbine Generating Stations (less than 50 MW Unit size) same methodology has been adopted as considered for deriving the norms for Lignite based Generating Stations. The proposed norm for Gas Turbine/Combined Cycle Generating Stations is shown below:

"Gas Turbine/Combined Cycle Generating Stations

Rs. Lakh/MW

Particulars	***Gas Turbine /Combined Cycle Generating Stations***	***Small Gas Turbine Generating Stations (less than 50 MW Unit size)***	***Advance F Class Machines***
FY 2020-21	*15.62*	*16.79*	*12.22*
FY 2021-22	*16.17*	*17.39*	*12.65*
FY 2022-23	*16.75*	*18.01*	*13.10*
FY 2023-24	*17.34*	*18.65*	*13.57*
FY 2024-25	*17.96*	*19.31*	*14.05*

4.3.4 Computation and Payment of Annual Fixed Charges and Energy Charges for Thermal Generating Stations

Annual Fixed Charges

Fixed Cost recovery for thermal Generating Stations based on Plant Availability is a tested and widely adopted method by CERC as well as other SERCs.

While computing the Availability, the actual ability of the Station/Unit to generate needs to be considered after taking into consideration the loadability of machines and fuel related aspects, rather than considering plant availability on the basis of machine availability, which considers only the readiness of machine/equipment for generating electricity but in reality, the plant may not be available due to inter-alia, lack of fuel or loadability issues. Normally, in case of supply shortage scenario, the PLF should be almost equivalent to Plant Availability, since the plants would not be backed down and would be utilised fully when available.

The Plant Availability is linked to the vintage and the technology of the Plant. As the Plant becomes older, the time taken for overhaul of the Plant increases and the Availability of the Generating Station/Unit reduces. As stated earlier, the Availability norm of 85% has been specified for thermal generating stations.

Regarding the Annual Fixed Charges, Regulation 48 of MYT Regulations, 2015 specifies as under:

> ***"A. Annual Fixed Charges***
>
> *48.1 The total Annual Fixed Charges shall be computed based on the norms specified under these Regulations and recovered on monthly basis.*

48.2 The full Annual Fixed Charges shall be recoverable at target availability specified in Regulation 44.1 and 44.2, and recovery of Annual Fixed Charges below the level of Target Availability shall be on pro-rata basis:

Provided that at zero availability, no Annual Fixed Charges shall be payable.

48.3 Computation and billing of Annual Fixed Charges shall be on monthly basis in proportion to Contracted Capacity and based on the cumulative Availability achieved with respect to the Target Availability, till the respective month in the Year, subject to adjustment at the end of the year."

The MERC MYT Regulations, 2015 specify that total Annual Fixed Charges shall be computed based on the norms specified and recovered on monthly basis. The recovery of Annual Fixed Charges below the level of Target Availability shall be on pro-rata basis. Further, it is noted that CERC Regulations, 2014 specified the recovery of annual fixed charges based on cumulative availability during the year.

The Distribution Licensees in the State of Maharashtra are purchasing the power from Generator whose tariff is determined under MYT Regulations or from Generators whose tariff is discovered through Competitive Bidding. In such cases, CERC Tariff Regulations are applicable, wherever it is not mentioned in Power Purchase Agreement. The present Regulations do not address the issue of declaration of lower availability during month or during quarter when the requirement from Distribution Licensee is at peak. This often forces the DISCOMs to procure power from short-term market because of uncertainty from generating stations' side. However, during low demand period, the generating stations may declare higher availability so as to achieve the target cumulative availability on annual basis to recover the full annual fixed charges. As a result, the beneficiaries do not get the electricity when required the most.

In order to avoid such situation and regulate the demand-supply of the power during the year, CERC in its CERC Tariff Regulations, 2019 allowed the recovery of fixed cost separately for two seasons viz. High demand season and low demand season. Also, separate recovery has been allowed for peak and off-peak period. The provisions for CERC Tariff Regulations are summarised as under:

(a) Annual Capacity Charges is sum of capacity charges for High demand season and low demand season.
(b) High Demand Season = 3 months (consecutive or otherwise) and Low demand season = 9 months

(c) Capacity charges for month is to be determined based on capacity charges for Peak hours and Off-peak hours.
(d) High demand season and low demand season shall be declared by RLDC at least six months advance, after duly considering the comments of stakeholders.
(e) Peak hours and Off-peak hours shall be declared by RLDC at least week in advance.
(f) 20% of AFC shall be recovered in Peak hours and 80% of AFC in Off-peak hours.
(g) Any under recovery or over recovery of Capacity Charges during one season shall not be adjusted in Other season.
(h) The mechanism shall be implemented from April 1, 2020.

After perusal of the CERC Tariff Regulations, 2019, it is observed that the same situation prevails for the distribution Utility of Maharashtra. The Commission in its Order dated October 24, 2018 in Case No. 186 of 2018 has observed the same situation in State of Maharashtra based on data for period from May 2016 to August 2018. The relevant extract of Order is as under:

> *"11.5. Based on the submission**, it is observed that during the peak demand period, the Generators are giving lower availability and during the off Peak demand it is giving higher Availability i.e. more than 95%.** Resultantly, as per Regulations 48.3 of MERC MYT Regulations these Generators are able to recover their full Annual Fixed Charges on monthly basis, based on cumulative Availability achieved with respect to the Target Availability till the respective month in the year, subject to adjustment at the end of the year…"*
>
> *(**emphasis added**)*

In order to keep uniformity, it is proposed to adopt the mechanism specified by CERC.

The proposed Regulation for recovery of Annual Fixed Charges for next Control Period is as under:

"

A. Capacity Charges

49.1 The fixed cost of a thermal generating station shall be computed on annual basis based on the norms specified under these Regulations and recovered on monthly basis under Capacity Charge. The total Capacity Charge payable for a generating station shall be shared by its beneficiaries as per their respective percentage share or allocation in the capacity of the generating station. The Capacity Charge shall be recovered under two segments of the year, i.e., High Demand Season (period of three months) and Low Demand Season (period of remaining nine months), and within each season in two parts,

viz., Capacity Charge for Peak Hours of the month and Capacity Charge for Off-Peak Hours of the month as follows:

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

49.2 The Capacity Charge payable to a thermal generating station for a calendar month shall be calculated in accordance with the following formulae:

Capacity Charge for the Month (CC_m) = Capacity Charge for Peak Hours of the Month (CC_p) + Capacity Charge for Off-Peak Hours of the Month (CC_{op})

Where,

High Demand Season:

$CC_{p1} = (0.20\ x\ \text{AFC}) x \left(\frac{1}{12}\right)\ x \left(\frac{PAFMp1}{NAPAF}\right)$ subject to ceiling of $(0.20\ x\ \text{AFC}) x \left(\frac{1}{12}\right)$

$CC_{p2} = \{(0.20\ x\ \text{AFC}) x \left(\frac{1}{6}\right)\ x \left(\frac{PAFMp2}{NAPAF}\right)$ subject to ceiling of $(0.20\ x\ \text{AFC}) x \left(\frac{1}{6}\right)\} - CC_{p1}$

$CC_{p3} = \{(0.20\ x\ \text{AFC}) x \left(\frac{1}{4}\right)\ x \left(\frac{PAFMp3}{NAPAF}\right)$ subject to ceiling of $(0.20\ x\ \text{AFC}) x \left(\frac{1}{4}\right)\} - (CC_{p1} + CC_{p2})]\}$

$CC_{op1} = \{(0.80\ x\ \text{AFC}) x \left(\frac{1}{12}\right)\ x \left(\frac{PAFMop1}{NAPAF}\right)$ subject to ceiling of $(0.80\ x\ \text{AFC}) x \left(\frac{1}{12}\right)\}$

$CC_{op2} = \{(0.80\ x\ \text{AFC}) x \left(\frac{1}{6}\right)\ x \left(\frac{PAFMop2}{NAPAF}\right)$ subject to ceiling of $(0.80\ x\ \text{AFC}) x \left(\frac{1}{6}\right)\} - CC_{op1}$

$CC_{op3} = \{(0.80\ x\ \text{AFC}) x \left(\frac{1}{4}\right)\ x \left(\frac{PAFMop3}{NAPAF}\right)$ subject to ceiling of $(0.80\ x\ \text{AFC}) x \left(\frac{1}{4}\right)\} - (CC_{op1} + CC_{op2})]\}$

Low Demand Season:

$CC_{p1} = \{(0.20\ x\ \text{AFC}) x \left(\frac{1}{12}\right)\ x \left(\frac{PAFMp1}{NAPAF}\right)$ subject to ceiling of $(0.20\ x\ \text{AFC}) x \left(\frac{1}{12}\right)\}$

$CC_{p2} = \{(0.20\ x\ \text{AFC}) x \left(\frac{1}{6}\right)\ x \left(\frac{PAFMp2}{NAPAF}\right)$ subject to ceiling of $(0.20\ x\ \text{AFC}) x \left(\frac{1}{6}\right)\} - CC_{p1}$

$CC_{p3} = \{(0.20\ x\ \text{AFC}) x \left(\frac{1}{4}\right)\ x \left(\frac{PAFMp3}{NAPAF}\right)$ subject to ceiling of $(0.20\ x\ \text{AFC}) x \left(\frac{1}{4}\right)\} - (CC_{p1} + CC_{p2})$

$CC_{p4} = \{(0.20\ x\ \text{AFC}) x \left(\frac{1}{3}\right)\ x \left(\frac{PAFMp4}{NAPAF}\right)$ subject to ceiling of $(0.20\ x\ \text{AFC}) x \left(\frac{1}{3}\right)\} - (CC_{p1} + CC_{p2} + CC_{p3})$

$CC_{p5} = \{(0.20\ x\ \text{AFC}) x \left(\frac{5}{12}\right)\ x \left(\frac{PAFMp5}{NAPAF}\right)$ subject to ceiling of $(0.20\ x\ \text{AFC}) x \left(\frac{5}{12}\right)\} - (CC_{p1} + CC_{p2} + CC_{p3} + CC_{p4})$

$CC_{p6} = \{(0.20\ x\ \text{AFC}) x \left(\frac{1}{2}\right)\ x \left(\frac{PAFMp6}{NAPAF}\right)$ subject to ceiling of $(0.20\ x\ \text{AFC}) x \left(\frac{1}{2}\right)\} - (CC_{p1} + CC_{p2} + CC_{p3} + CC_{p4} + CC_{p5})$

CC_{p7}= {$(0.20\ x\ \text{AFC})x\ \left(\frac{7}{12}\right)\ x\ \left(\frac{PAFMp7}{NAPAF}\right)$ subject to ceiling of $(0.20\ x\ \text{AFC})x\ \left(\frac{7}{12}\right)$} – ($CC_{p1}$ + CC_{p2}+ CC_{p3}+ CC_{p4}+ CC_{p5}+ CC_{p6})

CC_{p8}= {$(0.20\ x\ \text{AFC})x\ \left(\frac{2}{3}\right)\ x\ \left(\frac{PAFMp8}{NAPAF}\right)$ subject to ceiling of $(0.20\ x\ \text{AFC})x\ \left(\frac{2}{3}\right)$} – ($CC_{p1}$ + CC_{p2}+ CC_{p3}+ CC_{p4}+ CC_{p5}+ CC_{p6}+ CC_{p7})

CC_{p9}= {$(0.20\ x\ \text{AFC})x\ \left(\frac{3}{4}\right)\ x\ \left(\frac{PAFMp9}{NAPAF}\right)$ subject to ceiling of $(0.20\ x\ \text{AFC})x\ \left(\frac{3}{4}\right)$} – ($CC_{p1}$ + CC_{p2}+ CC_{p3}+ CC_{p4}+ CC_{p5}+ CC_{p6}+ CC_{p7}+ CC_{p8})

CC_{op1}= {$(0.80\ x\ \text{AFC})x\ \left(\frac{1}{12}\right)\ x\ \left(\frac{PAFMop1}{NAPAF}\right)$ subject to ceiling of $(0.80\ x\ \text{AFC})x\ \left(\frac{1}{12}\right)$}

CC_{op2}= {$(0.80\ x\ \text{AFC})x\ \left(\frac{1}{6}\right)\ x\ \left(\frac{PAFMop2}{NAPAF}\right)$ subject to ceiling of $(0.80\ x\ \text{AFC})x\ \left(\frac{1}{6}\right)$} – CC_{op1}

CC_{op3}= {$(0.80\ x\ \text{AFC})x\ \left(\frac{1}{4}\right)\ x\ \left(\frac{PAFMop3}{NAPAF}\right)$ subject to ceiling of $(0.80\ x\ \text{AFC})x\ \left(\frac{1}{4}\right)$} – ($CC_{op1}$ + CC_{op2})

CC_{op4}= {$(0.80\ x\ \text{AFC})x\ \left(\frac{1}{3}\right)\ x\ \left(\frac{PAFMop4}{NAPAF}\right)$ subject to ceiling of $(0.80\ x\ \text{AFC})x\ \left(\frac{1}{3}\right)$} – ($CC_{op1}$ + CC_{op2}+ CC_{op3})

CC_{op5}= {$(0.80\ x\ \text{AFC})x\ \left(\frac{5}{12}\right)\ x\ \left(\frac{PAFMop5}{NAPAF}\right)$ subject to ceiling of $(0.80\ x\ \text{AFC})x\ \left(\frac{5}{12}\right)$} – ($CC_{op1}$ + CC_{op2}+ CC_{op3}+ CC_{op4})

CC_{op6}= {$(0.80\ x\ \text{AFC})x\ \left(\frac{1}{2}\right)\ x\ \left(\frac{PAFMop6}{NAPAF}\right)$ subject to ceiling of $(0.80\ x\ \text{AFC})x\ \left(\frac{1}{2}\right)$} – ($CC_{op1}$ + CC_{op2}+ CC_{op3}+ CC_{op4}+ CC_{op5})

CC_{op7}= {$(0.80\ x\ \text{AFC})x\ \left(\frac{7}{12}\right)\ x\ \left(\frac{PAFMop7}{NAPAF}\right)$ subject to ceiling of $(0.80\ x\ \text{AFC})x\ \left(\frac{7}{12}\right)$} – ($CC_{op1}$ + CC_{op2}+ CC_{op3}+ CC_{op4}+ CC_{op5}+ CC_{op6})

CC_{op8}= {$(0.80\ x\ \text{AFC})x\ \left(\frac{2}{3}\right)\ x\ \left(\frac{PAFMop8}{NAPAF}\right)$ subject to ceiling of $(0.80\ x\ \text{AFC})x\ \left(\frac{2}{3}\right)$} – ($CC_{op1}$ + CC_{op2}+ CC_{op3}+ CC_{op4}+ CC_{op5}+ CC_{op6}+ CC_{op7})

CC_{op9}= {$(0.80\ x\ \text{AFC})x\ \left(\frac{3}{4}\right)\ x\ \left(\frac{PAFMop9}{NAPAF}\right)$ subject to ceiling of $(0.80\ x\ \text{AFC})x\ \left(\frac{3}{4}\right)$} – ($CC_{op1}$ + CC_{op2}+ CC_{op3}+ CC_{op4}+ CC_{op5}+ CC_{op6}+ CC_{op7}+ CC_{op8})

Provided that in case of generating station or unit thereof under shutdown due to Renovation and Modernisation, the Generating Company shall be allowed to recover O&M expenses and interest on loan only,

Where,

CC_m= Capacity Charge for the Month;

CC_p= Capacity Charge for the Peak Hours of the Month;

CC_{op}= Capacity Charge for the Off-Peak Hours of the Month;

CC_{pn}= Capacity Charge for the Peak Hours of nth Month in a specific Season;

CC_{opn}= Capacity Charge for the Off-Peak of nth Month in a specific Season;

AFC = Annual Fixed Cost;

$PAFM_{pn}$ = Plant Availability Factor achieved during Peak Hours upto the end of nth Month in a Season;

$PAFM_{opn}$ = Plant Availability Factor achieved during Off-Peak Hours upto the end of nth Month in a Season;

NAPAF= Normative Annual Plant Availability Factor.

49.3 Normative Plant Availability Factor for "Peak" and "Off-Peak" Hours in a month shall be equivalent to the NAPAF specified in Regulations 45.1 and 45.2 of these Regulations. The number of hours of "Peak" and "Off-Peak" periods during a day shall be four and twenty respectively. The hours of Peak and Off-Peak periods during a day shall be declared by the SLDC at least a week in advance. The High Demand Season (period of three months, consecutive or otherwise) and Low Demand Season (period of remaining nine months, consecutive or otherwise) in the State shall be declared by the SLDC, at least six months in advance:

Provided that the SLDC, after duly considering the comments of the concerned stakeholders, shall declare Peak Hours and High Demand Season in such a way as to coincide with the Peak Hours and High Demand Season of the State.

49.4 Any under-recovery or over-recovery of Capacity Charge as a result of under-achievement or over-achievement, vis-à-vis the NAPAF in Peak and Off-Peak Hours of a Season (High Demand Season or Low Demand Season, as the case may be) shall not be adjusted with under-achievement or over-achievement, vis-à-vis the NAPAF in Peak and Off-Peak Hours of the other Season:

Provided that within a Season, the shortfall in recovery of Capacity Charge for cumulative Off-Peak Hours derived based on NAPAF, shall be allowed to be off-set by over-achievement of PAF, if any, and consequent notional over-recovery of Capacity Charge for cumulative Peak Hours in that Season:

Provided further that within a Season, the shortfall in recovery of Capacity Charge for cumulative Peak Hours derived based on NAPAF, shall not be allowed to be off-set by over-achievement of PAF, if any, and consequent notional over-recovery of Capacity Charge for cumulative Off-Peak Hours in that Season:

Provided also that full Capacity Charges shall be recoverable at target availability specified in Regulations 45.1 and 45.2, and recovery of Capacity Charges below the level

of Target Availability shall be on pro-rata basis, irrespective of the reasons for the lower Availability, and no part of the Capacity Charges shall be recoverable except to the extent of Availability:

Provided that at zero availability, no Capacity Charges shall be payable."

Energy Charges

The existing formula for determination of Energy Charge is proposed to be continued, with some modifications, as discussed below.

It is noted that CERC Tariff Regulations, 2014 had revised the consideration of Gross Calorific Value (GCV) of coal/lignite or gas or liquid fuel to "as received" basis instead of "as fired" basis.

After analyzing the issue of GCV, the Commission in MYT Regulations, 2015 has specified GCV of Fuel as received at unloading point less actual stacking loss subject to the maximum stacking loss of 150 kcal/kg.

Further, it is noted that Central Electricity Authority has recommended for allowing a margin for loss of GCV between "GCV as received" basis at generation station (wagon top) to "GCV as Fired" basis. Accordingly, CERC in its Tariff Regulations, 2019 has specified stacking loss of 85 kcal/kg on account of variation during storage at generating station for calculation of energy charge. Such approach has already been implemented in MYT Regulations, 2015.

After adopting the approach of consideration of GCV as received basis, thereafter, third party sampling has been adopted by the generating companies at the loading end of mine and unloading end of the generating station. This provision has brought transparency in measurement of GCV.

Further, the Commission notes that presently, for computation of Energy Charges, GCV has been considered at unloading point after taking into account normative or actual stacking loss, whichever is lower. The procurement of coal is billed at loading point at mines. From loading point of coal, the quantity variation is allowed on normative basis by considering normative transit loss. However, the quality variation is allowed on actual basis by considering the GCV at unloading point. Procurement of fuel is the Generators' responsibility and Generator pays for coal at loading point. It is the responsibility of the Generator to ensure quantity as well as quality of coal from loading point till the unloading point and further to firing of coal. Since the Generator is paying price of coal for a particular range of GCV, the Generator should ensure all quality checks in procurement of coal. The GCV of coal for which the price is being paid

by the Generator should not be less than the minimum of the range of GCV specified in the standard. The Consumers are paying the price of coal at loading point and hence, in the interest of consumers, it is proposed to consider the quality of Coal for which the Generator pays.

Accordingly, the "GCV as billed basis" is proposed to be considered for computation of Energy Charges.

Further, it is proposed that in case of blending of fuel from different sources, the weighted average Gross Calorific Value of primary fuel shall be arrived in proportion to blending ratio. The landed cost of fuel has been further clarified in the draft MERC MYT Regulations, 2019.

Further, in view of implementation of MERC DSM Regulations, 2019, energy charges shall be determined on the basis of ex-bus scheduled energy.

It is proposed to modify the existing Regulation as shown below:

*"**B. Energy Charges***

49.6 The Energy Charges shall cover landed cost of primary fuel and secondary fuel oil and shall be worked out on the basis of total energy scheduled to be supplied to the Beneficiary/ies during the calendar month on ex-power plant basis, at the Energy Charge Rate of the month (with fuel price adjustment) as per the following formula:

Energy Charges (Rs) = (Energy Charge Rate in Rs/kWh) x [Scheduled Energy (ex-bus) for the month in kWh]

49.7 Energy Charge Rate (ECR) in Rs/kWh shall be computed up to three decimal places and shall be the sum of the cost of normative quantities of primary and secondary fuel for delivering ex-bus one kWh of electricity, and shall be computed as per the following formula:

$$ECR = \frac{[P_p \times (Q_p)_n + P_s \times (Q_s)_n]}{[1-(AUX_n)]} \quad (Rs/kWh)$$

Where, P_p = *landed cost of primary fuel, namely coal or lignite or gas or liquid fuel and limestone, if applicable, in Rs/kg or Rs/cum or Rs/litre, as the case may be;*

$(Q_p)_n$ = *Quantity of primary fuel required for generation of one kWh of electricity at generator terminals in kg or litre or standard cubic metre, as the case may be, and shall be computed on the basis of normative Gross Station Heat Rate (less heat contributed by secondary fuel oil for coal/lignite based Generating Stations) and gross calorific value of coal/lignite or gas or liquid fuel as billed by supplier less actual stacking loss subject to the maximum stacking loss of 85 kcal/kg;*

P_s = *landed cost of Secondary fuel oil in Rs./ml,*

$(Q_s)_n$ = *Normative Quantity of Secondary fuel oil in ml/kWh as per Regulations 45.11 and 45.12, and*

AUX_n = *Normative Auxiliary Energy Consumption as % of gross generation as per Regulations 45.13 to 45.18.*

Provided that the landed cost of primary fuel and secondary fuel for tariff determination shall be based on actual weighted average cost of primary fuel and secondary fuel of the three preceding months, and in the absence of landed costs for the three preceding months, latest procurement price of primary fuel and secondary fuel for the generating Station, preceding the first month for which the Tariff is to be determined for existing stations, and immediately preceding three months in case of new generating stations shall be taken into account:

Provided further that the landed cost of fuel shall mean the total cost of coal, lignite or the gas delivered to the generating station and shall include the base price of fuel corresponding to the grade/quality/calorific value of fuel inclusive of royalty, taxes and duties as applicable, washery charges as applicable, transportation cost by rail/road/gas pipe line or any other means, charges for third-party sampling, and, for the purpose of computation of energy charges, shall be arrived at after considering normative transit and handling losses as percentage of the quantity of fuel dispatched by the fuel supply company during the month as specified in Regulation 45.19:

Provided also that in case of blending of fuel from different sources, the weighted average Gross Calorific Value of primary fuel shall be arrived in proportion to blending ratio:

Provided also that any refund of taxes and duties along with any amount received on account of penalties from fuel supplier shall have to be adjusted in fuel cost:

Provided also that the Energy Charges, for the purpose of billing/Fuel Surcharge shall be worked out Station-wise/Unit-wise based on weighted average rate based on scheduled generation from each Unit."

Fuel Surcharge Adjustment

Regulation 48.6 of MERC MYT Regulations, 2015 specifies the adjustment for FSA. Fuel Surcharge Adjustment allows Generator to adjust any variation in price and Gross calorific value of fuel on month to month basis on the basis of average GCV and weighted average landed cost of fuel.

In the present framework, in case of coal shortage scenario, high cost of alternative fuel supply is getting pass through fuel surcharge adjustment. There is no review and control mechanism in place for avoiding such higher cost. This higher cost is avoidable especially when the power is available at lower price from the source of supply. Hence, the following provisos are added in the present Regulations:

"Provided also that in case of part or full use of alternative source of fuel supply by coal based thermal generating stations other than as agreed by the Generating Company and beneficiary/ies in their power purchase agreement for supply of contracted power on account of shortage of fuel or optimization of economical operation through blending, the use of alternative source of fuel supply shall be permitted to generating station:

Provided also that in such case, prior permission from beneficiaries shall not be a precondition, unless otherwise agreed specifically in the power purchase agreement:

Provided also that the weighted average price of alternative source of fuel shall not exceed 10% of base price of of primary and secondary fuel approved by the Commission:

Provided also that where the Energy Charge Rate based on weighted average price of fuel upon use of alternative source of fuel supply exceeds 10% of base Energy Charge Rate as approved by the Commission for that year, prior consultation with beneficiary/ies shall be made at least three days in advance:

Provided also that in case use of alternative source of fuel is not opted for, based on prior consultation with beneficiary/ies, then the Generating Company shall be entitled to consider deemed Availability to the extent of reduced Availability on account of fuel

non-availability, for the purpose of Availability computations for recovery of Annual Fixed Charges in accordance with Regulation 49.2:

Provided also that the details of blending ratio of the imported coal with domestic coal, proportion of e-auction coal and the weighted average GCV of the fuels as billed by supplier shall also be provided separately, along with the bills of the respective month:"

4.4 Norms and Principles for Hydel Generating Stations

4.4.1 Components of Tariff

The Tariff for sale of electricity from a Hydel Generating Station shall comprise two parts, namely, Capacity Charge and Energy Charge. The Capacity Charge and Energy Charge shall be computed based on Annual Fixed Charges determined for Hydel Generating Station.

In addition to Annual Fixed Charges to be recovered through Capacity Charge and Energy Charge, the Lease Rent and Water Royalty shall be payable by the beneficiaries in proportion to their respective share in the capacity of the Generating Station on monthly basis.

4.4.2 Operation Norms for Hydel generating Stations

The MERC MYT Regulations, 2015 specifies the norms of operation for thermal Generating Stations, viz., Availability and Auxiliary Consumption.

Normative Annual Plant Availability Factor (NAPAF)

Regulation 46 of MYT Regulations, 2015 specifies NAPAF of 90% for Storage and Pondage type plants, as reproduced below:

"46.1 The following Normative Annual Plant Availability Factor (NAPAF) shall apply to Hydel Generating Stations:

Sr. No.	***Particulars***	***Normative Annual Plant Availability Factor***
a)	*Storage and Pondage type plants with head variation between Full Reservoir Level (FRL) and Minimum Draw Down Level (MDDL) of up to 8%, and where plant availability is not affected by silt*	*90%*
b)	*Storage and Pondage type plants with head variation between FRL and MDDL of more than*	*The month-wise peaking capacity as provided by the Project authorities in the*

Sr. No.	*Particulars*	*Normative Annual Plant Availability Factor*
	8%, and where plant availability is not affected by silt	*Detailed Project Report, approved by the relevant authority, shall form the basis of fixation of NAPAF.*
c)	*Pondage type plants where plant availability is significantly affected by silt*	*85%*
d)	*Run-of-river type plants*	*To be determined plant-wise, based on 10-day design energy data, moderated by past experience where available/relevant*

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

46.2 In case of Pumped storage hydel generating stations, the quantum of electricity required for pumping water from down-stream reservoir to up-stream reservoir shall be arranged by the Beneficiary/ies duly taking into account the transmission losses and distribution losses up to the bus bar of the generating Station, and in return, Beneficiaries shall be entitled to energy equivalent to 75% of the energy utilized in pumping the water from the lower elevation reservoir to the higher elevation reservoir, from the generating Station during peak hours and the generating Station shall be under obligation to supply such quantum of electricity during peak hours:

Provided that in the event of the Beneficiaries failing to supply the desired level of energy during off-peak hours, there will be pro-rata reduction in their energy entitlement from the Station during peak hours."

The Commission does not propose any changes in NAPAF for Hydel Generating Stations. Hence, above said existing Regulation is proposed to continue.

Auxiliary Consumption

The Auxiliary Energy Consumption as specified by the Commission in the MERC MYT Regulations, 2015 for Hydel Generating Stations are as under:

*"**46.3 Auxiliary Energy Consumption***

(a) Surface hydro generating stations

i. With rotating exciters mounted on the generator shaft: 0.7%

ii. With static excitation system: 1%

(b) Underground hydro generating stations

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

ii. With static excitation system: 1.2% "

It is noted that CERC Tariff Regulations, 2019 has specified separate norm for Hydel generating stations having capacity upto 200 MW and above 200 MW. The existing norms have been made applicable to Hydel Stations having capacity above 200 MW. Norms for static excitation system for Hydel Station upto 200 MW have been increased to provide benefit for lower capacity Units. It is proposed to adopt the norms specified in CERC Tariff Regulations, 2019 for next Control period. Accordingly, the following norms are proposed for next Control Period:

" *The following Normative Auxiliary Energy Consumption shall apply to hydel Generating Stations:*

Type of Station	***Installed Capacity above 200 MW***	***Installed Capacity up to 200 MW***
Surface Hydro Generating Station		
Rotating Excitation	*0.7%*	*0.7%*
Static Excitation	*1.0%*	*1.2%*
Underground Hydro Generating Station		
Rotating Excitation	*0.9%*	*0.9%*
Static Excitation	*1.2%*	*1.3%*

4.4.3 Operation and Maintenance Expenses for Hydel Generating Stations

MERC MYT Regulations, 2015 specify the principles for computation of O&M Expenses for existing Hydel Generating Stations/units, similar to the principles specified for Generating stations that achieved COD before August 26, 2005. For new Hydel Generating Stations, the O&M Expenses shall be fixed at 2% of original project cost for first year of commercial operation.

It is one of the objectives of the MYT framework to move from the methodology of specifying the principles to specifying norms for performance parameters and controllable factors. However, Hydel Generating Stations are old Stations and are commissioned before the Regulatory regime. Hence, it would be difficult to specify the norms for such Stations. In view of this, it is proposed to continue with the existing approach for specifying principle for Hydel

Generating Stations. However, for new Hydel generating Stations, the existing norm is proposed to be continued for next Control Period.

Further, for proposing the principles for O&M Expenses, the Commission has taken into account the amendment to MYT Regulations, 2015 wherein the base expenses have been changed for determination of O&M Expenses. In similar manner, for determination of O&M Expenses for next Control Period, at time of MYT Order, the average of O&M Expenses for the period from FY 2016-17 to FY 2018-19 is required to be considered to arrive at base expenses for FY 2019-20. However, during Mid Term Review, the actual approved expenses for FY 2019-20 would be available since truing up of FY 2019-20 would be carried out in the same proceedings. Hence, the revised normative expenses are required to be determined at time of Mid-term Review for whole Control period considering the revised value for FY 2019-20 approved after truing up.

The proposed Regulations for determination O&M expenses for Hydel Generating Stations/units is as under:

*"**48. Operation and Maintenance Expenses for Hydro Generating Stations***

48.1 For Existing Stations:

(a) The Operation and Maintenance expenses shall be derived on the basis of the average of the Trued-up Operation and Maintenance expenses after adding/deducting the share of efficiency gains/losses, for the three Years ending March 31, 2019, excluding abnormal Operation and Maintenance expenses, if any, subject to prudence check by the Commission:

Provided that the average of such Operation and Maintenance expenses shall be considered as Operation and Maintenance expenses for the Year ended March 31, 2018, and shall be escalated at the respective escalation rate for FY 2018-19 and FY 2019-20, to arrive at the Operation and Maintenance expenses for the base year ending March 31, 2020:

Provided further that the escalation rate for FY 2018-19 and FY 2019-20 shall be computed by considering 50% weightage to the average yearly inflation derived based on the monthly Wholesale Price Index [2011-12 series] of the respective past five financial years as per the Office of Economic Advisor of Government of India and 50% weightage to the average yearly inflation derived based on the monthly Consumer Price Index [2011-12 series] for Industrial Workers (all-India) of the respective past five financial years as per the Labour Bureau, Government of India:

Provided also that at the time of true-up for each Year of this Control Period, the Operation and Maintenance expenses, including insurance, shall be derived on the basis of the Final Trued-up Operation and Maintenance expenses, after adding/ deducting the sharing of efficiency gains/ losses, for the year ending March 31, 2020, excluding abnormal expenses, if any, subject to prudence check by the Commission, and shall be considered as the Base Year Operation and Maintenance expenses.

(b) The Operation and Maintenance expenses for each subsequent year and in the Truing-up of the respective years of the Control Period shall be determined in the same manner as specified in Regulation 46.1 (c).

(c) The Operation and Maintenance expenses incurred by the Generating Company on its housing colonies and related expenses, including medical and other facilities, and on their operating staff shall be excluded from (a) and (b) above and allowed separately, subject to prudence check.

(d) The impact of Wage Revision, if any, may be considered at the time of true-up for any Year, based on documentary evidence and justification to be submitted by the Petitioner:

Provided that if actual employee expenses are higher than normative expenses on this account, then no sharing of efficiency losses shall be done to that extent:

Provided further that efficiency gains shall not be allowed by deducting the impact of Wage Revision and comparison of such reduced value with normative value.

(e) Provisioning of expenses shall not be considered as actual expenses at the time of true-up, and only expenses as actually incurred shall be considered.

48.2 For New Stations:

(a) The Operation and Maintenance expenses shall be fixed at 2% of the original Project cost (excluding cost of rehabilitation and resettlement works) for the first year of commercial operation, which shall be considered as the Base Year Operation and Maintenance expenses.

(b) The Operation and Maintenance expenses for each subsequent year and in the Truing-up of the respective years of the Control Period shall be determined in the same manner as specified in Regulation 45.1 (c). ”

4.4.4 Computation and Payment of Capacity Charges, Energy Charges and Lease Rent for Hydel Generating Stations

Regulation 49 of MYT Regulations, 2015 specify the principles for computation and payment of capacity charges, energy charges and lease rent for Hydel generating Stations.

The existing principles for determination of tariff for Hydel generating station are well accepted by stakeholders in the State and time tested. It is proposed to continue with the same approach for determination of capacity charges, energy charge and lease rent for Hydel generating stations.

Further, scheduled energy has been considered instead of actual energy for consideration of saleable energy in view of implementation of DSM Regulations, 2019. The provisions related to treatment in case of shortfall of actual scheduled energy with respect to design energy has been modified for giving more clarity. The proposed Regulation is as under:

> *"**50. Computation and Payment of Capacity Charges, Energy Charges and Lease Rent for Hydro Generating Stations***
>
> *50.1 The Annual Fixed Charges of a Hydro Generating Station shall be computed on annual basis, based on norms specified under these Regulations, and recovered on monthly basis under Capacity Charge (inclusive of incentive) and Energy Charge, which shall be payable by the Beneficiaries in proportion to their respective share in the capacity of the Generating Station.*
>
> *50.2 In addition to Annual Fixed Charges to be recovered through Capacity Charge and Energy Charge, the Lease Rent and Water Royalty shall be payable by the Beneficiaries in proportion to their respective share in the capacity of the Generating Station on monthly basis.*
>
> *50.3 The Capacity Charge (inclusive of incentive) payable to a Hydro Generating Station for a calendar month shall be*
>
> *AFC x 0.5 x NDM / NDY x (PAFM / NAPAF) (in Rupees)*
>
> *Where,*
>
> *AFC = Annual fixed cost specified for the year, in Rupees.*
>
> *NAPAF = Normative Annual Plant Availability Factor in percentage*
>
> *NDM = Number of days in the month*

NDY = Number of days in the year

PAFM = Plant availability factor achieved during the month, in Percentage

50. 4 The PAFM shall be computed in accordance with the following formula:

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

Where,

AUX = Normative auxiliary energy consumption in percentage

DC_i = Declared capacity (in ex-bus MW) for the i^{th} day of the month which the Station can deliver for at least three hours, as certified by the MSLDC after the day is over.

IC = Installed capacity (in MW) of the complete Generating Station

N = Number of days in the month

50.5 The Energy Charge shall be payable by every Beneficiary for the total energy scheduled to be supplied to the Beneficiary/ies, during the calendar month, on ex-bus basis, at the computed Energy Charge Rate. Total Energy Charge payable to the Generating Company for a month shall be:

Energy Charges in Rs = (Energy Charge Rate in Rs. / kWh) x {Scheduled Energy (ex-bus)} for the month in kWh

50.6 Energy Charge Rate (ECR) in Rupees per kWh on ex-bus basis, for a Hydro Generating Station, shall be determined up to three decimal places based on the following formula:

$$ECR = AFC \times 0.5 / \{ DE \times (1 - AUX) \}$$

Where,

DE = Annual Design Energy specified for the Hydro Generating Station, in kWh, subject to Regulation 49.7.

50.7 In case the saleable scheduled energy (ex-bus) of a Hydro Generating Station during a year is less than the saleable Design Energy (ex-bus) for reasons beyond the control of the Generating Company, the following treatment shall be applied on a rolling basis on a Petition filed by the Generating Company:

(i) Shortfall in Energy Charges in comparison to fifty percent of the Annual Fixed Cost shall be allowed to be recovered in six equal monthly instalments:

Provided that in case actual generation from a hydel generating Station is less than the Design Energy for a continuous period of 4 years on account of hydrology factor, the generating Station shall approach the Central Electricity Authority with relevant hydrology data for revision of design energy of the Station.

(ii) Any shortfall in the Energy Charges on account of saleable scheduled energy (ex-bus) being less than the saleable design energy (ex-bus) during the Control Period from 2016-17 to FY 2019-20, which was beyond the control of the generating station and which could not be recovered during the said Control Period shall be recovered in accordance with clause (i) of this Regulation.

50.8 In case the Energy Charge Rate (ECR) for a Hydro Generating Station, as computed in Regulation 49.6, exceeds ninety paise per kWh, and the actual saleable energy in a Year exceeds { DE x (1 – AUX) } kWh, the Energy Charge for the energy in excess of the above shall be billed at ninety (90) paise per kWh only.

50.9 The MSLDC shall finalise the schedules for the hydel Generating Stations, in consultation with the Beneficiaries, for optimal utilization of all the energy declared to be available, which shall be scheduled for all Beneficiaries in proportion to their respective allocations in the Generating Station."

5 Norms and principles for determination of revenue requirement and Transmission Tariff

5.1 Overview of Transmission

Historically, the transmission network in the State of Maharashtra has been developed over the period by the Maharashtra State Electricity Transmission Co. Ltd (MSETCL, which is a successor entity of erstwhile MSEB), The Tata Power Company Ltd. – Transmission Business (TPC-T), and Reliance Infrastructure Ltd. – Transmission Business (RInfra-T).

GOM notified MSETCL as the State Transmission Utility (STU) vide its GR No. Reform 1004/S.No 8885/Energy-5 dated 17th February 2005 in accordance with Section 39 of the Act. Section 39(2) of the Act provides the functions of State Transmission Utility as under:

> *"(2) The functions of the State Transmission Utility shall be -*
>
> *(a) to undertake transmission of electricity through intra-State transmission system;*
>
> *(b) to discharge all functions of planning and co-ordination relating to intra-State transmission system with –*
>
> *(i) Central Transmission Utility;*
>
> *(ii) State Governments;*
>
> *(iii) generating companies;*
>
> *(iv) Regional Power Committees;*
>
> *(v) Authority;*
>
> *(vi) licensees;*
>
> *(vii) any other person notified by the State Government in this behalf;*
>
> *(c) to ensure development of an efficient, co-ordinated and economical system of intra-State transmission lines for smooth flow of electricity from a generating station to the load centres;*
>
> *(d) to provide non-discriminatory open access to its transmission system for use by-*
>
> *(i) any licensee or generating company on payment of the transmission charges; or*
>
> *(ii) any consumer as and when such open access is provided by the State Commission under sub-section (2) of section 42, on payment of the transmission charges and a surcharge thereon, as may be specified by the State Commission:*

Provided that such surcharge shall be utilised for the purpose of meeting the requirement of current level cross-subsidy:

Provided further that such surcharge and cross subsidies shall be progressively reduced 1[***] in the manner as may be specified by the State Commission:

Provided also that the manner of payment and utilisation of the surcharge shall be specified by the State Commission:

Provided also that such surcharge shall not be leviable in case open access is provided to a person who has established a captive generating plant for carrying the electricity to the destination of his own use."

MSETCL, as STU, is responsible for undertaking all activities related to transmission planning, co-ordination and ensuring development of an efficient, co-ordinated and economical system of intra-State transmission for smooth flow of electricity from Generating Stations to the load centres, within the State. The system for conveyance of electricity by transmission lines within the area of the State and including all transmission lines, sub-stations and associated equipment of Transmission Licensees in the State has been defined as the Intra-State Transmission System (InSTS). The onus of InSTS planning lies with MSETCL, as STU.

The Act recognized 'transmission' as a distinct 'Licensed Business' activity to be undertaken by 'Transmission Licensee' in accordance with the licence conditions specified by the Commission in this regard.

At present, there are nine (9) Intra-State Transmission Licensees in the State of Maharashtra, namely:

(i) Maharashtra State Electricity Transmission Company Ltd. (MSETCL)
(ii) Transmission Business of The Tata Power Company Ltd. (TPC-T)
(iii) Transmission Business of Adani Electricity Mumbai Ltd. (AEML-T)
(iv) Jaigad Power Transco Ltd. (JPTL)
(v) Adani Transmission (India) Limited (ATIL)
(vi) Amravati Power Transmission Company Ltd. (APTCL)
(vii) Sinnar Power Transmission Company Ltd. (SPTCL)
(viii) Maharashtra Eastern Grid Power Transmission Company Ltd. (MEGPTCL)
(ix) Transmission Business of Vidarbha Industries Power Limited (VIPL-T)

In the latest Mid Term Review (MTR) proceedings for the MYT Control Period from FY 2016-17 to FY 2019-20, the Commission has undertaken MTR of all intra-State Transmission Licensees except SPTCL and issued the Orders.

5.2 Applicability

Regulation 53 of MERC MYT Regulations, 2015 specifies the applicability that it shall apply to the determination of Tariff for access and use of the intra-State transmission system pursuant to a Bulk Power Transmission Agreement or other arrangement entered into with a Transmission System User. The same applicability for Transmission Tariff is proposed to continue for the next Control Period.

Further, in case a new transmission system set up by a new Transmission Licensee is added to the existing system during the Control Period, the Commission shall re-determine the Tariff for InSTS for the remaining years of the Control Period, considering the approved ARR of new Transmission Licensee.

The Commission does not propose any changes in the applicability of MYT Regulations for transmission part.

5.3 Components of Tariff

Regulation 54 of MERC MYT Regulations, 2015 specifies that transmission charges for access to and use of the intra-State transmission system shall comprise any of the following components or combination of the following components:

(a) Transmission system access charges;
(b) Annual transmission charges;
(c) Per unit charges for energy transmitted and;
(d) Reactive energy charges

Further, this Regulation also specifies that components of Aggregate Revenue Requirement of the Transmission Licensee for respective year of the Control Period as under:

(a) Operation and maintenance expenses;
(b) Depreciation;
(c) Interest on Loan Capital;
(d) Interest on working capital and deposits from Transmission System Users;
(e) Contribution to contingency reserves;
(f) Return on Equity Capital;
(g) Income Tax;
minus:
(h) Income from Open Access charges;
(i) Non-Tariff income;
(j) Income from Other Business, to the extent specified in these Regulations:

The Commission does not propose any changes in components of tariff for the Transmission Licensee, except to clarify the philosophy of allowing prior period income/expenses, as under:

"Provided further that prior period income/expenses shall be allowed by the Commission at the time of Truing-up based on audited accounts, on a case to case basis, if the income/expenses in that prior period have been allowed on actual basis, subject to prudence check:".

5.4 Petition for determination of provisional Tariff

Regulation 55 of the MERC MYT Regulations, 2015 contains specific provisions related to determination of provisional tariff for the Transmission Licensee. As per existing Regulations, new Transmission Licensee has to file a Petition for approval of provisional tariff six months prior to anticipated COD of the transmission system.

For approval of provisional tariff for Transmission Licensee, the existing provisions are proposed to be continued for the next Control Period.

5.5 Determination of Intra-State Transmission tariff

Regulation 61 of MERC MYT Regulations, 2015 specifies the transmission pricing framework applicable for the State of Maharashtra. Presently, the intra-State transmission pricing framework in the State of Maharashtra is based on a "Postage Stamp" approach. In this framework, the recovery of ARR of Transmission Licensees or Transmission Service Charge (TSC) in case of competitively awarded transmission projects, as the case may be, shall be based on a 'pooled cost' principle wherein the ARR/TSC of all the Transmission Licensees will be pooled together and shared among the Transmission System Users based on their share in the coincident peak demand and non-coincident peak demand of the State.

From the experience of the past two Control Periods, the Commission views that Postage Stamp approach is simple, easy to understand and implement, and is also a time-tested approach, hence, it is proposed to continue with the uniform Postage Stamp approach across the State of Maharashtra.

However, it is proposed to clarify the treatment in case of new Distribution Licensees whose monthly CPD and NCPD data is not available at the time of determination of Base TCR, as under:

"Provided also that in case of a new Distribution Licensee whose monthly CPD and NCPD data is not available at the time of determination of Base TCR, the quantum of power approved by the Commission in the approved Power Procurement Plan or Power Purchase Agreement

shall be considered in lieu of the average monthly CPD and NCPD for calculating the Base Transmission Capacity Rights:"

Further, in the past, the Commission has been determining the Intra-State Transmission Tariff on a suo-motu basis, based on the ratio of CPD and NCDP of the Distribution Licensees and the approved ARR of all the Transmission Licensees. In this regard, it is proposed to direct the State Transmission Utility to file the Petition for determination of Intra-State Transmission Tariff one month after the last date of filing of MYT/MTR Petitions by Transmission Licensees, based on the CPD and NCPD and the ARR sought by the Transmission Licensees in their respective Petitions, as under:

"63.5 The State Transmission Utility shall file the Petition for determination of Intra-State Transmission Tariff for the MYT Control Period latest by November 30, 2019, and latest by November 30, 2022 at the time of Mid-term Review, on the basis of Base Transmission Capacity Rights of each TSU, and the summation of the Aggregate Revenue Requirement projected by the Transmission Licensees for each Year of the Control Period."

5.6 Operational norms

Regulation 57 of MERC MYT Regulations, 2015 specifies the Norms for operation and incentive mechanism for the Transmission Licensee, as re-produced below:

*"**57. Norms for operation-***

57.1 Target availability for the Transmission Licensee shall be as under:

(a) For full recovery of Annual Transmission Charges:

(a) AC system	*: 98 per cent*
(b) HVDC bi-pole links and HVDC back-to-back stations	*: 95 per cent*

(b) For Incentive consideration:

(a) AC system	*: 99 per cent;*
(b) HVDC bi-pole links and HVDC back-to-back stations	*: 96 per cent;*

***Note 1. -** Recovery of annual transmission charges below the level of target availability shall be on pro-rata basis, and at zero availability, no transmission charges shall be payable.*

Note 2. *- The target availability shall be computed in accordance with procedure provided in the* ***Annexure-II*** *to these Regulations and be certified by MSLDC."*

Thus, there are two separate norms of transmission availability, viz., norm for recovery of Annual Transmission Charges and norm for incentive.

The Commission has analysed the performance of Transmission Licensees in the State of Maharashtra for the past period. The actual transmission availability achieved for the period from FY 2012-13 to FY 2017-18 is shown below:

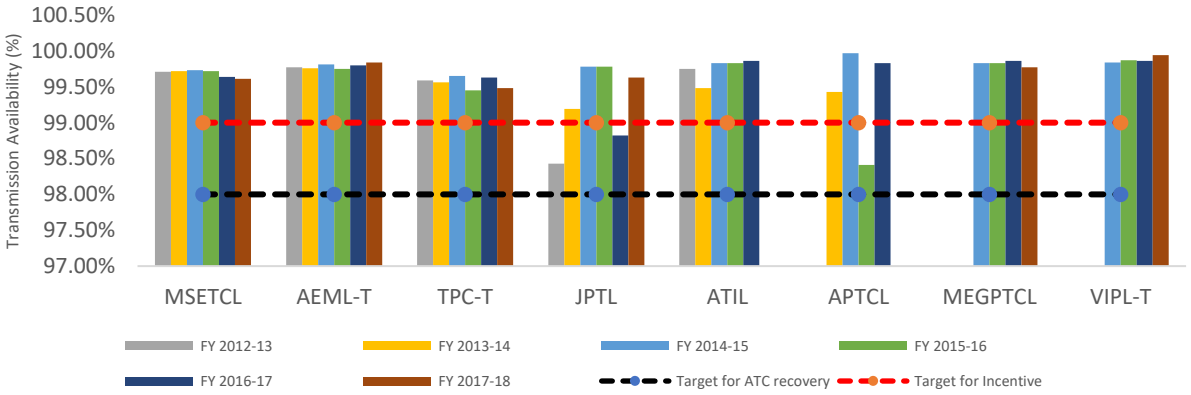

Table 15 Actual Transmission System Availability for FY 2012-13 to FY 2017-18

Licensee	System	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18
MSETCL	HVDC	97.54%	98.40%	97.96%	94.56%	97.07%	96.41%
	HVAC	99.71%	99.72%	99.73%	99.72%	99.64%	99.61%
AEML-T	HVAC	99.77%	99.76%	99.81%	99.75%	99.80%	99.84%
TPC-T	HVAC	99.59%	99.56%	99.65%	99.45%	99.63%	99.48%
JPTL	HVAC	98.43%	99.19%	99.78%	99.78%	98.82%	99.63%
ATIL	HVAC	99.75%	99.48%	99.83%	99.83%	99.86%	99.83%
APTCL	HVAC	NA	99.43%	99.97%	98.41%	99.83%	NA*
MEGPTCL	HVAC	NA	NA	99.83%	99.83%	99.86%	99.77%
VIPL-T	HVAC	NA	NA	99.84%	99.87%	99.86%	99.94%

**NA-Not Available*

From the above Table, it is observed that all Transmission Licensees have maintained the transmission system availability more than target availability required for recovery of Annual Transmission Charges. Also, all Transmission Licensees have availed incentive for maintaining higher transmission system availability, except for JPTL in FY 2016-17.

It is evident that the Transmission Licensees have consistently achieved Availability levels higher than the Target Availability and have benefitted in the form of incentives as specified in the Regulations for the over-achievement vis-a-vis the targeted Availability.

Further, the Availability norm of 99% for incentive for HVAC system is already stringent and also no incentive is applicable for transmission availability above 99.75%. Also, these norms are in line with the norms specified by CERC in its Tariff Regulations.

In view of the above, it is proposed to continue with the existing norms for operation and incentive mechanism for next Control Period as well. Further, it is specified in the definition of Availability that Availability of a transmission system for any period shall not exceed hundred per cent.

5.7 Computation of Incentive

Presently, the Availability Incentive is provided on the Annual Transmission Charges, which also includes the Income Tax. However, there should be no incentive given on the amount of Income Tax paid by the Licensee. Hence, it is proposed to clarify that the Annual Transmission Charges for the purpose of incentive entitlement, shall exclude the Income Tax. The changes proposed in the draft MERC MYT Regulations, 2019 are as under:

"59.2 The Transmission Licensee shall be entitled to incentive on achieving annual availability beyond the target availability, in accordance with the following formula:

Incentive = Annual Transmission Charges x [Annual availability achieved – Target Availability] / Target Availability;

Where,

Annual Transmission Charges shall correspond to Aggregate Revenue Requirement for each year of the Control Period for the particular Transmission Licensee within the State, excluding the component of Income Tax:…"

5.8 Operation and Maintenance expenses for Transmission

In the MYT Regulations, 2015, the O&M norms for Transmission Licensees are linked to Transmission line length (ckt-km) and sub-station related assets (number of bays). MYT Regulations, 2015 specify the norms separately for MSETCL, AEML-T, TPC-T and JPTL. Further, combined norms have been specified for new transmission licensees and other existing transmission licensees.

For the next Control Period, the Commission proposes to continue with the same approach for deriving the O&M norms for the Transmission Licensees in the State of Maharashtra based on line length in circuit km and number of bays.

O&M expenses comprise Employee expenses, Repair & Maintenance (R&M) expenses and Administrative & General (A&G) expenses. With increase in transmission capacity and corresponding increase in asset base, the manpower resources and repairs and maintenance activities need to be augmented adequately to cater to the enhanced maintenance requirement (preventive and break-down) of the asset base. There is a direct co-relation between O&M expenses and number of bays and transmission line length (ckt-km) put into service.

Comparison of Network configuration amongst the Intra-State Transmission licensees in Maharashtra

At present, the Intra-State transmission system (InSTS) within Maharashtra comprises the transmission network of MSETCL, TPC-T, AEML-T, ATIL, JPTL, APTCL, MEGPTCL and VIPL-T. While the transmission licences have also been issued in case of SPTCL, the transmission assets of this Licensee are yet to achieve COD and become operational.

The nature of Transmission Licensees varies significantly on the technical, financial and operational front. The State Transmission Utility-MSETCL, operates at voltage level ranging from 66 kV to 400 kV/765 kV AC. The transmission network of MSETCL also includes around 1504 ckt-km of HVDC lines from Chandrapur to Padghe. However, TPC-T and AEML-T operate at a voltage level ranging from 66 kV to 220 kV. JPTL, ATIL, APTCL, MEGPTCL and VIPL-T own and operate limited network. JPTL, ATIL and APTCL operate at voltage level of 400 kV. VIPL-T operates at voltage level of 220 kV and MEGPTCL operates at voltage of 400 kV as well as 765 kV. Further, TPC-T and AEML-T also has mix of overhead lines and underground cables, while all other Licensees have overhead lines.

The following Table shows a comparison of the technical configuration of the Transmission Utilities in Maharashtra in terms of MVA capacity, transmission line length in ckt km and number of bays (Average of Opening and Closing) for FY 2017-18.

Table 16: Technical Configuration of Transmission Licensees

Sl. No.	Licensee	Transmission Line Length (ckt-km)	Number of Bays (Nos.)	Transmission line length per bay (ckt-km/bay)
1	MSETCL	45,644.27	12,311.50	3.71
2	TPC-T	1,188.18	1,206.00	0.99
3	AEML-T	539.89	476.00	1.13
4	JPTL	330.00	4.00	82.50
5	ATIL	438.00	4.00	109.50
6	VIPL-T	6.12	4.00	1.53

Sl. No.	Licensee	Transmission Line Length (ckt-km)	Number of Bays (Nos.)	Transmission line length per bay (ckt-km/bay)
7	APTCL	220.22	2.00	110.11
8	MEGPTCL	1,215.75	56.00	21.71

Source: True up Orders for Transmission Licensees

In the above table, the ratios of Transmission line length to number of bays have been derived to compare the technical configuration of the Transmission Licensees. The ratio brings out the structural difference in network configuration and topology amongst the Transmission Licensees in the State of Maharashtra, and shows that there exists significant difference in the network configuration of Transmission Licensees.

For the purpose of analysis and for deriving O&M norms, the 'Bay' has been considered as a set of accessories that are required to connect an electrical equipment such as Transmission line, Bus Section Breakers, Potential Transformers, Power Transformers, Capacitors and Transfer Breaker and the feeders emanating from the bus. Further, the Bays considered here include only the ones at the Transmission substation and thus exclude any bays of the Generating Station switchyard whose maintenance is usually the responsibility of the Generation Entity.

In the draft MERC MYT Regulations, 2019, it is proposed to clarify that the Bay has to compulsorily include the Circuit Breaker and Current Transformers, so that there is no ambiguity regarding what exactly constitutes a Bay. The proposed proviso is as under:

> *"Provided that along with other equipment, Bay shall compulsorily include the Circuit Breaker and Current Transformers:"*

In the past, it has been noticed that there are certain Bays that are unutilized, and hence, are not entitled to O&M expenses on normative basis. This aspect is proposed to be clarified in the draft MERC MYT Regulations, 2019, as under:

> *"Provided also that the number of Bays considered for allowing O&M expenses shall exclude the unutilised Bays…"*

In the recent past, there has been a trend of setting up Gas Insulated Sub-stations (GIS), which are costlier than the conventional Air Insulated Sub-stations (AIS), but require lower maintenance and have lower failure rates. CERC, in CERC Tariff Regulations, 2019 has specified that GIS shall be entitled to 70% of O&M expenses allowable for AIS. Hence, it is

proposed to clarify that the GIS will be entitled to 70% of the O&M expenses allowable for AIS at same voltage, as under:

> *"60.6 The O&M expenses for the GIS bays shall be allowed as worked out by multiplying 0.70 to the normative O&M expenses for bays as allowed in Regulation 60.2 to 60.5."*

Regulation 58.8 of the MERC MYT Regulations, 2015 specifies as under:

> *"58.8 For such Transmission Licensees whose bays are installed in the premises of and maintained by another Transmission Licensee, the O&M expense for such assets shall be allowed in accordance with the norms applicable for the Transmission Licensee who performs the O&M of such assets:*
>
> *Provided that the Transmission Licensees shall mutually agree on sharing of such allowed O&M expenses:…"*

It has been observed that the above clause has led to some confusion regarding the applicable O&M expenses. It is hence, proposed to clarify that the O&M norms of the Transmission Licensee in whose premises the Bays are installed, shall be applicable in such cases, as reproduced below:

> *"60.7For such Transmission Licensees whose Bays are installed in the premises of and maintained by another Transmission Licensee, the O&M expense for such assets shall be allowed in accordance with the norms applicable for the Transmission Licensee in whose premises the Bays are installed:…"*

Comparison of O&M Expenses amongst the Intra-State Transmission licensees in Maharashtra

As per the provisions of the MERC MYT Regulations, 2011 and MERC MYT Regulations, 2015, the Commission has approved the normative O&M expenses for intra-State Transmission Licensees and sharing of efficiency gains or losses has been allowed with respect to the actual O&M expenses. The actual and normative O&M expenses for Transmission Licensees have been compared for FY 2015-16 and FY 2016-17 in the following table:

Table 17: O&M Expenses for Transmission Licensees (Rs. Crore)

Licensee	FY 2015-16			FY 2016-17		
	Normative	Actual	Gain/(loss)	Normative	Actual	Gain/(loss)
MSETCL	1,585.51	1272.20	313.31	1,736.77	1373.41	363.36
TPC-T	197.23	156.84	40.39	176.05	165.88	10.17

Licensee	FY 2015-16			FY 2016-17		
	Normative	Actual	Gain/(loss)	Normative	Actual	Gain/(loss)
AEML-T	40.66	43.15	(2.49)	53.21	55.42	(2.21)
JPTL	6.86	3.34	3.52	4.35	4.13	0.22
ATIL	7.58	11.38	(3.80)	5.77	8.83	(3.06)
VIPL-T	0.69	0.50	0.19	0.73	0.48	0.25
APTCL	3.80	2.80	1.00	2.41	3.43	(1.02)
MEGPTCL	84.74	120.19	(35.45)	87.48	112.55	(25.07)

From the above table, it is observed that actual O&M expense are higher than normative O&M expenses for AEML-T, ATIL and MEGPTCL for both years and APTCL for FY 2016-17. For all other Licensees, the actual O&M Expenses are significantly lower than normative O&M Expenses for FY 2015-16 and FY 2016-17.

Comparison of O&M expenses of the Intra-State Transmission licensees in Maharashtra with that of CTU (PGCIL)/CERC norms

The CERC Tariff Regulations, 2019 has specified the norms for O&M expenses for Transmission Licensees handling Inter State Transmission of power. CERC has specified voltage-wise norms and separate norms for line assets and substation assets. CERC has specified the norms in terms of Rs. Lakh per ckt-km, Rs. Lakh per bays and Rs. Lakh per MVA. The O&M norm specified by CERC is reproduced below:

*"**35. Operation and Maintenance Expenses:***

……

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

Particulars	***2019-20***	***2020-21***	***2021-22***	***2022-23***	***2023-24***
Norms for Sub-station bays (Rs. Lakh per bay)					
765 kV	*45.01*	*46.6*	*48.23*	*49.93*	*51.68*
400 kV	*32.15*	*33.28*	*34.45*	*35.66*	*36.91*
220 kV	*22.51*	*23.3*	*24.12*	*24.96*	*25.84*
132 kV and below	*16.08*	*16.64*	*17.23*	*17.83*	*18.46*
Norms for Transformers (Rs. Lakh per MVA)					
765 kV	*0.491*	*0.508*	*0.526*	*0.545*	*0.564*
400 kV	*0.358*	*0.371*	*0.384*	*0.398*	*0.411*

Particulars	*2019-20*	*2020-21*	*2021-22*	*2022-23*	*2023-24*
220 kV	*0.245*	*0.254*	*0.263*	*0.272*	*0.282*
132 kV and below	*0.245*	*0.254*	*0.263*	*0.272*	*0.282*
Norms for AC and HVDC lines (in Rs Lakh per km)					
Single Circuit (Bundled Conductor with six or more sub-conductors)	*0.881*	*0.912*	*0.944*	*0.977*	*1.011*
Single Circuit (Bundled Conductor with four sub- conductors)	*0.755*	*0.781*	*0.809*	*0.837*	*0.867*
Single Circuit (Twin & Triple Conductor)	*0.503*	*0.521*	*0.539*	*0.558*	*0.578*
Single Circuit (Single Conductor)	*0.252*	*0.26*	*0.27*	*0.279*	*0.289*
Double Circuit (Bundled conductor with four or more sub-conductors)	*1.322*	*1.368*	*1.416*	*1.466*	*1.517*
Double Circuit (Twin & Triple Conductor)	*0.881*	*0.912*	*0.944*	*0.977*	*1.011*
Double Circuit (Single Conductor)	*0.377*	*0.391*	*0.404*	*0.419*	*0.433*
Multi Circuit (Bundled conductor with four or more sub-conductors)	*2.319*	*2.401*	*2.485*	*2.572*	*2.662*
Multi Circuit (Twin & Triple Conductor)	*1.544*	*1.598*	*1.654*	*1.713*	*1.773*
Norms for HVDC Stations					
HVDC Back–to-back stations (Rs. Lakh per 500 MW) (Except Gauwaka BTB)	*834*	*864*	*894*	*925*	*958*
Gazuwaka HVDC Back-to-Back station (Rs. Lakh per 500 MW)	*1,666*	*1,725*	*1,785*	*1,848*	*1,913*
500 kV Rihand-Dadri HVDC bipole scheme (Rs Lakh) (1500 MW)	*2,252*	*2,331*	*2,413*	*2,498*	*2,586*
±500 kV Talcher- Kolar HVDC bipole scheme (Rs Lakh) (2000 MW)	*2,468*	*2,555*	*2,645*	*2,738*	*2,834*
±500 kV Bhiwadi-Balia HVDC bipole scheme (Rs Lakh) (2500 MW)	*1,696*	*1,756*	*1,817*	*1,881*	*1,947*
±800 kV, Bishwanath-Agra HVDC bipole scheme (Rs Lakh) (3000 MW)	*2,563*	*2,653*	*2,746*	*2,842*	*2,942*

Provided that the O&M expenses for the GIS bays shall be allowed as worked out by multiplying 0.70 of the O&M expenses of the normative O&M expenses for bays;

…. ….”

Thus, CERC has specified the transmission length-based norm on per km basis rather than on the basis of per ckt km, since it has stipulated separate norms for single circuit line as well as double circuit lines. Further, CERC has made distinction in terms of type of conductor as well.

It is noted that CERC has introduced the norm for transformers in terms of Rs. Lakh per MVA from FY 2019-20 onwards by allocating the existing substation related expenses, which was earlier accounted within the Norms for Sub-station bays.

It may be noted that the normative O&M expenses allowed by CERC for PGCIL are much higher than that specified by SERCs for the intra-State Transmission Licensees, which may be on account of the fact that the PGCIL network comprises largely of 400 kV and 220 kV transmission system, whereas the voltages at State level are primarily 66 kV to 220 kV with a smaller share of 400 kV lines in case of MSETCL and 66kV to 220 kV in case of TPC-T and

AEML-T. Also, new Transmission Licensee, whose assets are commissioned after April 1, 2011 are primarily having network at voltage level of 400 kV and 765 kV. Hence, norms for such Transmission Licensees may be comparable with CERC norms.

Further, the CERC norms have been specified after taking into account the prudently incurred O&M expenses incurred by PGCIL. As long as similar treatment of specifying the O&M norms based on the prudently incurred O&M expenses is followed, Transmission Licensees will not be at any disadvantage and will be able to recover the prudently incurred O&M expenses incurred by them.

The Commission in MERC MYT Regulations, 2015 specified norms for O&M Expense on prudently incurred O&M Expenses by Transmission Licensee and voltage-wise O&M expenses per bay and per ckt-km. For the next Control Period also, the Commission proposes to continue with the existing approach. The total allowable O&M expenses for the transmission system is to be computed by multiplying the number of bays and ckt. km of line length with the applicable norms for O&M expenses on per bay and per ckt. km basis, respectively.

Formulation of proposed O&M norms

The Commission had specified normative O&M expenses for MSETCL, AEML-T, TPC-T and JPTL in the MYT Regulations, 2015. For other licensees, the combined norms were specified. Also, it is noted that these Licensees are having limited network. For the first three Control Periods, the norms applicable to these Licensees are based on norms specified for MSETCL, except for 400 kV in the third Control Period, which are based on norms of JPTL. Accordingly, the Commission proposes to specify the separate norm for MSETCL, AEML-T, TPC-T and JPTL. Also, it is proposed to specify the common norms for other licensees, viz. ATIL, APTCL, MEGPTCL and VIPL-T.

Hence, as discussed above, separate norms have been derived for MSETCL, AEML-T, TPC-T, JPTL and group of other Transmission Licensees to address characteristic features and historical development of transmission network and operating structure of these Transmission Licensees. Further, norms computed for other existing Licensees shall also be made applicable for new Licensees to be commissioned during next Control Period and also for additional voltage level, if required, for TPC-T and AEML-T.

While deriving O&M norms for a Transmission Licensee, it is required to consider the spread and nature of the transmission asset base. Hence, it is proposed to continue with existing approach of deriving the norms in terms of number of bays (representing Substation Asset related expenses) and in terms of length of transmission line (representing line related expenses). Therefore, norms have been proposed in terms of ‘per ckt km basis’ and ‘per bay

basis'. The Commission at this point of time does not intend to introduce separate norm for transformers (MVA) as the expenses for this is already covered in norms for sub-stations (per bays).

In addition to the above, considering the network configuration across Transmission Licensees, it is proposed to continue to derive O&M norms for the following set of voltage classes:

1. HVDC
2. 765 kV
3. 400 kV
4. Above 66 kV but lower than 400 kV (220 kV, 132 kV, 100 kV, 110 kV)
5. 66 kV and lower

However, in case of TPC-T and AEML-T, due to their limited voltage levels of operation, O&M norms are being specified only for the last two voltage levels appearing in the above list, i.e., (a) Above 66 kV but lower than 400 kV and (b) 66 kV and lower. Similarly, in case of JPTL, O&M norms are being specified only for 400 kV level. Also, in case of other new Transmission Licensees, O&M norms are proposed for all voltage levels. However, normative O&M Expenses for such Licensees shall be calculated based on the applicable norms for corresponding asset base at different voltage levels.

Further, for deriving the norms for different voltage levels, it is required to understand the spread of the existing assets (i.e., transmission lines and bays) amongst these set of voltages. For this purpose, the necessary data for assets related to transmission lines and bays were sought from the Transmission Licensees. The segregation of norms amongst the voltage levels has been considered based on the available data.

Base Expenses

For computation of norms, the Commission has considered the actual O&M expenses for FY 2015-16 to FY 2017-18. It is noted that true-up for FY 2015-16 and FY 2016-17 has been carried out by the Commission in latest Mid Term Review Orders. For FY 2017-18, the provisional true-up has been carried out. One option was to consider the expenses for the period from FY 2014-15 to FY 2016-17, approved after true-up of respective years. However, it is noted that the third Control Period starts from FY 2016-17. Consideration of actual O&M expenses for only one year of the third Control Period, i.e., FY 2016-17, for deriving the norms for the fourth Control Period starting from FY 2020-21 would not be appropriate. Hence, it is proposed to consider actual O&M Expenses for FY 2017-18, subject to due verification with audited accounts for FY 2017-18.

Escalation Factor

The MERC MYT Regulations, 2015 (first amendment) specifies the computation of inflation factor based on Consumer Price Index (CPI) and Wholesale Price Index (WPI), which is applicable for computation of O&M expenses for existing Generating Companies and Distribution Licensees.

For computation of norms, the inflation factor is computed based on 30% weightage to the average yearly inflation derived based on the monthly Wholesale Price Index (WPI) of the past three financial years as per the Office of Economic Advisor of Government of India and 70% weightage to the average yearly inflation derived based on the monthly Consumer Price Index (CPI) for Industrial Workers (all-India) of the past three financial years as per the Labour Bureau, Government of India.

For computation of WPI and CPI, data for new series (2011-12) has been considered. For the next Control Period, WPI:CPI ratio has been considered as 30:70.

Accordingly, the following inflation factors has been considered for computation of norms.

FY 2017-18: 3.68%

FY 2018-19: 3.10%

FY 2019-20: 3.78%

FY 2020-21 to FY 2024-25: 3.78%

It may be noted that CERC in its Tariff Regulations, 2019 has considered the escalation rate of 3.51% for deriving O&M norms for Transmission system for the next Control Period.

The methodology for formulation of O&M norms for MSETCL, TPC-T, AEML-T and JPTL is elaborated as under:

(a) It is proposed to compute the norms for O&M Expenses for MSETCL, TPC-T, AEML-T and JPTL.

(b) The actual O&M expenses of Transmission Licensees, subject to prudence check by the Commission, have been considered for FY 2015-16 to FY 2017-18. The transmission line length and number of bays have been considered based on such parameters considered at time of the respective true-up and based on data submitted by the Licensees.

(c) The year-wise O&M expenses (from FY 2015-16 to FY 2017-18) have been allocated amongst bays and transmission line length (ckt km) in the ratio of normative O&M expenses derived for bays and transmission lines, with existing asset base for transmission lines and bays. The allocation ratio for allocating O&M expense between bays and transmission lines has been assumed separately for each year for each

Transmission Licensee, based on their assets for respective year. The allocation ratio considered for each Transmission Licensee is summarised in the following Table:

Table 18: Allocation Ratio for Transmission Licensees (Rs. Crore)

Licensee		FY 2015-16	FY 2016-17	FY 2017-18
MSETCL	Transmission Lines	10.1%	10.0%	9.8%
	Bays	89.9%	90.0%	90.2%
TPC-T	Transmission Lines	8.2%	8.0%	8.0%
	Bays	91.8%	92.0%	92.0%
AEML-T	Transmission Lines	6.0%	6.0%	5.9%
	Bays	94.0%	94.0%	94.1%
JPTL	Transmission Lines	31.7%	31.9%	31.8%
	Bays	68.3%	68.1%	68.2%

(d) Based on the above allocation to bays and transmission lines, O&M expenses per circuit-km (Rs. Lakh/ckt-km) and O&M expenses per bay (Rs. Lakh/bay) have been computed for each year by dividing the O&M expenses for lines/bays with the total line length in km/total number of bays in respective years.

(e) Secondly, actual O&M expenses per ckt-km and per bay as computed above have been further allocated voltage-wise by assigning appropriate weightage, based on normative O&M expenses and the asset base constituting bays and transmission lines at various voltage classes.

(f) The norm for the next Control Period for various voltage classes has been derived based on average of actual O&M expenses per ckt-km and per bay for the period from FY 2015-16 to FY 2017-18 in terms of Rs. Lakh/ckt-km and Rs. Lakh/bay for each Transmission Licensee.

(g) The average norm so derived has been escalated by inflation factor as discussed above, i.e., 3.68% for FY 2017-18, 3.10% for FY 2018-19 and 3.78% for FY 2019-20, considering the trend of actual norm.

(h) Further, inflation factor of 3.78% has been applied to derive applicable O&M norm for respective years of the next Control Period.

The approach for deriving O&M norms for HVDC in case of MSETCL is based on principles adopted for regional transmission network under CERC Tariff Regulations, 2019. MSETCL is operating and maintaining 500 kV, 1500 MW HVDC bipole line between Chandrapur and Padghe. For deriving the O&M expenses of this HVDC bipole line, the same is compared with that of the Rihand-Dadri HVDC line owned by PGCIL, which has a similar technical specification. Akin to Chandrapur-Padghe line, Rihand-Dadri HVDC line is a bipole 500 kV line with a transmission capacity of 1500 MW. The only difference between Rihand-Dadri

HVDC bipole and Chandrapur-Padghe HVDC bipole is in terms of their length (1634 ckt km for Rihand-Dadri HVDC line and 1504 ckt km for Chandrapur-Padghe HVDC). CERC Tariff Regulations, 2019 specified O&M norms for Rihand-Dadri HVDC line. Since Chandrapur-Padghe has a similar configuration with the Rihand-Dadri line, O&M norm as specified by CERC is considered on pro-rata basis for transmission line length.

Accordingly, the O&M norms proposed for MSETCL, TPC-T, AEML-T and JPTL for the next Control Period are as under:

Table 19: O&M Norms of MSETCL, TPC-T, AEML-T, and JPTL

MSETCL										
Voltage Level	**Actual for FY 2015-16**	**Actual for FY 2016-17**	**Actual for FY 2017-18**	**3 Year average**	**Derived for FY 2019-20**	**FY 2020-21**	**FY 2021-22**	**FY 2022-23**	**FY 2023-24**	**FY 2024-25**
Rs. Lakh/ckt km										
HVDC (Rs. Lakh)	1,863.00	1,774.00	1,922.00			2,146.00	2,221.00	2,299.00	2,380.00	2,464.00
765 kV	-	-	-	-	-	0.86	0.89	0.93	0.96	1.00
400 kV	0.51	0.53	0.55	0.53	0.59	0.61	0.63	0.66	0.68	0.71
>66 kV&<400 kV	0.20	0.21	0.22	0.21	0.23	0.24	0.25	0.26	0.27	0.28
66 kV and less	0.12	0.13	0.13	0.13	0.14	0.15	0.15	0.16	0.16	0.17
Rs. Lakh/Bay										
765 kV	131.54	135.60	139.88	135.67	150.51	156.20	162.10	168.23	174.59	181.19
400 kV	93.97	96.86	99.92	96.92	107.51	111.58	115.80	120.18	124.72	129.43
>66kV&<400 kV	13.62	14.04	14.48	14.05	15.58	16.17	16.78	17.42	18.07	18.76
66 kV and less	2.85	2.93	3.02	2.93	3.26	3.38	3.51	3.64	3.78	3.92

TPC-T										
Voltage Level	**Actual for FY 2015-16**	**Actual for FY 2016-17**	**Actual for FY 2017-18**	**3 Year average**	**Derived for FY 2019-20**	**FY 2020-21**	**FY 2021-22**	**FY 2022-23**	**FY 2023-24**	**FY 2024-25**
Rs. Lakh/ckt km										
>66kV&<400 kV	1.09	1.12	1.02	1.08	1.19	1.24	1.29	1.33	1.39	1.44
Rs. Lakh/Bay										
>66kV&<400 kV	28.31	29.32	26.63	28.09	31.16	32.34	33.56	34.83	36.15	37.51
66 kV and less	5.92	6.13	5.57	5.87	6.51	6.76	7.02	7.28	7.56	7.84
AEML-T										
Voltage Level	**Actual for FY 2015-16**	**Actual for FY 2016-17**	**Actual for FY 2017-18**	**3 Year average**	**Derived for FY 2019-20**	**FY 2020-21**	**FY 2021-22**	**FY 2022-23**	**FY 2023-24**	**FY 2024-25**
Rs. Lakh/ckt km										
>66kV&<400 kV	0.48	0.61	0.63	0.57	0.64	0.66	0.68	0.71	0.74	0.76
Rs. Lakh/Bay										
>66kV&<400 kV	22.47	28.85	29.34	26.89	29.83	30.96	32.13	33.34	34.60	35.91
66 kV and less	4.70	6.03	6.13	5.62	6.24	6.47	6.72	6.97	7.23	7.51

JPTL										
Voltage Level	**Actual for FY 2015-16**	**Actual for FY 2016-17**	**Actual for FY 2017-18**	**3 Year average**	**Derived for FY 2019-20**	**FY 2020-21**	**FY 2021-22**	**FY 2022-23**	**FY 2023-24**	**FY 2024-25**
Rs. Lakh/ckt km										
400 kV	0.32	0.40	0.41	0.38	0.42	0.43	0.45	0.47	0.49	0.51
Rs. Lakh/Bay										
400 kV	57.00	70.53	72.97	66.83	74.14	76.94	79.85	82.87	86.01	89.26

The methodology for formulation of O&M norms for the group of other existing Licensees is elaborated as under:

(a) The actual O&M expenses of Transmission Licensees, subject to prudence check by the Commission, have been considered for FY 2015-16 to FY 2017-18. The transmission line length and number of bays have been considered based on such parameters considered at time of the respective true-up.

(b) The year-wise O&M expenses (from FY 2015-16 to FY 2017-18) have been allocated amongst bays and transmission line length (ckt km) in the ratio of normative O&M expenses derived for bays and transmission lines, with existing asset base for transmission lines and bays. The allocation ratio for allocating O&M expense between bays and transmission lines has been assumed separately for each year for each Transmission Licensee, based on their assets for respective year. The allocation ratio considered for each Transmission Licensee is summarised in the following Table:

Table 20: Allocation Ratio for Transmission Licensees (Rs. Crore)

Licensee		FY 2015-16	FY 2016-17	FY 2017-18
ATIL	Transmission Lines	38.2%	31.9%	31.8%
	Bays	61.8%	68.1%	68.2%
VIPL-T	Transmission Lines	2.3%	2.4%	2.3%
	Bays	97.7%	97.6%	97.7%
APTCL	Transmission Lines	38.3%	38.4%	38.4%
	Bays	61.7%	61.6%	61.6%
MEGPTCL	Transmission Lines	12.3%	13.1%	13.0%
	Bays	87.7%	86.9%	87.0%

(c) Based on the above allocation to bays and transmission lines, O&M expenses per circuit-km (Rs. Lakh/ckt-km) and O&M expenses per bay (Rs. Lakh/bay) have been computed for each year by dividing the O&M expenses for lines/bays with the total line length in km/total number of bays in respective years.

(d) Secondly, actual O&M expenses per ckt-km and per bay as computed above have been further allocated voltage-wise by assigning appropriate weightage based on normative O&M expenses and the asset base constituting bays and transmission lines at various voltage classes.

(e) ATIL, APTCL, MEGPTCL and VIPL-T own and operate limited network. ATIL and APTCL operate at voltage level of 400 kV, VIPL-T operates at voltage level of 220 kV and MEGPTCL operates at voltage of 400 kV as well as 765 kV. Hence, for computing

norm for respective voltage level, the actual O&M expenses per ckt-km and per bay for the period from FY 2015-16 and FY 2017-18 has been considered on weighted average basis.

(f) The norm for the next Control Period for various voltage classes has been derived based on average of such weighted actual O&M expenses per ckt-km and per bay for the period from FY 2015-16 to FY 2017-18 in terms of Rs. Lakh/ckt-km and Rs. Lakh/bay for each Transmission Licensee.

(g) The average norm so derived has been escalated by inflation factor as discussed above, i.e., 3.68% for FY 2017-18, 3.10% for FY 2018-19 and 3.78% for FY 2019-20, considering the trend of actual norm.

(h) Further, inflation factor of 3.78% has been applied to derive applicable O&M norm for respective years of the next Control Period.

(i) Regarding the norms at 765 kV level, it has been observed that both MSETCL and MEGPTCL operate at this voltage level. The actual O&M expenses per bay for MEGPTCL are almost double than actual O&M expenses per bay for MSETCL. Also, these actual expenses of MEGPTCL are far higher than expenses for PGCIL at 765 kV level. The allowance of such higher norms for new Licensees would not be appropriate considering that 765 kV level network has been commissioned by both licensees, viz., MSETCL and MEGPTCL recently. Hence, MSETCL norms for per bay are made applicable for MEGPTCL for next Control Period.

(j) For voltage level 66 kV and less, the norms for MSETCL shall be applicable.

Accordingly, the O&M norms proposed for group of other existing Licensees and new Licensees for the next Control Period are as under:

Table 21: Computation of O&M Norms of new Transmission Licensees commissioned after April 1, 2011 and new Licensees

Voltage Level	Actual for FY 2015-16	Actual for FY 2016-17	Actual for FY 2017-18	3 Year average	Derived for FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Rs. Lakh/ckt km										
765 kV										
MEGPTCL	1.23	1.25	1.31	1.26	1.40	1.45	1.51	1.57	1.63	1.69
400 kV										
ATIL	0.99	0.64	0.83							
APTCL	0.49	0.60	0.60							
MEGPTCL	0.94	0.54	0.57							
Total	**0.83**	**0.62**	**0.74**	**0.73**	**0.81**	0.84	0.87	0.91	0.94	0.98
>66kV&<400 kV										
VIPL-T	0.19	0.18	0.20	0.19	0.21	0.22	0.23	0.24	0.24	0.25
66 kV and less						0.15	0.15	0.16	0.16	0.17
Rs. Lakh/Bay										
765 kV										
MEGPTCL	232.54	218.71	231.41	227.55		156.20	162.10	168.23	174.59	181.19
400 kV										

Voltage Level	Actual for FY 2015-16	Actual for FY 2016-17	Actual for FY 2017-18	3 Year average	Derived for FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
ATIL	175.93	150.39	190.50							
APTCL	86.39	105.61	106.94							
MEGPTCL	154.96	95.37	100.05							
Total	**152.91**	**104.63**	**115.26**	**124.27**	**137.85**	**143.07**	**148.47**	**154.09**	**159.91**	**165.96**
>66kV&<400 kV										
VIPL-T	12.21	11.72	12.70	12.21	13.54	14.06	14.59	15.14	15.71	16.31
66 kV and less						3.38	3.51	3.64	3.78	3.92

To summarise, the following are the applicable norms for New Licensees and other existing Licensees and additional voltage levels for TPC-T and AEML-T for the next Control Period:

Table 22: O&M Norms of new Transmission Licensees commissioned after April 1, 2011

Voltage Level	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Rs Lakh/ckt km					
HVDC (Rs. Lakh)	2,146	2,221	2,299	2,380	2,464
765 kV	1.45	1.51	1.57	1.63	1.69
400 kV	0.84	0.87	0.91	0.94	0.98
>66 kV&<400 kV	0.22	0.23	0.24	0.24	0.25
66 kV and less	0.15	0.15	0.16	0.16	0.17
Rs Lakh/Bay					
765 kV	156.20	162.10	168.23	174.59	181.19
400 kV	143.07	148.47	154.09	159.91	165.96
>66kV&<400 kV	14.06	14.59	15.14	15.71	16.31
66 kV and less	3.38	3.51	3.64	3.78	3.92

5.9 Transmission Losses

The intra-State Transmission Losses have been considered as an uncontrollable factor in the MERC MYT Regulations. However, it is proposed to clarify the treatment of the energy consumed by the auxiliary equipment of the transmission sub-station, transformer losses, energy consumed supply to associated offices of the Licensee, its housing colony and other facilities, and for construction works at the sub-station, as under:

"68 Transmission Losses

The energy losses in the intra-State transmission system, as determined by the State Load Despatch Centre and approved by the Commission, shall be considered as Transmission Losses and borne by the Transmission System Users in proportion to their usage of the intra-State transmission system:

Provided that the quantum of energy consumed by the auxiliary equipment of a transmission sub-station and the transformer losses within the sub-station shall not be accounted for under the Transmission Losses:

Provided further that the energy consumed for supply of power by the transmission sub-station to the associated offices of the Licensee, its housing colony and other facilities, and for construction works at the sub-station, shall not be considered as energy consumed by the auxiliary equipment of a transmission sub-station."

6 Norms and Principles for Determination of Revenue Requirement and Wheeling Charges for Distribution Wires Business

The Distribution Licensees in the State of Maharashtra are responsible for distributing electricity from Transmission to Distribution (T<>D) interface points to individual consumer premises using the distribution network. The business of owning and operating this distribution network is called as Distribution Wire Business (Wire Business).

6.1 ARR for Wire Business

The MERC MYT Regulations, 2015 specifies the components of the Aggregate Revenue Requirement (ARR) of the Distribution Wires Business to be recovered through Wheeling Charges, as under:

a) Operation and maintenance expenses
b) Depreciation
c) Interest on Long-Term Loan Capital
d) Interest on Working Capital
e) Interest on Consumer Security Deposits
f) Provision for Bad and Doubtful Debts
g) Income Tax
h) Contribution to contingency reserve
i) Return on Equity Capital

Wheeling charges = Aggregate Revenue Requirement, as computed above, minus:

j) Non-Tariff Income; and
k) Income from Other Business

Further, the prior period income/expenses shall be allowed by the Commission at the time of Truing-up based on audited accounts, on a case to case basis, subject to prudence check.

The Commission proposes to retain the same components of ARR of the Distribution Wires Business in the MERC MYT Regulations, 2019, except to clarify the philosophy of allowing prior period income/expenses, as under:

"Provided further that prior period income/expenses shall be allowed by the Commission at the time of Truing-up based on audited accounts, on a case to case basis, if the income/expenses in that prior period have been allowed on actual basis, subject to prudence check:"

.

6.2 Separation of Accounts for Wires and Supply Business

Any person availing Open Access under Section 42 of the Act, shall pay Wheeling Charges for using the Distribution Licensee's network. Further, as per MERC MYT Regulations, 2015, the Wheeling Charges shall be shown separately for every consumer of the Distribution Licensee, as a part of the Tariff. The Commission through its Tariff Orders has directed Distribution Licensees to separate the accounts for Wires Business and Supply Business in order to have appropriate cost for determination of Wheeling Charges. The wires cost is required to be further segregated into different voltages of the distribution network, for determination of the voltage-wise Wheeling Charges.

The MERC MYT Regulations, 2015 specifies an allocation matrix for segregation of Distribution Wires Business and Retail Supply Business of the Distribution Licensee for entities which do not have separate accounting records. The allocation matrix as notified in MERC MYT Regulations, 2015 is proposed to be continued in MERC MYT Regulations, 2019.

6.3 Wheeling Charges

The Commission in MYT Order and Mid Term Review Order of the past Control Period has determined the voltage-wise wheeling charges for Distribution Licensees in the State. However, it has been observed that wheeling charges have been determined for different voltage levels for different DISCOMs. For MSEDCL, wheeling charges are determined separately for 33 kV, 22 kV, 11 kV and LT level. In case of Distribution Licensees in Mumbai area, viz. AEML-D, TPC-D and BEST, the wheeling charges are determined separately for HT and LT level. Moreover, for MBPPL, the combined wheeling charges for HT and LT level have been determined. The Commission is of view that the methodology for determination of wheeling charges should be uniform across the State. Also, it has been observed that some Distribution Licensees are also maintaining the assets at EHT level. Hence, separate Wheeling Charges is also required to be determined for EHT level. In view of this, the Commission proposes to determine the separate Wheeling Charges for EHT, HT and LT level. Accordingly, the following Regulation is proposed:

> *"72.2 The Wheeling Charges of the Distribution Licensee shall be determined by the Commission on the basis of a Petition for determination of Tariff filed by the Distribution Licensee in accordance with **Part B** of these Regulations:*
>
> *Provided that the Wheeling Charges may be denominated in terms of Rupees/kWh or Rupees/kVAh or Rupees/kW/month or Rupees/kVA/month, for the purpose of recovery*

from the Distribution System User, or any such denomination, as may be stipulated by the Commission:

Provided further that the Wheeling Charges shall be determined separately for LT voltage, HT voltage, and EHT voltage, as applicable:

Provided also that in case of a Deemed Distribution Licensee whose tariff is yet to be determined by the Commission till the date of coming into of these Regulations, the Commission may determine the ceiling Wheeling Charges that may be charged by such Deemed Distribution Licensee till such time as considered appropriate by the Commission.

72.3 The Wheeling Charges shall continue to be billed at the Tariff approved by the Commission and applicable as on March 31, 2020 for the period starting from April 1, 2020 till approval of Wheeling Charges by the Commission in accordance with these Regulations."

6.4 Operation and Maintenance Expenses for Wires Business

The O&M expenses comprise Employee Expenses, R&M Expenses and A&G expenses, and constitute a significant part of the Aggregate Revenue Requirement of the Distribution Licensee.

MERC MYT Regulations, 2011 specified the norms for allowing O&M expenses over Control Period. Subsequently, the MERC MYT Regulations, 2015 specifies the principles rather than norms for allowing O&M expenses over the Control Period. The principle, as amended in November 2017 through the first amendment to the MERC MYT Regulations, 2015, provides for considering the trued-up O&M expenses of FY 2015-16, after adding/deducting the sharing of efficiency gains/losses, as Base Year expenses, which shall be escalated by an inflation factor with 30% weightage to the average yearly inflation derived based on the monthly WPI of the past five financial years as per the Office of Economic Advisor of Government of India and 70% weightage to the average yearly inflation derived based on the monthly CPI for Industrial Workers (all-India) of the past five financial years as per the Labour Bureau, Government of India. The inflation rate thus derived shall be reduced by an efficiency factor of 1% or as may be stipulated by the Commission from time to time.

Comparison of O&M Expenses amongst Distribution Licensee in State

The Commission in recent Mid Term Review Order has undertaken the truing up for FY 2015-16 and FY 2016-17. In the said Order, the Commission has approved the normative O&M

expenses and sharing of efficiency gains or losses has been allowed with respect to the actual O&M expenses for distribution licensees in State. The normative and actual expenses are shown in the following Table:

Table 23: O&M Expenses for Distribution Licensees (Rs. Crore)

Licensee	FY 2015-16			FY 2016-17		
	Normative	Actual	Gain/(Loss)	Normative	Actual	Gain/(Loss)
Wires Business						
MSEDCL	4,393	3,758	635	3,954	3,768	186
AEML-D	698	712	(14)	774	779	(5)
TPC-D	94	94	0	101	107	(6)
BEST	325	373	(48)	343	347	(3)
MBPPL	2.42	3.21	(1)	3.25	3.37	0
Retail Supply Business						
MSEDCL	1,941	1,660	281	2,129	2,029	100
AEML-D	342	356	(14)	384	392	(7)
TPC-D	84	105	(21)	93	104	(11)
BEST	175	201	(26)	185	187	(2)
MBPPL	1.31	1.73	(0.42)	1.75	1.81	(0.06)

From the above Table, it has been observed that only MSEDCL has benefited from efficiency gains on account of O&M Expenses and all other Distribution Licensees have incurred efficiency losses on account of O&M Expenses.

Specifying norms is always preferable to specifying principles, wherever feasible, in order to minimise ambiguities and give greater regulatory certainty to all the stakeholders.

For analysis of past performance, the Commission has computed the O&M Expenses per unit of sales for Distribution Licensees in State as shown in the following Table:

Table 24: O&M Expenses per unit of sale for Distribution Licensees (paise/kWh)

Licensee	Wires Business			Retail Supply Business		
	FY 2015-16	FY 2016-17	FY 2017-18	FY 2015-16	FY 2016-17	FY 2017-18
MSEDCL	40.01	37.80	34.66	18.92	22.13	19.59
AEML-D	75.15	78.99	77.40	47.60	49.69	46.11
TPC-D	25.74	32.94	36.66	17.46	23.98	25.00
BEST	73.81	78.25	70.78	39.74	42.13	38.11
MBPPL	39.21	40.66	42.56	21.13	21.96	22.90

Licensee	Wires Business			Retail Supply Business		
	FY 2015-16	FY 2016-17	FY 2017-18	FY 2015-16	FY 2016-17	FY 2017-18
Total	44.07	42.66	39.56	21.89	25.02	22.36

From the above, it is observed that, there are large disparities in O&M expenses per unit across Distribution Licensees in the State. Even though the Licensees are operating the same Distribution Business, there is large variation in O&M Expenses incurred in past years.

Ideally, the O&M norms should be same across the Distribution Licensees, irrespective of ownership and licence area, as these are norms and norms are typically applied across entities. However, based on the data and analysis, it is observed that because of the diversity in consumer mix, consumption mix, HT:LT ratio, network characteristics (underground vs. overhead network, concentrated city distribution vs. wide-spread area distribution network, etc.), spread of licence area between the Distribution Licensees in Maharashtra, it may not be appropriate to specify the same norm for all Distribution Licensees.

The Commission is of the view that specifying the same norm of O&M expenses for all the Distribution Licensees in Maharashtra may benefit some Distribution Licensees to a very large extent and significantly impact recovery of O&M expenses of other Distribution Licensees. Further, in the Control Period from FY 2011-12 to FY 2015-16, application of O&M norms led to unexpected and unintended consequences, and hence, the Commission specified principles for O&M expenses in the MERC MYT Regulations, 2015.

The Commission intends to move towards approach for adopting the common norm for all Distribution Licensees in the future. Hence, it would undertake study for benchmarking of O&M Expenses across Distribution Licensee and practices to be adopted for rationalisation of O&M Expenses.

In the MYT Regulations, 2019, the Commission has proposed to continue specifying the principles for recovery of O&M expenses for the Wires Business, as under:

"74.1 The Distribution Licensees shall be permitted to recover Operation and Maintenance expenses relating to the Distribution Wires Business in accordance with this Regulation.

74.2 The Operation and Maintenance expenses shall be derived on the basis of the average of the Trued-up Operation and Maintenance expenses after adding/deducting the share of efficiency gains/losses, for the three Years ending March 31, 2019, excluding abnormal Operation and Maintenance expenses, if any, subject to prudence check by the Commission:

Provided that the average of such Operation and Maintenance expenses shall be considered as Operation and Maintenance expenses for the Year ended March 31, 2018, and shall be escalated at the respective escalation rate for FY 2018-19 and FY 2019-20, to arrive at the Operation and Maintenance expenses for the base year ending March 31, 2020:

Provided further that the escalation rate for FY 2018-19 and FY 2019-20 shall be computed by considering 30% weightage to the average yearly inflation derived based on the monthly Wholesale Price Index [2011-12 series] of the respective past five financial years as per the Office of Economic Advisor of Government of India and 70% weightage to the average yearly inflation derived based on the monthly Consumer Price Index [2011-12 series] for Industrial Workers (all-India) of the respective past five financial years as per the Labour Bureau, Government of India:

Provided also that at the time of true-up for each Year of this Control Period, the Operation and Maintenance expenses shall be derived on the basis of the Final Trued-up Operation and Maintenance expenses after adding/deducting the sharing of efficiency gains/losses, for the base year ending March 31, 2020, excluding abnormal expenses, if any, subject to prudence check by the Commission, and shall be considered as the Base Year Operation and Maintenance expenses.

74.3 The Operation and Maintenance expenses for each subsequent year shall be determined by escalating these Base Year expenses of FY 2019-20 by an inflation factor with 30% weightage to the average yearly inflation derived based on the monthly Wholesale Price Index [2011-12 series] of the respective past five financial years as per the Office of Economic Advisor of Government of India and 70% weightage to the average yearly inflation derived based on the monthly Consumer Price Index [2011-12 series] for Industrial Workers (all-India) of the past five financial years as per the Labour Bureau, Government of India, as reduced by an efficiency factor of 1% or as may be stipulated by the Commission from time to time, to arrive at the permissible Operation and Maintenance expenses for each year of the Control Period:

Provided that, in the Truing-up of the O&M expenses for any particular year of the Control Period, an inflation factor with 30% weightage to the average yearly inflation derived based on the monthly Wholesale Price Index [2011-12 series] of the respective past five financial years (including the year of Truing-up) and 70% weightage to the average yearly inflation derived based on the monthly Consumer Price Index [2011-12 series] for Industrial Workers (all-India) of the respective past five financial years (including the year of Truing-up), as reduced by an efficiency factor of 1% or as may be stipulated by the Commission from time to

time, shall be applied to arrive at the permissible Operation and Maintenance Expenses for that year.

… … …

74.7 In the case of a Deemed Distribution Licensee whose tariff is yet to be determined by the Commission till the coming into force of these Regulations, the Commission may determine the Operation and Maintenance expenses on a case to case basis."

Further, in order to have greater clarity regarding the treatment of impact of Wage Revision and treatment of provisioning of expenses, the following clauses are proposed:

"74.4 The impact of Wage Revision, if any, may be considered at the time of true-up for any Year, based on documentary evidence and justification to be submitted by the Petitioner:

Provided that if actual employee expenses are higher than normative expenses on this account, then no sharing of efficiency losses shall be done to that extent:

Provided further that efficiency gains shall not be allowed by deducting the impact of Wage Revision and comparison of such reduced value with normative value.

Provisioning of expenses shall not be considered as actual expenses at the time of true-up, and only expenses as actually incurred shall be considered."

It has been observed that some Distribution Licensees have not been spending sufficient amounts on Repairs & Maintenance, on account of various reasons, and are diverting the funds allocated to R&M to employee expenses and A&G expenses. The Commission is of the view that optimum R&M expenses are essential to maintain the quality of supply to consumers, and has hence, proposed to add the following proviso:

"Provided that in case the expenditure on Repairs & Maintenance falls below 20% of total O&M expenses allowed under these Regulations, then such savings in Repairs & Maintenance shall not be set off against other heads of O&M expenses."

6.5 Provision for Bad and Doubtful Debts

Regulations 73 of the MERC MYT Regulations, 2015 for Wires Business, specify the maximum provision for bad and doubtful debts for a year as 1.5% of the receivables of the wire businesses, provided that it is within 5% of the receivables.

It is proposed to reduce the ceiling limit of 1.5% to 1.0% in line with the practices followed in other States.

The Commission is of the view that mere provisioning for bad debts is not sufficient, and bad debts should be written off from the books of accounts in accordance with well-laid down procedures, after taking all efforts to recover the arrears. Hence, it is proposed that during true up, the actual bad debt written off shall be allowed provided that the actual bad debt written off shall not exceed 1.0% of the receivables of the particular year.

Further, since bad debts written off is passed through in the ARR, it is proposed to be clarified that any recovery of bad debt written off at a later stage shall be considered under Non-Tariff Income.

Accordingly, the following clauses are proposed for Provision for bad debts for Distribution Wires Business in the draft MERC MYT Regulations, 2019:

"*In the MYT Order, for each Year of the Control Period, the Commission may allow a provision for writing off of bad and doubtful debts up to 1% of the amount shown as Trade Receivables or Receivables from Wheeling Charges in the latest Audited Accounts of the Distribution Licensee in accordance with the procedure laid down by the Licensee, subject to prudence check:*

Provided that the Commission shall true up the bad debts written off in the Aggregate Revenue Requirement, based on the actual write off of bad debts during the year, subject to the above ceiling of 1% of the amount shown as Trade Receivables or Receivables from Wheeling Charges in the audited accounts of the Distribution Licensee for that Year, after prudence check:

Provided further that if subsequent to the write off of a particular bad debt, revenue is realised from such bad debt, the same shall be included as an uncontrollable item under the Non-Tariff Income of the year in which such revenue is realised:

Provided also that in the Year when the cumulative provisioning for write-off of bad and doubtful debts allowed by the Commission, duly allocated for the Distribution Wires Business, exceeds five per cent of the amount shown as Trade Receivables or Receivables from Wheeling Charges in the audited accounts of the Distribution Licensee, no such appropriation shall be allowed, which would have the effect of increasing the cumulative provisioning beyond the said maximum."

7 Norms and Principles for Determination of Revenue Requirement and Tariff for Retail Supply Business

The Retail Supply Business of a Distribution Licensee is the business where the Distribution Licensee has a contract with the consumer for supply of electricity and enters into power purchase contracts for the required quantum of electricity.

7.1 ARR for Retail Supply Business

The MERC MYT Regulations, 2015 specifies the components of the Aggregate Revenue Requirement (ARR) of the Retail Supply Business to be recovered through Retail Tariffs, as under:

a) Cost of own power generation /power purchase expenses;

b) Inter-State Transmission Charges;

c) Intra-State Transmission Charges;

d) MSLDC Fees and Charges

e) Operation and Maintenance expenses;

f) Depreciation;

g) Interest on Loan Capital;

h) Interest on working capital;

i) Interest on consumer security deposits;

j) Provision for Bad and doubtful debts; and

k) Contribution to contingency reserves;

l) Return on Equity Capital;

m) Income Tax;

minus:

n) Non-Tariff income;

o) Income from Other Business, to the extent specified in these Regulations;

p) Receipts on account of Cross-Subsidy Surcharge;

q) Receipts on account of Additional Surcharge:

Further, the prior period income/expenses shall be allowed by the Commission at the time of Truing-up based on audited accounts, on a case to case basis, subject to prudence check.

The Commission proposes to retain the same components of ARR of the Retail Supply Business in the MERC MYT Regulations, 2019, except to clarify the philosophy of allowing prior period income/expenses, as under:

"Provided further that prior period income/expenses shall be allowed by the Commission at the time of Truing-up based on audited accounts, on a case to case basis, if the income/expenses in that prior period have been allowed on actual basis, subject to prudence check:"

7.2 Power Procurement

The Distribution (Supply) Licensee purchases power from different sources either through long-term or medium-term Power Purchase Agreements (PPA) or through short-term contracts.

The Distribution Licensee is required to plan for its future requirement of power in the most effective way. The MERC MYT Regulations, 2015 provides for Licensees to prepare power procurement plan for the Control Period and submit the same for approval of the Commission. The power procurement plan shall comprise of long-term and medium-term contracts between the Generator and the Distribution Licensee which are proposed to continue in the next Control Period. The Distribution Licensee is also required to submit sources from which it proposes to buy short-term power for balance requirement.

Regulation 19.9 of the MERC MYT Regulations, 2015 requires the Distribution Licensee to submit power procurement plan for a period of 10-years for approval of the Commission. It is observed that the Distribution Licensees are not able to foresee the power situation in the State for a period of 10-years and therefore are unable to submit power procurement plan for 10-years. Hence, the Commission proposes to modify the clauses to require submission of the power procurement plan for a period of 5 years, i.e., from FY 2020-21 to FY 2024-25.

As per Tariff Policy 2016, all future requirement of power shall continue to be procured by the Distribution Licensee through competitive bidding. The relevant clause is as below.

> *"5.2 All future requirement of power should continue to be procured competitively by distribution licensees…"*

It is observed that some of the States have amended their Regulations and have mandated the Distribution Licensees to procure all future long-term, medium-term and short-term power through competitive bidding only.

Keeping in view the above developments, the Commission has proposed to insert Regulation 19.3 as shown below in the MERC MYT Regulations, 2019:

> *"19.3 All future procurement of short-term or medium-term or long-term power shall be undertaken only through competitive bidding in accordance with Guidelines notified by the Government of India under Section 63 of the Act."*

The second proviso of Regulation 19.2 of the MERC MYT Regulations, 2015 specifies that the long-term procurement plan shall be cost effective. The Commission is of the view that the Distribution Licensees are required to come up with the **least cost** plan based on the available information of various sources of supply, so as to pass on the benefit of cost savings to the consumers. It is proposed to change the existing Regulation stating that the long-term/medium term procurement shall be a least cost plan. The amended clause is shown below:

> *"Provided also that the long-term/medium-term procurement plan shall be a least cost plan based on available information regarding costs of various sources of supply."*

7.3 Approval of Power Purchase Agreement/Arrangement

Section 86(1)(b) of the Act confers powers on the Commission to regulate the electricity purchase and procurement process of Distribution Licensees including the price at which electricity shall be procured from the Generating Companies or Licensees or from other sources through agreements for purchase of power, for distribution and supply within the State.

The existing Regulations provide for undertaking a public consultation process, on filing of the Petition for power purchase approval by the Distribution Licensee.

However, the Commission has inserted Clause 19.3 in MERC MYT Regulations, 2019, according to which all future power procurement shall only be through competitive bidding. In such a scenario where price discovery is only through competitive bidding, there is no need to carry out public consultation process for approval of PPA. The Commission has therefore, deleted Regulation 20.3 to 20.5 of the MERC MYT Regulations, 2015 which specified the detailed procedure of the public consultation process for power purchase approval to ensure transparency, and fairness in tariff.

The Commission has also made relevant changes in Regulation 21.3 by removing clauses which enabled the Distribution Licensee to procure power through bidding process undertaken other than under Section 63 of the Act.

7.4 Power Procurement Plan

In the MERC MYT Regulations, 2015, the Control Period was of four years and it was specified in Regulation 19.9 that the Distribution Licensee was required to submit the demand-supply position on an indicative basis and broad power procurement plan for the ten -year period commencing from April 1, 2016, indicating the various sources of power purchase and mix of long/medium/short term power purchase, and steps proposed to optimise the power purchase cost over that period, along with its MYT Petition. The requirement of filing a ten-year power procurement plan was on account of the anticipated expiry of the PPAs of the Mumbai DISCOMs in early 2018, which fell in the middle of the Control Period, and because the Distribution Licensees would be required to tie-up long-term power beyond that date.

The Control Period has now been increased to five years, and the Commission is of the view that it is not required to file a separate ten-year Power Procurement Plan along with the MYT Petition, as the detailed Power Procurement Plan for the Control Period has to anyway be filed along with the MYT Petition. Hence, it is proposed to delete this Clause.

7.5 Additional Power Procurement

The MERC MYT Regulations, 2015 provides for various situations under which the Distribution Licensee is allowed to enter into additional agreement or arrangement for procurement of power. In the past, it has been observed that there have been situations wherein the variable cost of power purchase from a tied-up source of power is higher than that of alternative sources of power, and the Distribution Licensee can optimise its cost of power purchase by procuring power from the alternative source in such situations. Hence, the necessary enabling provisions have been incorporated in the draft MERC MYT Regulations, 2019, as under:

"22.2 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."

7.6 Operation and Maintenance Expenses for Retail Supply Business

In line with the approach adopted in the previous Chapter for determining the O&M expenses for Distribution Wires Business, the Commission has considered the following parameters for arriving at normative O&M expenses for Retail Supply Business:

As discussed in earlier Section of this Chapter, ideally, the O&M norms should be same across the Distribution Licensees, irrespective of ownership and licence area, as these are norms and

norms are typically applied across entities. However, based on the data and analysis, it is observed that because of the diversity in consumer mix, consumption mix, HT:LT ratio, network characteristics (underground vs. overhead network, concentrated city distribution vs. wide-spread area distribution network, etc.), spread of licence area between the Distribution Licensees in Maharashtra, it may not be appropriate to specify the same norm for all Distribution Licensees.

The Commission is of the view that specifying the same norm of O&M expenses for all the Distribution Licensees in Maharashtra may benefit some Distribution Licensees to a very large extent and significantly impact recovery of O&M expenses of other Distribution Licensees. Further, in the Control Period from FY 2011-12 to FY 2015-16, application of O&M norms led to unexpected and unintended consequences, and hence, the Commission specified principles for O&M expenses in the MERC MYT Regulations, 2015.

The Commission intends to move towards approach for adopting the common norm for all Distribution Licensees in future. Hence, it would undertake study for benchmarking of O&M Expenses across Distribution Licensee and practices to be adopted for rationalisation of O&M Expenses

In the MYT Regulations, 2019, the Commission proposes to continue specifying the principles for recovery of O&M expenses for Retail Supply Business, as under:

"*83.1 The Distribution Licensees shall be permitted to recover Operation and Maintenance expenses relating to the Retail Supply Business in accordance with this Regulation.*

83.2 The Operation and Maintenance expenses shall be derived on the basis of the average of the Trued-up Operation and Maintenance expenses after adding/deducting the share of efficiency gains/losses, for the three Years ending March 31, 2019, excluding abnormal Operation and Maintenance expenses, if any, subject to prudence check by the Commission:

Provided that the average of such Operation and Maintenance expenses shall be considered as Operation and Maintenance expenses for the Year ended March 31, 2018, and shall be escalated at the respective escalation rate for FY 2018-19 and FY 2019-20, to arrive at the Operation and Maintenance expenses for the base year ending March 31, 2020:

Provided further that the escalation rate for FY 2018-19 and FY 2019-20 shall be computed by considering 30% weightage to the average yearly inflation derived based on the monthly Wholesale Price Index [2011-12 series] of the respective past five financial years as per the Office of Economic Advisor of Government of India and 70% weightage to the average yearly inflation derived based on the monthly Consumer Price Index [2011-12 series] for Industrial

Workers (all-India) of the respective past five financial years as per the Labour Bureau, Government of India:

Provided also that at the time of true-up for each Year of this Control Period, the Operation and Maintenance expenses shall be derived on the basis of the Final Trued-up Operation and Maintenance expenses after adding/deducting the sharing of efficiency gains/losses, for the base year ending March 31, 2020, excluding abnormal expenses, if any, subject to prudence check by the Commission, and shall be considered as the Base Year Operation and Maintenance expenses.

83.3 The Operation and Maintenance expenses for each subsequent year shall be determined by escalating these Base Year expenses of FY 2019-20 by an inflation factor with 30% weightage to the average yearly inflation derived based on the monthly Wholesale Price Index [2011-12 series] of the respective past five financial years as per the Office of Economic Advisor of Government of India and 70% weightage to the average yearly inflation derived based on the monthly Consumer Price Index [2011-12 series] for Industrial Workers (all-India) of the past five financial years as per the Labour Bureau, Government of India, as reduced by an efficiency factor of 1% or as may be stipulated by the Commission from time to time, to arrive at the permissible Operation and Maintenance expenses for each year of the Control Period:

Provided that, in the Truing-up of the O&M expenses for any particular year of the Control Period, an inflation factor with 30% weightage to the average yearly inflation derived based on the monthly Wholesale Price Index [2011-12 series] of the respective past five financial years (including the year of Truing-up) and 70% weightage to the average yearly inflation derived based on the monthly Consumer Price Index [2011-12 series] for Industrial Workers (all-India) of the respective past five financial years (including the year of Truing-up), as reduced by an efficiency factor of 1% or as may be stipulated by the Commission from time to time, shall be applied to arrive at the permissible Operation and Maintenance Expenses for that year.

…

83.7 In the case of a Deemed Distribution Licensee whose tariff is yet to be determined by the Commission till the coming into force of these Regulations, the Commission may determine the Operation and Maintenance expenses on a case to case basis."

Further, in order to have greater clarity regarding the treatment of impact of Wage Revision and treatment of provisioning of expenses, the following clauses are proposed:

"83.4 The impact of Wage Revision, if any, may be considered at the time of true-up for any Year, based on documentary evidence and justification to be submitted by the Petitioner:

Provided that if actual employee expenses are higher than normative expenses on this account, then no sharing of efficiency losses shall be done to that extent:

Provided further that efficiency gains shall not be allowed by deducting the impact of Wage Revision and comparison of such reduced value with normative value.

Provisioning of expenses shall not be considered as actual expenses at the time of true-up, and only expenses as actually incurred shall be considered. "

It has been observed that some Distribution Licensees have not been spending sufficient amounts on Repairs & Maintenance, on account of various reasons, and are diverting the funds allocated to R&M to employee expenses and A&G expenses. The Commission is of the view that optimum R&M expenses are essential to maintain the quality of supply to consumers, and has hence, proposed to add the following proviso:

"Provided that in case the expenditure on Repairs & Maintenance falls below 20% of total O&M expenses allowed under these Regulations, then such savings in Repairs & Maintenance shall not be set off against other heads of O&M expenses."

7.7 Provision for Bad and Doubtful Debts

Regulations 82 of the MYT Regulations, 2015 for Supply Business, specify the maximum provision for bad and doubtful debts for a year as 1.5% of the receivables of the supply businesses, provided that it is within 5% of the receivables.

It is proposed to reduce the ceiling limit of 1.5% to 1.0% in line with the practices followed in other States.

The Commission is of the view that mere provisioning for bad debts is not sufficient, and bad debts should be written off from the books of accounts in accordance with well-laid down procedures, after taking all efforts to recover the arrears. Hence, it is proposed that during true up, the actual bad debt written off shall be allowed provided that the actual bad debt written off shall not exceed 1.0% of the receivables of the particular year.

Further, since bad debts written off is passed through in the ARR, it is proposed to be clarified that any recovery of bad debt written off at a later stage shall be considered under Non-Tariff Income.

The following clauses are proposed for Provision for bad debts for Retail Supply Business in the draft MERC MYT Regulations, 2019:

"*In the MYT Order, for each Year of the Control Period, the Commission may allow a provision for writing off of bad and doubtful debts up to 1% of the amount shown as Trade Receivables or Receivables from Sale of Electricity in the latest Audited Accounts of the Distribution Licensee in accordance with the procedure laid down by the Licensee, subject to prudence check:*

Provided that the Commission shall true up the bad debts written off in the Aggregate Revenue Requirement, based on the actual write off of bad debts during the year, subject to the above ceiling of 1% of the amount shown as Trade Receivables or Receivables from Sale of Electricity in the audited accounts of the Distribution Licensee for that Year, after prudence check:

Provided further that if subsequent to the write off of a particular bad debt, revenue is realised from such bad debt, the same shall be included as an uncontrollable item under the Non-Tariff Income of the year in which such revenue is realised:

Provided also that in the Year when the cumulative provisioning for write-off of bad and doubtful debts allowed by the Commission, duly allocated for the Retail Supply Business exceeds five per cent of the amount shown as Trade Receivables or Receivables from Sale of Electricity in the audited accounts of the Distribution Licensee, no such appropriation shall be allowed, which would have the effect of increasing the cumulative provisioning beyond the said maximum."

8 Norms and Principles for Determination of Fees and Charges of MSLDC

The Maharashtra State Load Dispatch Centre (MSLDC) is the apex body to ensure integrated operation of the power system in the State of Maharashtra. Section 32 of the Act confers various powers on MSLDC and functions including the optimum scheduling and dispatch of electricity within the State, monitoring of grid operations, energy accounting, supervision and control over InSTS, etc.

Section 32 (3) of the Act stipulates that MSLDC may levy and collect such fees and charges from the Generating Companies and Licensees engaged in intra-State transmission of electricity as may be specified by the State Commission.

The Commission incorporated the relevant clauses with respect to levy of such fees and charges of SLDC in MERC MYT Regulations, 2015.

8.1 Annual Fixed Charges of MSLDC

The MERC MYT Regulations, 2015 specifies the components of the ARR for MSLDC:

(a) Operation and Maintenance expenses;

(b) Regional Load Despatch Centre (RLDC) Fees and Western Region Power Committee (WRPC) Charges;

(c) Depreciation;

(d) Interest on Loan Capital;

(e) Interest on working capital

(f) Return on Equity Capital;

(g) Reactive Energy Charges paid to Generators/TSUs;

(h) Income Tax;

minus:

(i) Income from Open Access charges;

(j) Income from Reactive Energy Charges;

(k) Non-Tariff income:

Further, the prior period income/expenses shall be allowed by the Commission at the time of Truing-up based on audited accounts, on a case to case basis, subject to prudence check.

The Commission proposes to retain the same components of ARR for SLDC in the MERC MYT Regulations, 2019, except to clarify the philosophy of allowing prior period income/expenses, as under:

"Provided further that prior period income/expenses shall be allowed by the Commission at the time of Truing-up based on audited accounts, on a case to case basis, if the income/expenses in that prior period have been allowed on actual basis, subject to prudence check:"

8.2 Operation and Maintenance Expenses

The O&M expenses comprise Employee Expenses, R&M Expenses and A&G expenses, and constitute a significant part of the Aggregate Revenue Requirement of the MSLDC.

The MERC MYT Regulations, 2015 specifies the principles rather than norms for allowing O&M expenses over the Control Period. The principle, as amended in November 2017 through the first amendment to the MERC MYT Regulations, 2015, provides for deriving of O&M expenses based on the Final Trued-up O&M expenses of FY 2015-16, after adding/deducting the sharing of efficiency gains/losses and is considered as the base year. The base year expense would then be escalated by an inflation factor with 20% weightage to the average yearly inflation derived based on the monthly WPI of the past five years as per the Office of the Economic Advisor, Government of India and 80% weightage to the average yearly inflation derived based on the monthly CPI for Industrial Workers (all-India) for the past five years as per the Labour Bureau, Government of India. Further an efficiency factor of 1% may be applied on the derived escalation for providing an allowable escalation for O&M.

Presently the final True-up O&M expenses for the base year of the next Control Period is not available and therefore the Commission has changed the approach in the proposed Regulation by taking an average of the Trued-up O&M expenses for past three years, i.e., FY 2016-17 to FY 2018-19. The average number so derived shall be considered as the O&M expenses for FY 2017-18 and thereafter shall be escalated by an inflation factor with 20% weightage to the average yearly inflation derived based on the monthly WPI of the past five years as per the Office of the Economic Advisor, Government of India and 80% weightage to the average yearly inflation derived based on the monthly CPI for Industrial Workers (all-India) for the past three years as per the Labour Bureau, Government of India to arrive at O&M expenses for FY 2018-19 and FY 2019-20.

The Commission at the time of Truing up shall consider the final Trued-up O&M expenses for the base year, i.e., FY 2019-20 and accordingly revise the normative O&M expenses for respective years.

The Commission proposes to continue with the clause of reduction of efficiency factor of 1% in the escalation rate derived for arriving at normative O&M expenses.

The proposed clauses with respect to O&M expenses for MSLDC are reproduced as below.

"95.2 The Operation and Maintenance expenses shall be derived on the basis of the average of the Trued-up Operation and Maintenance expenses after adding/deducting the share of efficiency gains/losses, for the three Years ending March 31, 2019, excluding abnormal Operation and Maintenance expenses, if any, subject to prudence check by the Commission:

Provided that the average of such Operation and Maintenance expenses shall be considered as Operation and Maintenance expenses for the Year ended March 31, 2018, and shall be escalated at the respective escalation rate for FY 2018-19 and FY 2019-20, to arrive at the Operation and Maintenance expenses for the base year ending March 31, 2020:

Provided further that the escalation rate for FY 2018-19 and FY 2019-20 shall be computed by considering 20% weightage to the average yearly inflation derived based on the monthly Wholesale Price Index [2011-12 series] of the respective past five financial years as per the Office of Economic Advisor of Government of India and 80% weightage to the average yearly inflation derived based on the monthly Consumer Price Index [2011-12 series] for Industrial Workers (all-India) of the respective past five financial years as per the Labour Bureau, Government of India:

95.3 At the time of true-up for each Year of this Control Period, the Operation and Maintenance expenses shall be derived on the basis of the Final Trued-up Operation and Maintenance expenses after adding/deducting the sharing of efficiency gains/losses, for the year ending March 31, 2020, excluding abnormal expenses, if any, subject to prudence check by the Commission, and shall be considered as the Base Year Operation and Maintenance expenses"

Provided that the Operation and Maintenance expenses for each subsequent year shall be determined by escalating these Base Year expenses of FY 2019-20 by an inflation factor with 20% weightage to the average yearly inflation derived based on the monthly Wholesale Price Index [2011-12 series] of the respective past five financial years as per the Office of Economic Advisor of Government of India and 80% weightage to the average yearly inflation derived based on the monthly Consumer Price Index [2011-12 series] for Industrial Workers (all-India) of the past five financial years as per the Labour Bureau, Government of India, as reduced by an efficiency factor of 1% or as may be stipulated by the Commission from time to time, to arrive at the permissible Operation and Maintenance expenses for each year of the Control Period:

Provided further that, in the Truing-up of the O&M expenses for any particular year of the Control Period, an inflation factor with 20% weightage to the average yearly inflation derived based on the monthly Wholesale Price Index [2011-12 series] of the respective past five financial years (including the year of Truing-up) and 80% weightage to the average yearly inflation derived based on the monthly Consumer Price Index [2011-12 series] for Industrial Workers (all-India) of the respective past five financial years (including the year of Truing-up), as reduced by an efficiency factor of 1% or as may be stipulated by the Commission from time to time, shall be applied to arrive at the permissible Operation and Maintenance Expenses for that year"

The Commission proposes to include the relevant clauses which shall allow the impact of wage revision at the time of True-up, based on documentary evidence and justification of MSLDC. The Commission also proposes that no sharing of efficiency losses shall be done for employee expenses higher than normative due to impact of wage revision. Similarly, the Commission would not allow any efficiency gains with respect to normative expenses after deducting the impact of wage revision. The Commission shall not allow any wage revision on the basis of provisioning and shall only allow actual expenses at the time of Truing-up. The relevant clauses are as below.

"96.4 The impact of Wage Revision, if any, may be considered at the time of true-up for any Year, based on documentary evidence and justification to be submitted by the Petitioner:

Provided that if actual employee expenses are higher than normative expenses on this account, then no sharing of efficiency losses shall be done to that extent:

Provided further that efficiency gains shall not be allowed by deducting the impact of Wage Revision and comparison of such reduced value with normative value.

96.5 Provisioning of expenses shall not be considered as actual expenses at the time of true-up, and only expenses as actually incurred shall be considered."