



BUSINESS PLAN ORDER

Approval of Business Plan for 3rd MYT Control Period from FY 2022-23 to FY 2024-25

Petition No. 69 of 2021

for

Electricity Department, Government of Puducherry (PED)

31st March 2022

JOINT ELECTRICITY REGULATORY COMMISSION

For the State of Goa and Union Territories,

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Table of Contents

1. Chapter 1: Introduction	9
1.1. About Joint Electricity Regulatory Commission (JERC)	9
1.2. About Puducherry	9
1.3. About Electricity Department, Govt. of Puducherry	9
1.4. Multi Year Tariff Regulations, 2021	10
1.5. Filing and Admission of the Present Petition	10
1.6. Interaction with the Petitioner	10
1.7. Notice for Public Hearing	11
1.8. Public Hearing	11
2. Chapter 2: Summary of Suggestions/ Comments received, Response from the Petitioner and the Commission's Views	13
3. Chapter 3: Business Plan for 3rd Control Period	14
3.1. Introduction	14
3.2. Forecast of Number of Consumers, Connected Load and Sales for the Control Period	15
3.2.1. Overall Approach	15
3.2.2. Category-wise analysis	19
3.2.3. Projections of Number of Consumers approved by the Commission	25
3.2.4. Projections of Connected Load approved by the Commission	25
3.2.5. Projections of Sales approved by the Commission	26
3.3. Intra-State Transmission and Distribution (T&D) loss	27
3.4. Inter-State transmission loss	28
3.5. Energy Balance	28
3.6. Power Procurement Plan	29
3.6.1. Energy Availability	29
3.6.2. Renewable Purchase Obligation (RPO)	38
3.7. Capital Investment Plan	39
3.7.1. Capital Expenditure	39
3.7.2. Capital Expenditure Scheme for Customer Relationship Management	46
3.7.3. Funding Plan	47
3.8. Reliability Indices	48
3.9. Manpower Plan	49

List of Tables

Table 1: Region wise profile (as on FY 2018-19) of the regions served by ED Puducherry.....	10
Table 2: List of interactions with the Petitioner	11
Table 3: Details of Public Notices published by the Petitioner.....	11
Table 4: Details of Public Notices published by the Commission.....	11
Table 5: Category wise number of consumers and growth rate considered by the Petitioner for the projections	15
Table 6: Category wise connected load and growth rate considered by the Petitioner for the projections (in kW/kVA)	15
Table 7: Category wise energy sales and growth rate considered by the Petitioner for the projections (in MUs).	16
Table 8: Category wise number of consumers projected by the Petitioner for the Control Period	17
Table 9: Category wise connected load projected by the Petitioner for the Control Period (in kW)	17
Table 10: Category wise energy sales projected by the Petitioner for the Control Period (in MUs).....	17
Table 11: Historical Year-on-Year growth for Number of Consumers	19
Table 12: Historical Year-on-Year growth for Connected load (kW/kVA).....	19
Table 13: Historical Year-on-Year growth for Energy Sales (MUs).....	19
Table 14: Category wise energy sales and CAGR growth computed by the Commission for Projection (in MUs)	20
Table 15: Category wise number of consumers and CAGR growth computed by the Commission for Projection	20
Table 16: Category wise connected load and CAGR growth computed by the Commission for Projection (in kW/kVA)	21
Table 17: Number of consumers projected by the Commission for business plan of 3 rd Control Period.....	25
Table 18: Connected load projected by the Commission for business plan of 3 rd Control Period (kW)	26
Table 19: Energy Sales projected by the Commission for business plan of 3 rd Control Period (MUs).....	26
Table 20: Actual T&D Losses (%)	27
Table 21: T&D Losses (%) Trajectory for the Control Period.....	27
Table 22: T&D Losses (%) approved vis-à-vis Actual/Estimated.....	27
Table 23: T&D Loss Reduction (%) Trajectory approved by the Commission for 3 rd Control Period.....	27
Table 24: Inter-state losses approved by the Commission for 3 rd Control Period	28
Table 25: Energy Balance submitted by the Petitioner (MU)	28
Table 26: Energy Balance approved by Commission (MU)	29
Table 27: Quantum of Power Purchase quantum submitted by the Petitioner for the 3 rd MYT Control Period ...	31
Table 28: Source wise power availability projected by the Commission for 3 rd MYT Control Period (Mus).....	35
Table 29: Renewable Purchase Obligation (RPO) approved by the Commission for 3 rd Control Period (MUs).	38
Table 30: Capital expenditure proposed by the Petitioner for business plan of 3 rd Control Period (in INR Cr).	39
Table 31: Capitalisation proposed by the Petitioner for business plan of 3 rd Control Period.....	39
Table 32: Transmission Improvement work under RDSS	40
Table 33: Distribution Improvements works under RDSS	42
Table 34: Revised estimated cost submitted by the Petitioner for RDSS -scheme (in INR Crore)	42
Table 35: Capital expenditure proposed by the Petitioner for Business Plan of 3 rd Control Period (in INR Cr)	45
Table 36: Capitalisation proposed by the Petitioner for business plan of 3 rd Control Period	45
Table 37: Revised estimated cost submitted by the Petitioner for RDSS -scheme (in INR Crore).....	46
Table 38: Capital Expenditure and Capitalisation approved by the Commission for 3 rd Control Period (in INR Crore)	46
Table 39: Funding of Capital Expenditure Proposed by the Petitioner for business plan of 3 rd Control Period..	47
Table 40: Capital structure approved by the Commission for 3 rd Control Period (in INR Crore)	47
Table 41: Reliability Indices submitted by the Petitioner	48
Table 42: Reliability Indices approved by the Commission.....	48
Table 43: Manpower Plan submitted by the Petitioner for 3 rd Control Period (in INR Crore)	49

List of abbreviations

Abbreviation	Full Form
A&G	Administrative and General
ACoS	Average Cost of Supply
Act	The Electricity Act, 2003
AMR	Automatic Meter Reading
APR	Annual Performance Review
ARR	Aggregate Revenue Requirement
ATE	Appellate Tribunal of Electricity
BPL	Below Poverty Line
CAGR	Compound Annualized Growth rate
Capex	Capital Expenditure
CC	Current Consumption
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CGRF	Consumer Grievance Redressal Forum
CGS	Central Generating Stations
COD	Commercial Operation Date
Cr	Crores
DDUGJY	Deen Dayal Upadhyaya Gram Jyoti Yojana
Discom	Distribution Company
DSM	Deviation Settlement Mechanism
DT	Distribution Transformer
ED	Electricity Department
EHT	Extra High Tension
ERP	Enterprise Resource Planning
FPPCA	Fuel and Power Purchase Cost Adjustment
FY	Financial Year
GFA	Gross Fixed Assets
HT	High Tension
IEX	Indian Energy Exchange Limited
IPDS	Integrated Power Development Scheme
IPP	Independent Power Producer
ISTS	Inter-State Transmission System
JERC	Joint Electricity Regulatory Commission for the state of Goa and Union Territories
KSEB	Kerala State Electricity Board Limited
LT	Low Tension
MCLR	Marginal Cost of funds based Lending Rate
MU	Million Units
MYT	Multi-Year Tariff
NFA	Net Fixed Assets
NTI	Non-Tariff Income

Abbreviation	Full Form
NTPC	NTPC Ltd.
OHOB	One Hut One Bulb
O&M	Operation and Maintenance
PLF	Plant Load Factor
PLR	Prime Lending Rate
PSDF	Power System Development Fund
PPA	Power Purchase Agreement
R&M	Repair and Maintenance
R-APDRP	Restructured Accelerated Power Development and Reforms Programme
REC	Renewable Energy Certificate
RLDC	Regional Load Despatch Centre
RoE	Return on Equity
RPO	Renewable Purchase Obligation
SBI PLR	SBI Prime Lending Rate
SERC	State Electricity Regulatory Commission
SLDC	State Load Despatch Center
SOP	Standard of Performance
T&D	Transmission & Distribution
TVS	Technical Validation Session
UI	Unscheduled Interchange
UT	Union Territory

Before the
Joint Electricity Regulatory Commission
For the State of Goa and Union Territories, Gurugram

QUORUM

Ms. Jyoti Prasad, Member (Law)

Petition No. 69/2021

In the matter ofApproval of business Plan for MYT 3rd Control Period from FY 2022-23 to FY 2024-25.**And in the matter of**

Electricity Department, Government of Puducherry (PED).....Petitioner

ORDERDated: 31st March 2022

- 1) This Order is passed in respect of the Petition filed by the Electricity Department, Government of Puducherry (PED) (herein after referred to as “The Petitioner” or “PED” or “The Licensee”) for Approval of its Business Plan for the 3rd MYT Control Period from FY 2022-23 to FY 2024-25 before the Joint Electricity Regulatory Commission (herein after referred to as “The Commission” or “JERC”).
- 2) In exercise of the powers conferred on it by sub-Section (2) of Section 181 read with Section 36, Section 39, Section 40, Section 41, Section 51, Section 61, Section 62, Section 63, Section 64, Section 65 and Section 86 of the Electricity Act, 2003 (36 of 2003) and all other powers enabling it in this behalf, the Joint Electricity Regulatory Commission for the State of Goa and Union Territories (except Delhi), after previous publication, issued the Joint Electricity Regulatory Commission for the State of Goa and Union Territories (Generation, Transmission and Distribution Multi Year Tariff) Regulations, 2021 on 22 March 2021.
- 3) In terms of Regulations 8.1 and 17 of the aforesaid Regulations, the Petitioner has filed a Petition for approval of its Business Plan for the three year Control Period from FY 2022-23 to FY 2024-25 with details for each year of the Control Period before the Commission.
- 4) The Commission scrutinised the said Petition and generally found it in order. The Commission admitted the Petition on 28th December 2021. The Commission thereafter requisitioned further information/clarifications on the data gaps observed to take a prudent view of the said Petition. The Commission also held a Technical Validation Session to determine sufficiency of data and the veracity of the information submitted. Further, due to the COVID-19 pandemic that had adversely impacted the movement of people as per the guidelines of GoI which had suggested avoiding of travel and gathering of people as far as possible.
- 5) Further, suggestions/ comments/ views and objections were invited from the Stakeholders and Electricity Consumers. Public Hearing through video-conferencing was also held on 28th January 2022, and all the Stakeholders/Electricity Consumers present in the Public Hearing were heard.

- 6) The Commission based on the Petitioner's submission, relevant MYT Regulations, facts of the matter, rules and provisions of the Electricity Act, 2003 and after proper due diligence and prudence check, has approved the Business Plan for 3rd MYT Control Period from FY 2022-23 to FY 2024-25, which covers the sales forecast, capital investment plan, power procurement plan, fixation of T&D loss trajectory etc.
- 7) This Business Plan order has been released after detailed scrutiny of submissions made by the Petitioner Further, the attached documents giving detailed reasons, grounds and conditions are the integral part of this Order.

Sd/-

(Jyoti Prasad)

Member (Law)

Place: Gurugram

Date: 31st March 2022

(Certified Copy)



(Rakesh Kumar)

Secretary

1. Chapter 1: Introduction

1.1. About Joint Electricity Regulatory Commission (JERC)

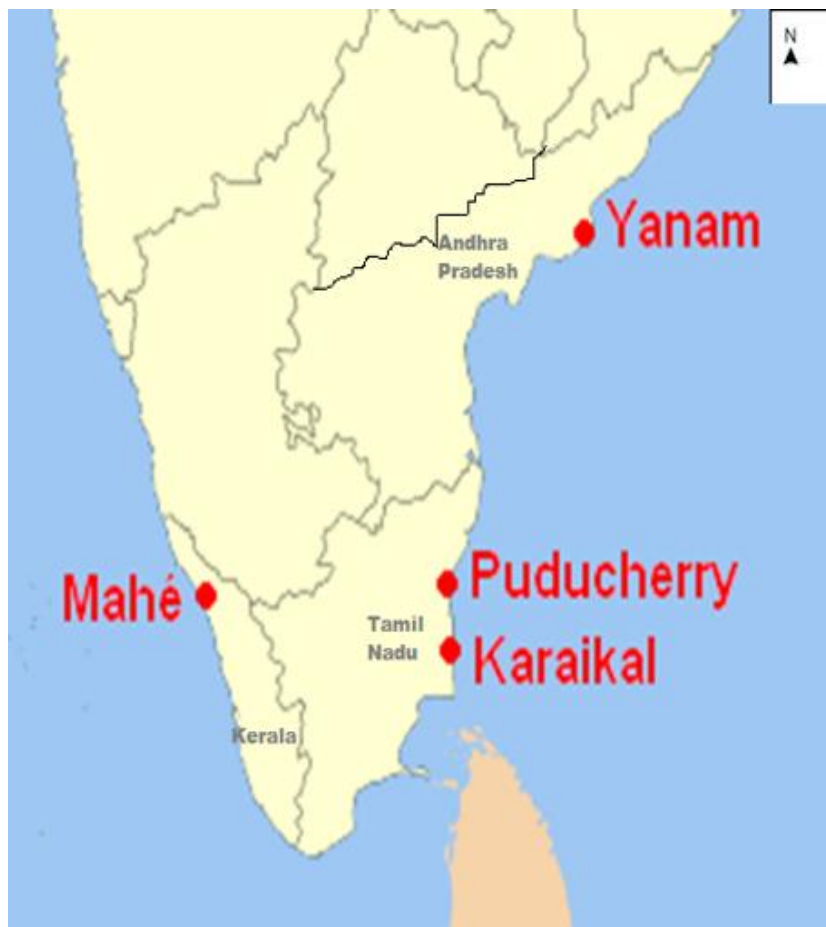
In exercise of powers conferred by the Electricity Act 2003, the Central Government constituted a Joint Electricity Regulatory Commission for all the Union Territories except Delhi to be known as “the Joint Electricity Regulatory Commission for the Union Territories” vide notification no. 23/52/2003-R&R dated 2nd May 2005. Later with the joining of the State of Goa, the Commission came to be known as “Joint Electricity Regulatory Commission for the State of Goa and Union Territories” (hereinafter referred to as “the JERC” or “the Commission”) vide notification no. 23/52/2003-R&R (Vol. II) dated 30th May 2008.

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

1.2. About Puducherry

The Union Territory of Puducherry comprises of four regions namely Puducherry, Karaikal, Mahe and Yanam, which are not geographically contiguous and is spread over an area of 492 Sq. km with the total population of 12.45 lakhs as per provisional results of Census 2011. The basic profiles of four regions are as follows:

- Puducherry is the largest among the four regions and consists of 12 scattered areas interspersed with enclaves of Villupuram and Cuddalore Districts of Tamil Nadu.
- Karaikal is about 150 kms South of Puducherry and is bounded by Nagapattinam and Thiruvavarur Districts of Tamil Nadu State.
- Mahe lies almost parallel to Puducherry 653 kms away on the west coast near Kannur District of Kerala State.
- Yanam is located about 840 kms north-east of Puducherry and it is located in the East Godhavari District of Andhra Pradesh State.



1.3. About Electricity Department, Govt. of Puducherry

The Electricity Department of the UT Administration of Puducherry (hereinafter referred to as PED), is a deemed licensee under Section 14 of the Electricity Act 2003 and is carrying out the business of transmission, distribution and retail supply of electricity in Puducherry, Karaikal, Yanam and Mahe regions of the Union Territory of

Puducherry. PED is divided into three circles, each headed by a Superintending Engineer. There are ten Technical Divisions across the three circles, each headed by an Executive Engineer.

The region wise profile (as on FY 2018-19) of the regions served by ED Puducherry is given below:

Table 1: Region wise profile (as on FY 2018-19) of the regions served by ED Puducherry

S. No.	Puducherry Region	Karaikal Region	Mahe Region	Yanam Region	Total UT of Puducherry
Consumers Nos. Dispersion	74%	18%	4%	4%	100%
Connected Load (kW)	75%	15%	5%	5%	100%
Energy Sales (MU)	79%	16%	2%	2%	100%
Area (Sq. Km)	60%	32%	2%	6%	100%
T&D Losses (%)	13%	13%	10%	10%	12.52%

The key duties being discharged by ED Puducherry are:

- To develop and maintain an efficient, coordinated and economical transmission and distribution system;
- To supply electricity on an application of the consumer in accordance with the provisions specified in the Electricity Act 2003;
- To provide non-discriminatory open access to the consumers;
- To establish a forum for redressal of grievances of the consumers.

PED does not have its own generation and procures power from various Central Generating Stations (CGS), neighbouring state utilities and the state-owned Puducherry Power Corporation Limited (PPCL), which runs a 32.5 MW gas-based combined cycle power plant in the Karaikal region. The entire power generated from PPCL is consumed within the Karaikal region.

PED operates a transmission network of 230 kV & 110 kV and distribution network at 33 kV, 22 kV, 11 kV and at LT levels. It supplies power to consumers through its 18 EHV substations, 489 km of EHT line, 2294 km of HT line, 2877 distribution transformers and 3845 km of LT line. PED also has 90 km of HT and 535 km of LT underground cabling for certain urban areas.

State Load Dispatch Center (SLDC), which is under the control of the PED, interacts with Regional Load Dispatch Centre (RLDC) for optimum scheduling and dispatch of electricity. It monitors grid operation on real time basis and passes on necessary instructions to field staff to control the flow of energy.

1.4. Multi Year Tariff Regulations, 2021

The Commission notified the Joint Electricity Regulatory Commission for the State of Goa and Union Territories (Generation, Transmission and Distribution Multi Year Tariff) Regulations, 2021 (hereinafter referred to as MYT Regulations, 2021) on 22nd March 2021. These Regulations are applicable in the 3rd MYT Control Period comprising of three financial years from FY 2022- 23 to FY 2024-25. These Regulations are applicable to all the generation companies, transmission and distribution licensees in the State of Goa and Union Territories of Andaman & Nicobar Islands, Lakshadweep, Chandigarh, Dadra & Nagar Haveli and Daman & Diu, and Puducherry.

1.5. Filing and Admission of the Present Petition

The present Petition was admitted on 28th December 2021 and marked as Petition No. 69 of 2021. The Commission and the Petitioner subsequently uploaded the Petition on their respective websites.

1.6. Interaction with the Petitioner

A preliminary scrutiny/analysis of the Petition was conducted, and certain deficiencies were observed. Accordingly, discrepancy notes were issued to the Petitioner. Further, additional information/clarifications were solicited from the Petitioner as and when required. The Commission and the Petitioner also discussed various

concerns of the Petitioner and key data gaps, which included retail sales, revenue from retail tariff, capitalization, tariff proposal etc. The Petitioner submitted its response to the issues through various letters/emails.

The Commission conducted the Technical Validation Session (TVS) with the Petitioner at the Commission's office in Gurugram, during which the discrepancies in the Petition were conveyed and additional information required by the Commission was sought. Subsequently, the Petitioner submitted replies to the issues raised in this session and provided documentary evidence to substantiate its claims regarding various submissions. The following table provides the list of interactions with the Petitioner along with the dates:

Table 2: List of interactions with the Petitioner

S. No	Subject	Date
1	Issue of First Discrepancy Note	1.2.2022
2	Public hearing	28.1.2022
3	Technical Validation Session	17.2.2022 and 3.3.2022
4	Replies received from the Petitioner with regard to Discrepancy Note	3.3.2022

1.7. Notice for Public Hearing

The Petitioner published the Public Notices for inviting suggestions/ comments from stakeholders on the Business Plan Petition for the 3rd Control and the Petition for True-up for FY 2020-21, Annual Performance Review for FY 2021-22 and Aggregate Revenue Requirement (ARR) of 3rd Control Period and Determination of Retail Tariff for the FY 2022-23 as given below:

Table 3: Details of Public Notices published by the Petitioner

S. No.	Date	Name of Newspaper	Place of circulation
1	13.01.2022 and 22.01.2022	The New Indian Express	Puducherry, Karaikal, Mahe & Yanam
2		The Daily Thanthi	Puducherry, Karaikal
3		The Hindu	Puducherry, Karaikal
4		Kerala Kaumudi	Mahe
5		Janamitra	Yanam
6		Kal Publication	

The Commission also published Public Notices in the leading newspapers as tabled below, giving due intimation to the stakeholders, consumers and the public at large about the Public Hearings.

Table 4: Details of Public Notices published by the Commission

Sl. No.	Date	Name of Newspaper	Place of Circulation
1	6.1.2022	The Hindu	Visakhapatnam, Vijayawada
2		New Indian Express	All Tamil Nadu
3	25.1.2022	Daily Thanthi	Puducherry
4		Dinakaran	Puducherry

1.8. Public Hearing

The COVID-19 pandemic has adversely impacted the movement of people. These guidelines have also suggested avoiding of travel and gathering of people as far as possible. In view of above, the physical conduct of proceedings by the Commission was not possible, due to which the Commission deemed it is necessary to provide an access to all the stakeholders by conducting proceedings remotely, by the use of audio and video enabled hearings in the matters of the Petition submitted by Electricity Department, Puducherry. Therefore, the Commission decided that the comments/suggestions of the stakeholders need to be heard virtually through video conferencing for seeking their opinion.

Accordingly, the Virtual Public Hearing was held on January 28, 2022 from 11 AM to discuss the issues, if any, related to the Petition filed by the Petitioner. No stakeholders submitted their comments on the Petition filed by the Petitioner for approval of the Business Plan for FY 2022-23 to FY 2024-25.

2. Chapter 2: Summary of Suggestions/ Comments received, Response from the Petitioner and the Commission's Views

On admitting the Petition, the Commission directed the Petitioner to make copies of the Petition available to the public, upload the Petition on the website and also publish the same in the newspapers in an abridged form in the given format duly inviting suggestions/ comments from the public as per the provisions of the MYT Regulations, 2021.

The COVID-19 pandemic has adversely impacted the movement of people as per the guidelines of GoI. These guidelines have also suggested avoiding of travel and gathering of people as far as possible. In view of above, the physical conduct of proceedings by the Commission was not possible, due to which the Commission deemed it is necessary to provide an access to all the stakeholders by conducting proceedings remotely, by the use of audio and video enabled hearings in the matters of Petition submitted by Electricity Department, Puducherry. Therefore, the Commission decided that the comments/suggestions of the stakeholders need to be heard virtually through video conferencing for seeking their opinion.

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3. Chapter 3: Business Plan for 3rd Control Period

3.1. Introduction

Regarding Business Plan, Regulation 8 of the JERC Tariff Regulations, 2021 specifies as follows:

“8 Business Plan

8.1 The Transmission Licensee and Distribution Licensee shall file a petition, duly approved by the competent authority, for approval of Business Plan by the Commission for the entire Control Period, latest by May 15, 2021:

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

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

.....

8.4 The Business Plan filed by Distribution Licensee shall inter-alia contain:

a) Capital Investment Plan for each Year of the Control Period commensurate with load growth, distribution loss reduction trajectory and quality improvement measures proposed in the Business Plan in accordance with Regulation 8.5;

b) Capital Structure of each scheme proposed and the cost of financing (interest on debt and return on equity), terms of the existing loan agreements, etc.;

c) Sales Forecast for each Consumer category and sub-categories for each Year of the Control Period in accordance with Regulation 8.6;

d) Power Procurement Plan based on the Sales Forecast and distribution loss trajectory for each Year of the Control Period in accordance with the Regulation 8.7;

e) Targets for distribution loss for each Year of the Control Period consistent with the Capital Investment Plan proposed by the Licensee;

f) Projections for number of employees during each Year of the Control Period based on proposed recruitments and retirement;

g) Proposals in respect of income from Other Business for each Year of the Control Period.”

This chapter deals with the key aspects of the Business Plan Petition submitted by the Petitioner and is structured as below.

- Forecast of Number of Consumers, Connected Load and Sales for the Control Period
- Transmission and Distribution (T&D) loss
- Power Procurement Plan
- Capital Investment Plan
- Manpower Plan

In the subsequent sections, the Commission has recorded the Petitioner’s submissions and analysed them. The Commission has subsequently recorded its reasoning while approving each of the components.

3.2. Forecast of Number of Consumers, Connected Load and Sales for the Control Period

3.2.1. Overall Approach

Petitioner's Submission

The Petitioner has adopted the methodology mentioned by the Commission and has taken on the base as FY 2021-22. Based on the past data, the category wise data of audited number from FY 2015-16 to FY 2020-21, the CAGR of past 3 year, 4 year, 5 year and 6 year of each consumer category as per actual values are considered by the Petitioner for the projection of number of consumers, connected load and energy sales for the Control Period as shown in Table below:

Table 5: Category wise number of consumers and growth rate considered by the Petitioner for the projections

Category Wise No. of Consumers											
Consumer Category	Actuals						CAGR				CAGR Considered
	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	6-Year	5-Year	4-Year	3-Year	
Domestic	3,06,385	3,13,367	3,25,845	3,36,044	3,48,242	3,58,628	3.20%	3.43%	3.25%	3.31%	3.00%
OHOB /Life Line Services	35,539	35,539	35,537	35,537	8,808	8,248	-25.33%	-30.5%	-38.5%	-51.8%	0.00%
Commercial	51,674	52,087	53,962	55,145	56,760	56,050	1.64%	1.85%	1.27%	0.82%	1.85%
Agriculture	6,854	6,900	6,940	6,973	7,029	7,029	0.51%	0.46%	0.43%	0.40%	0.40%
Public Lighting	50,055	50,250	50,434	50,666	50,936	51,153	0.43%	0.45%	0.47%	0.48%	0.45%
LT Industrial + water Tank	6,556	6,616	6,616	6,725	6,786	4,386	-7.72%	-9.77%	12.81%	19.24%	0.50%
HT-1	433	439	437	424	430	455	1.00%	0.90%	1.35%	3.59%	1.00%
HT-2	53	60	43	64	68	63	3.52%	1.23%	13.58%	-0.78%	3.00%
HT-3	7	7	5	7	7	8	2.71%	3.39%	16.96%	6.90%	2.71%
EV Charging Station	-	-	-	-	-	-	-	-	-	-	-
Hoarding /Sign Board	-	-	-	-	-	-	-	-	-	-	-
Grand Total	4,57,556	4,65,265	4,79,819	4,91,585	4,79,065	4,86,020					

Table 6: Category wise connected load and growth rate considered by the Petitioner for the projections (in kW/kVA)

Consumer category	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	6 year C-AGR	5 year CAGR	4 year CAGR	3 year CAGR	CAGR Considered
Domestic	4,84,510	5,06,829	5,30,206	5,54,648	5,80,218	6,06,734	4.60%	4.60%	4.60%	4.59%	4.60%
OHOB /Life Line Services	2,843	2,843	2,843	2,843	2,843	2,843	0.00%	0.00%	0.00%	0.00%	0.00%
Commercial	1,02,331	1,09,627	1,19,092	1,28,476	1,38,600	1,46,001	7.37%	7.43%	7.03%	6.60%	3.00%
Agriculture	44,654	44,654	44,654	44,654	44,654	60,000	6.09%	7.66%	10.35%	15.92%	0.50%

Consumer category	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	6 year C-AGR	5 year CAGR	4 year CAGR	3 year CAGR	CAGR Considered
Public Lighting	5,998	6,058	6,119	6,180	6,242	6,296	0.98%	0.97%	0.96%	0.94%	0.97%
LT Industrial + water tank	1,20,428	1,22,804	1,25,234	1,27,714	1,30,242	1,31,883	1.83%	1.80%	1.74%	1.62%	1.80%
HT-1	3,22,656	3,33,098	3,44,093	3,55,345	3,66,965	2,29,166	-6.61%	-8.93%	-12.7%	-19.7%	2.00%
HT-2	25,210	27,731	30,504	33,554	36,910	23,180	-1.67%	-4.38%	-8.75%	16.88%	1.00%
HT-3	1,09,695	1,15,167	1,20,972	1,26,946	30,185	36,694	-19.6%	-24.8%	-32.8%	-46.2%	10.00%
EV charging station	-	-	-	-	-	-	-	-	-	-	-
Temporary	-	-	-	-	-	-	-	-	-	-	-
Total	12,18,325	12,68,811	13,23,717	13,80,360	13,36,859	12,42,798					

The Petitioner has not considered sales of FY 2020-21 as the base as FY 2020-21 is an exception year wherein the sales was affected due to COVID -19 pandemic.

Table 7: Category wise energy sales and growth rate considered by the Petitioner for the projections (in MUs)

Category Wise Sales (MU)											
Consumer Category	Actuals						CAGR				CAGR Considered
	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	6-Year	5-Year	4-Year	3-Year	
Domestic & Cottage	635.2	675.0	699.8	723.3	711.6	767.9	3.87%	3.27%	3.14%	3.04%	2.50%
OHOB /Life Line Services	10.0	10.0	10.2	10.2	10.2	3.5	-18.94%	-23.08%	-30.01%	-41.54%	0.00%
Commercial	182.2	198.0	210.9	216.4	212.9	202.6	2.14%	0.57%	-1.34%	-3.25%	0.57%
Agriculture	57.0	57.0	57.3	57.6	59.9	61.2	1.43%	1.78%	2.22%	3.05%	0.50%
Public Lighting	26.0	26.0	24.2	24.5	27.6	24.6	-1.11%	-1.38%	0.48%	0.22%	0.00%
LT Industrial	164.1	169.1	153.2	148.0	124.6	119.3	-6.17%	-8.35%	-8.01%	-10.23%	2.00%
water Tank	34.8	35.9	37.4	37.6	35.0	38.8	2.16%	1.93%	1.17%	1.56%	1.93%
Temporary supply - LT&HT	6.1	7.0	8.0	7.7	8.1	4.8	-4.86%	-9.14%	-15.83%	-21.09%	2.00%
HT-1	875.3	892.0	944.2	933.4	972.1	980.6	2.30%	2.39%	1.27%	2.49%	1.27%
HT-2	56.0	60.0	62.0	63.1	66.1	69.1	4.30%	3.58%	3.65%	4.59%	3.58%
HT-3	319.6	268.0	259.0	326.9	416.6	412.1	5.22%	11.36%	16.75%	12.28%	2.00%
EV Charging Station	-	-	-	-	-	-	-	-	-	-	-
Hoarding /Sign Board	-	-	-	-	-	-	-	-	-	-	-

Category Wise Sales (MU)											
Consumer Category	Actuals						CAGR				CAGR Considered
	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	6-Year	5-Year	4-Year	3-Year	
Grand Total	2,366.3	2,398.0	2,466.3	2,548.8	2,644.5	2,684.3					

Based on the above assumption of growth rate, the projection for the sales/consumption and number of consumers during the Control Period is given in Table Below:

Table 8: Category wise number of consumers projected by the Petitioner for the Control Period

Consumer category	Base Year	Projection		
	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Domestic	369387	380468	391882	403639
OHOB /Life Line Services	8248	8248	8248	8248
Commercial	57087	58143	59219	60315
Agriculture	7053	7078	7102	7127
Public Lighting	51381	52923	54510	56146
LT Industrial + water tank	4408	4430	4452	4474
HT-1	460	464	469	473
HT-2	65	67	69	71
HT-3	8	8	9	9
EV charging station	-	-	-	-
Temporary	-	-	-	-
Total	498097	511829	525960	540501

Table 9: Category wise connected load projected by the Petitioner for the Control Period (in kW)

Consumer category	Base Year	Projection		
	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Domestic	63467	663845	694386	726332
OHOB /Life Line Services	2843	2843	2843	2843
Commercial	150381	154893	159539	164326
Agriculture	60300	60602	60905	61209
Public Lighting	6357	6419	6481	6544
LT Industrial + water tank	134256	136671	139130	141633
HT-1	233749	238424	243193	248057
HT-2	23412	23646	23882	24121
HT-3	40363	40363	40363	40363
EV charging station	-	-	-	-
Temporary	-	-	-	-
Total	1286309	1327706	1370723	1415428

Table 10: Category wise energy sales projected by the Petitioner for the Control Period (in MUs)

Consumer category	Base Year	Projection		
	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Domestic	806.72	826.89	847.56	868.75
OHOB /Life Line Services	3.50	3.50	3.50	3.50
Commercial	204.88	210.00	215.25	220.63

Consumer category	Base Year	Projection		
	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Agriculture	61.71	61.75	62.06	62.37
Public Lighting	19.00	17.50	17.50	17.50
LT Industrial	124.11	126.59	129.12	131.71
Water tank	40.28	41.06	41.85	42.66
HT-1	1005.59	1018.35	1031.28	1044.36
HT-2	74.10	76.75	79.50	82.35
HT-3	428.79	437.36	446.11	455.03
EV charging station	-	-	-	-
Temporary	4.96	5.06	5.16	5.27
Total	2774	2825	2879	2934

Commission's analysis:

With regards to Sales forecast, Regulation 8.6 of the JERC MYT Regulations, 2021 specifies as follows:

"8.6 Sales Forecast

a) The Distribution Licensee shall forecast sales for each Consumer category and subcategories, at different voltage levels, for each Year of the Control Period in their Business Plan filings, for the Commission's review and approval;

b) The forecast shall be based on the actual demand of electricity in previous Years, anticipated growth in demand in coming Years, expected growth in the number of Consumers, load growth, changes in the pattern of consumption, target distribution losses and other relevant factors;

c) The Licensee shall indicate separately the sale of electricity to traders or another Licensee and category wise sales to Open Access Consumers."

The overall approach of the Commission for projecting the number of consumers, connected load and sales for FY 2021-22 and the upcoming Multi-Year Control Period is described below:

- The Base Year considered by the Petitioner is FY 2021-22 and the same is in line with the JERC MYT Regulations, 2021. The Commission has also considered FY 2021-22 as the Base Year for carrying out projections, though the values projected have been adjusted to reflect the growth rates approved by the Commission hereunder for respective categories.
- The Growth rates considered by the Petitioner for projecting number of consumers, load and sales are based primarily on historical CAGRs. The Commission has determined Growth rates separately for each consumer category based on past trends and other relevant parameters given below:
 - Year on Year (YoY) growth
 - CAGR (multiple periods)
 - Specific (per-consumer) consumption
 - Specific sales per kW of connected load
 - Pending applications for connections
 - Connections released / serviced cycle time
 - Energy efficiency measures

3.2.2. Category-wise analysis

For projecting the number of consumers, connected load and energy sales for each category, the historical trends in the past 6 years (FY 2015-16 to FY 2020-21) have been considered Historical CAGR of 6 year/ 5 year /4 year/ 3 year and Y-o-Y growth rate.

Historical year on year growth for number of consumers, connected load and energy sales is given in the following Table:

Table 11: Historical Year-on-Year growth for Number of Consumers

Consumer category	FY 16/FY15	FY 17/FY16	FY 18/FY17	FY 19/FY18	FY 20/FY19	FY 21/FY20
Domestic	6.94%	2.28%	3.98%	3.13%	3.63%	2.98%
OHOB /Life Line Services	0.00%	0.00%	-0.01%	0.00%	-75.21%	-6.36%
Commercial	10.09%	0.80%	3.60%	2.19%	2.93%	-1.25%
Agriculture	0.07%	0.67%	0.58%	0.48%	0.80%	0.00%
Public Lighting	0.32%	0.39%	0.37%	0.46%	0.53%	0.43%
LT Industrial	1.66%	0.62%	-0.08%	1.67%	0.91%	-46.07%
Water Tank	32.94%	17.70%	3.76%	0.72%	0.58%	473.68%
HT-1	5.10%	1.39%	-0.46%	-2.97%	1.42%	5.81%
HT-2	0.00%	13.21%	-28.33%	48.84%	6.25%	-7.35%
HT-3	0.00%	0.00%	-28.57%	40.00%	0.00%	14.29%
EV charging station	-	-	-	-	-	-
Temporary	-	-	-	-	-	-

Table 12: Historical Year-on-Year growth for Connected load (kW/kVA)

Consumer category	FY 16/FY15	FY 17/FY16	FY 18/FY17	FY 19/FY18	FY 20/FY19	FY 21/FY20
Domestic	4.28%	4.61%	4.61%	4.61%	4.61%	4.57%
OHOB /Life Line Services	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Commercial	5.12%	7.13%	8.63%	7.88%	7.88%	5.34%
Agriculture	0.00%	0.00%	0.00%	0.00%	0.00%	34.37%
Public Lighting	0.45%	1.00%	1.01%	1.00%	1.00%	0.87%
LT Industrial + water tank	2.97%	1.97%	1.98%	1.98%	1.98%	1.26%
HT-1	3.17%	3.24%	3.30%	3.27%	3.27%	-37.55%
HT-2	10.00%	10.00%	10.00%	10.00%	10.00%	-37.20%
HT-3	4.99%	4.99%	5.04%	4.94%	-76.22%	21.56%
EV charging station	-	-	-	-	-	-
Temporary	-	-	-	-	-	-

Table 13: Historical Year-on-Year growth for Energy Sales (MUs)

Consumer category	FY 16/FY15	FY 17/FY16	FY 18/FY17	FY 19/FY18	FY 20/FY19	FY 21/FY20
Domestic	6.26%	3.68%	3.35%	-1.62%	7.91%	4.99%
OHOB /Life Line Services	0.00%	2.10%	0.29%	0.01%	-65.83%	0.00%
Commercial	8.66%	6.53%	2.60%	-1.65%	-4.83%	-26.69%

Consumer category	FY 16/FY15	FY 17/FY16	FY 18/FY17	FY 19/FY18	FY 20/FY19	FY 21/FY20
Agriculture	0.00%	0.49%	0.58%	3.91%	2.21%	-1.95%
Public Lighting	0.00%	-6.78%	1.01%	12.66%	-10.84%	-11.63%
LT Industrial	3.07%	-9.38%	-3.40%	-15.83%	-4.25%	-10.38%
Water Tank	3.07%	4.24%	0.40%	-6.89%	10.77%	-9.60%
HT-1	14.38%	14.29%	-4.25%	6.01%	-41.26%	-7.13%
HT-2	1.91%	5.85%	-1.14%	4.15%	0.87%	-11.84%
HT-3	7.22%	3.37%	1.80%	4.62%	4.55%	-22.55%
EV charging station	-16.15%	-3.37%	26.23%	27.42%	-1.06%	0.44%
Temporary	-	-	-	-	-	-

The Petitioner has not considered sales in FY 2020-21 as the base as FY 2020-21 is an exception year wherein the sales was affected due to COVID -19 pandemic and thus considering the final year for computing the CAGR would not provide realistic growth rate.

Historical Compound Annual Growth Rate (CAGR) for number of consumers, connected load and energy sales is given in the following Table:

Table 14: Category wise energy sales and CAGR growth computed by the Commission for Projection (in MUs)

Consumer category	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20	6 year CAGR	5 year CAGR	4 year CAGR	3 year CAGR
Domestic	635.2	675.0	699.8	723.3	711.6	771.0	3.87%	3.27%	3.14%	3.04%
OHOB /Life Line Services	10.0	10.0	10.2	10.2	10.2	0.3	-18.94%	-23.08%	-30.01%	-41.54%
Commercial	182.2	198.0	210.9	216.4	212.9	202.6	2.14%	0.57%	-1.34%	-3.25%
Agriculture	57.0	57.0	57.3	57.6	59.9	61.2	1.43%	1.78%	2.22%	3.05%
Public Lighting	26.0	26.0	24.2	24.5	27.6	24.6	-1.11%	-1.38%	0.48%	0.22%
LT Industrial	164.1	169.1	153.2	148.0	124.6	119.3	-6.17%	-8.35%	-8.01%	-10.23%
Water tank	34.8	35.9	37.4	37.6	35.0	38.8	2.16%	1.93%	1.17%	1.56%
HT-1	875.3	892.0	944.2	933.4	972.1	980.6	2.30%	2.39%	1.27%	2.49%
HT-2	56.0	60.0	62.0	63.1	66.1	69.1	4.30%	3.58%	3.65%	4.59%
HT-3	319.6	268.0	259.0	326.9	416.6	412.1	5.22%	11.36%	16.75%	12.28%
EV charging station	-	-	-	-	-	-	-	-	-	-
Temporary	6.1	7.0	8.0	7.7	8.1	4.8	-4.86%	-9.14%	-15.83%	-21.09%
Total	2366.3	2398.0	2466.3	2548.8	2644.5	2684.3				

Table 15: Category wise number of consumers and CAGR growth computed by the Commission for Projection

Category Wise No. of Consumers											
Consumer Category	Actuals						CAGR				CAGR Considered
	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	6-Year	5-Year	4-Year	3-Year	
Domestic	3,06,385	3,13,367	3,25,845	3,36,044	3,48,242	3,58,628	3.20%	3.43%	3.25%	3.31%	3.00%
OHOB /Life Line Services	35,539	35,539	35,537	35,537	8,808	8,248	-25.33%	-30.5%	-38.5%	-51.8%	0.00%
Commercial	51,674	52,087	53,962	55,145	56,760	56,050	1.64%	1.85%	1.27%	0.82%	1.85%
Agriculture	6,854	6,900	6,940	6,973	7,029	7,029	0.51%	0.46%	0.43%	0.40%	0.40%
Public Lighting	50,955	50,250	50,434	50,666	50,936	51,153	0.43%	0.45%	0.47%	0.48%	0.45%
LT Industrial + water Tank	6,556	6,616	6,616	6,725	6,786	4,386	-7.72%	-9.77%	12.81%	19.24%	0.50%
HT-1	433	439	437	424	430	455	1.00%	0.90%	1.35%	3.59%	1.00%
HT-2	53	60	43	64	68	63	3.52%	1.23%	13.58%	-0.78%	3.00%
HT-3	7	7	5	7	7	8	2.71%	3.39%	16.96%	6.90%	2.71%
EV Charging Station	-	-	-	-	-	-	-	-	-	-	-

Category Wise No. of Consumers											
Consumer Category	Actuals						CAGR				CAGR Considered
	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	6-Year	5-Year	4-Year	3-Year	
Temporary	-	-	-	-	-	-	-	-	-	-	-
Grand Total	4,57,556	4,65,265	4,79,819	4,91,585	4,79,065	4,86,020					

Table 16: Category wise connected load and CAGR growth computed by the Commission for Projection (in kW/kVA)

Consumer category	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	6 year C-AGR	5 year CAGR	4 year CAGR	3 year CAGR	CAGR Considered
Domestic	4,84,510	5,06,829	5,30,206	5,54,648	5,80,218	6,06,734	4.60%	4.60%	4.60%	4.59%	4.60%
OHOB /Life Line Services	2,843	2,843	2,843	2,843	2,843	2,843	0.00%	0.00%	0.00%	0.00%	0.00%
Commercial	1,02,331	1,09,627	1,19,092	1,28,476	1,38,600	1,46,001	7.37%	7.43%	7.03%	6.60%	3.00%
Agriculture	44,654	44,654	44,654	44,654	44,654	60,000	6.09%	7.66%	10.35%	15.92%	0.50%
Public Lighting	5,998	6,058	6,119	6,180	6,242	6,296	0.98%	0.97%	0.96%	0.94%	0.97%
LT Industrial + water tank	1,20,428	1,22,804	1,25,234	1,27,714	1,30,242	1,31,883	1.83%	1.80%	1.74%	1.62%	1.80%
HT-1	3,22,656	3,33,098	3,44,093	3,55,345	3,66,965	2,29,166	-6.61%	-8.93%	-12.7%	-19.7%	2.00%
HT-2	25,210	27,731	30,504	33,554	36,910	23,180	-1.67%	-4.38%	-8.75%	16.88%	1.00%
HT-3	1,09,695	1,15,167	1,20,972	1,26,946	30,185	36,694	-19.6%	-24.8%	-32.8%	-46.2%	10.00%
EV charging station	-	-	-	-	-	-	-	-	-	-	-
Temporary	-	-	-	-	-	-	-	-	-	-	-
Total	12,18,325	12,68,811	13,23,717	13,80,360	13,36,859	12,42,798					

The historical data given above, along with other parameters, as applicable, have been used for category wise analysis as described below.

Domestic

Petitioner's Submission

The Petitioner submitted that with increasing electrification levels, enhanced standard of living and rapid urbanization in Puducherry, energy sales in Domestic category is slated to increase at a steady rate. There has been an increasing trend in sales, connected load and no. of consumers of domestic category on y-o-y basis. The Petitioner has accordingly considered the conservative growth rate of 2.50% for sales projections. For projection of number of consumers, the Petitioner has considered 5-Year CAGR growth rate of 3.00%.

Commission's analysis

The Commission has analysed domestic consumer connection and connected load data and observed that domestic consumer connection and load is having a steady growth rate over last 4 financial year.

The Commission further observed that 5 years, 4 years, 3 years, 2 years and 1 year CAGR of domestic category works out ~3.25%, which are in same range of that of y-o-y growth of number of consumers during last financial year. Accordingly, the Commission has considered the growth rate of 3% in line with the Petitioner submission for projecting the consumer growth rate for the 3rd Control Period.

5 years, 4 years, 3 years CAGR of domestic load is ~4.60%, and same has been proposed by the Petitioner to project the Connected domestic load. The Commission agrees with Petitioner's submission for load growth projections and hence approves the CAGR for last 3 years.

The Commission has analysed the specific (per consumer) consumption of the domestic consumers over last 5 years and observes that the same has remained virtually stagnant in the range of 2214 to 2220 units. Accordingly, the Commission opines that the primary driver for sales growth in domestic category would be growth in number of consumers. Therefore, the Commission is of the opinion that it is prudent to approve a normative sales growth of 2.50%, in line with the Petitioners' projections.

OHOB/lifeline Services

Petitioner's Submission

The Petitioner submitted that the number of consumers in the one house one bulb (OHOB)/ Lifeline Services category is not expected to grow as it has plans on giving no new OHOB connections. The number of consumers in the Lifeline services category is not expected to grow, as more and more consumers are shifting from this category to LT Domestic category due to increased consumption. Therefore, Petitioner has not considered any growth in the sales and consumers of the MYT Control Period, and the number of consumers and sales are kept the same as FY 2020-21 for the entire MYT Control Period of FY 2022-23 to FY 2024-25.

Commission's analysis

The Commission is of the opinion that CAGR considered by the Petitioner for projecting number of consumers, connected load and sales are consistent with the trends observed in the past data. Therefore, the Commission has approved the growth rates as submitted by the Petitioner.

Commercial

Petitioner's Submission

The Petitioner submitted that the Commercial Category has been showing a marginal decline in sales for the year FY 2018-19 and FY 2019-20, however there is also a marginal increase in no. of consumers during the same period. Puducherry, being a tourist destination, the demand has been expected to increase, but due to COVID-19 pandemic which has restricted tourists to travel across Puducherry the growth in the tourism activities will be lower than expected. Further based on the calculated CAGR, a growth rate of 1.85% (5-yr CAGR) for the number of consumers and 0.57% (5-yr CAGR) for consumption has been considered for projection for the MYT Control Period.

Commission's analysis

The Commission is of the opinion that the 5-year CAGR is more representative of the historical trend in data due to considerable YoY sales growth slowdown observed from FY 2018-19 to FY 2020-21. The number of Consumers has grown at a 5-year CAGR of 1.85%.

For load projection, the Commission observed that the y-o-y load growth for last 3 year in Commercial category is negative. Accordingly, the Commission has approved the nominal projecting growth rates for sales and load as submitted by the Petitioner.

Agriculture

Petitioner's Submission

The Petitioner submitted that in the recent years, a very minimal increase in consumption in the agricultural category. The 3-year/4-year/5-year/6-year CAGR growth rate of sales have been observed to be in the range of ~3%-1.43%. Further 3-year/4-year/5-year/6-year CAGR growth rate of number of consumers have been observed to be in the range of ~0.46%-0.59%. It is expected that the consumption and number of consumers of this category to remain stagnant in the upcoming period. Therefore, a conservative growth rate of 0.40% for Other

Farmers and Nil for Small farmer has been considered for the projection of number of consumers for the MYT Control Period. Further a minimal growth rate of 0.50% for sales has been considered for projection for the MYT Control Period.

Commission's analysis

The Commission is of the opinion that CAGR considered by the Petitioner for projecting number of consumers, connected load and sales are consistent with the trends observed in the past data. Therefore, the Commission has approved the growth rates submitted by the Petitioner.

Public lighting

Petitioner's Submission

Petitioner submitted that the existing conventional streetlights are converted into highly reliable energy efficient LED streetlights and to set up a computerized control and monitoring centre introducing smart solution in street lighting. It is expected that the annual energy consumption of the streetlights will be reduced by 50%. In this regard PED has considered NIL growth in the sales for projection for MYT Control Period. Moreover, it is estimated that the consumption shall drop to 17.5 MU at FY 2022-23. Further based on the calculated CAGR, a growth rate of 0.45% (5-year CAGR) for the number of consumers has been considered for projection for the MYT Control Period.

Commission's analysis

The Commission is of the opinion that CAGR considered by the Petitioner for projecting number of consumers, connected load and sales are consistent with the trends observed in the past data. Therefore, the Commission has approved the growth rates submitted by the Petitioner.

LT-industrial and Water tank

Petitioner's Submission

Petitioner submitted that the some of the LT Industries have been defunct and after the reconciliation of functional LT Industrial the No. of consumers are recorded as 3584 as on FY 2020-21. On further reconciliation of No. of consumers under water tank category it has been recorded as 802 for FY 2020-21. Therefore, a nominal growth rate of 0.50% has been considered for projection for the MYT Control Period.

With regard to sales of the LT Industrial category the year-on year growth rate has been in decreasing trend and whereas in the case of water tanks the sales have followed an increasing trend however there is dip in the FY 2018-19. In view of above a conservative growth rate of 2.00% for sales towards LT Industries has been considered and calculated CAGR, a growth rate of 1.93% (5-yr CAGR) for the sales towards water tank has been considered for projection for the MYT Control Period.

Commission's analysis

The Commission observed that growth in number of consumers has been steadily slowing down in the last 3 years. Therefore, the Commission is of the view that a nominal growth rate of 0.50% as considered by the Petitioner for projection for the MYT Control Period is prudent. Furthermore, the Commission notes that the growth rate considered for sales is consistent with the Petitioner's overall approach of assuming a normative growth scenario for future projections if negative growth rates are observed in the past data. With respect to the growth in connected load, the Commission opines that the 5-year CAGR of 1.80% considered by the Petitioner is consistent with past trends and hence approves the same.

Temporary Supply

Petitioner's Submission

Temporary supply has seen negative growth since last 5 years. So, Petitioner has considered conservation growth rate of 2.00% in sales for the Control Period. However, as the temporary connections do not follow any particular pattern and it may increase or decrease on year on year basis.

Commission's analysis

The Commission agrees with the Petitioner that the temporary supply does not follow any particular trend. Considering the same, the Commission has approved the growth rate of 2% for sales during the Control Period.

HT -1 (Industrial & Commercial)

Petitioner's Submission

The year-on-year growth of HT-1 consumer category follows an increasing trend however in the FY 2020-21 due to economic slowdown in the country, most of the sectors have taken a hit and the consumption has decreased due to shutdown of few plants and running of plants at low operational levels. Considering the improvement in the present economic condition whereby IPP data and inflation data are favourable, the situation is expected to improve over the next few years. The Petitioner has considered a growth rate of 1.27% (4-year CAGR) in the consumption and growth rate of 1.00% (6-year CAGR) in the number of consumers for the MYT control Period. With regard to load growth projections, the Petitioner has considered a growth rate of 2.00%.

Commission's analysis

The Commission is of the opinion that the 6-year CAGR of 1% submitted by the Petitioner for projection of number of Consumers is optimal, considering the economic slowdown and COVID 19 impact in the country. Further, the Commission observes that over the past 3 years, sales has been declining. Based on sales observed in the last 3 years, the Commission opines that a normative 1.27% growth considered by the Petitioner is appropriate.

With respect to the growth in connected load, the Commission observed that the HT-1 industrial category has shown steady y-o-y growth of load from FY 2017 to FY 2020. However, the load over last year has reduced significantly, Accordingly the Commission is in opinion to project the load at rate of 2% as submitted by the Petitioner.

HT-2 (State & Central Govt. Establishments)

Petitioner's Submission

The HT-2 category of consumers is expected to grow at a rate of 3.00%. The consumption in this category is expected to grow with the infrastructure development such as water works and sewage treatment plants. A reasonable growth rate of 3.58% (5-year CAGR) in sales has been considered for this category of consumer for the MYT Control Period. The load growth projections are considered at growth rate of 1.00%.

Commission's analysis

The Commission observed that there is significant decline in growth of HT-2 Category consumer over last three year. The Petitioner is expecting consumer growth of 3%, which are around the 6-year CAGR growth. Accordingly, the Commission has considered the growth of 3% as per the Petitioner submission.

For projection of energy sales, a reasonable growth rate of 3.58% (5-year CAGR) in sales is considered for this category of consumer. However, in case of connected load, the Commission observed that the connected load of HT-2 category is growing at average rate of ~10% over last FY (i.e. from FY 2015 to FY 2020). In FY 2021 the connected load of the category has dropped significantly to -37% w.r.t FY 2020. So, the Commission has decided to consider the nominal growth rate of 1%.

HT -3 (Industrial Extra High Tension)

Petitioner's Submission

Based on the historical trends, the Petitioner has considered CAGR of 2.71% (6-year CAGR) in no. of consumer to be added to the system during the Control Period, however a nominal growth in consumption has been considered at the growth rate of 2.00%. The load growth projections are considered at growth rate of 10.00%.

Commission's analysis

As only one consumer is added to the category during the last 3 years, the Commission has not considered any increase in no. of consumers. With respect to the growth in connected load, the Commission has considered the load growth of 10% as submitted by the Petitioner. The Commission observed that the sales of HT-3 Category has reduced significantly over last two FY. Accordingly, the Commission has considered only 2% growth in consumption.

3.2.3. Projections of Number of Consumers approved by the Commission

The summary of the projections of number of consumers approved by the Commission for the upcoming Control Period based on CAGRs approved is given below:

Table 17: Number of consumers projected by the Commission for business plan of 3rd Control Period

S. No.	Particulars	Growth % considered	No. of Consumers Projections		
			FY 2022-23	FY 2023-24	FY 2024-25
1	Domestic	3.00%	380,469	391,883	403,639
2	OHOB /Life Line Services	0.00%	8,248	8,248	8,248
3	Commercial	1.85%	58,143	59,219	60,315
4	Agriculture	0.40%	7,081	7,109	7,137
5	Public Lighting	0.45%	51,612	51,844	52,077
6	LT Industrial	0.50%	3,620	3,638	3,656
7	Water Tank	0.50%	810	814	818
8	HT I	1.00%	465	470	475
9	HT II	3.00%	67	69	71
10	HT III	0.00%	8	8	8
	Total		510,523	523,302	536,444

3.2.4. Projections of Connected Load approved by the Commission

The summary of the projections of connected load approved by the Commission for the upcoming Control Period based on CAGRs approved is given in the following table:

Table 18: Connected load projected by the Commission for business plan of 3rd Control Period (kW)

S. No.	Particulars	Growth % considered	Connected Load (kW) Projections		
			FY 2022-23	FY 2023-24	FY 2024-25
1	Domestic	4.60%	663,841	694,377	726,319
2	OHOB /Life Line Services	0.00%	2,843	2,843	2,843
3	Commercial	3.00%	154,892	159,539	164,325
4	Agriculture	0.50%	60,602	60,905	61,209
5	Public Lighting	0.97%	6,419	6,481	6,544
6	LT Industrial+ Water Tank	1.80%	136,673	139,133	141,637
7	HT I	2.00%	238,424	243,192	248,056
8	HT II	1.00%	23,646	23,883	24,121
9	HT III	10.00%	44,399	48,839	53,723
	Total		1,331,738	1,379,192	1,428,778

3.2.5. Projections of Sales approved by the Commission

The summary of the projections of sales approved by the Commission for the upcoming Control Period based on CAGRs approved is given in the following table:

Table 19: Energy Sales projected by the Commission for business plan of 3rd Control Period (MUs)

S. No.	Particulars	Growth % considered	Sales Projections (MU)		
			FY 2022-23	FY 2023-24	FY 2024-25
1	Domestic	2.50%	826.89	847.56	868.75
2	OHOB /Life Line Services	0.00%	3.50	3.50	3.50
3	Commercial	2.50%	210.00	215.25	220.63
4	Agriculture	0.50%	61.75	62.06	62.37
5	Public Lighting	0.00%	19.00	19.00	19.00
6	LT Industrial	2.00%	126.59	129.12	131.71
7	Water Tank	2.00%	41.09	41.91	42.75
8	HT I	1.27%	1,018.36	1,031.29	1,044.39
9	HT II	3.58%	76.75	79.50	82.35
10	HT III	2.00%	437.37	446.11	455.04
11	Temporary Supply	2.00%	5.06	5.16	5.26
	Total		2,826.36	2,880.47	2,935.74

3.3. Intra-State Transmission and Distribution (T&D) loss

Petitioner's Submission:

The Petitioner had submitted the actual T&D Losses from FY 2018-19 to FY 2020-21 in its Business Plan Petition.

Table 20: Actual T&D Losses (%)

FY 2018-19	FY 2019-20	FY 2020-21
13.00%	12.75%	12.00%

Efforts are being taken to reduce these losses further and implementation of Revamped Distribution schemes is anticipated to reduce the losses. Accordingly, the T&D loss reduction trajectory proposed by PED for the 3rd Control Period is mentioned below.

Table 21: T&D Losses (%) Trajectory for the Control Period

Particular	Base Year	Projections		
	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Distribution loss (%)	11.50%	11.00%	10.75%	10.50%

Commission's analysis:

The T&D losses approved by the Commission for the existing Control Period (FY 2019-20 to FY 2021-22) vis-à-vis T&D losses achieved by the Petitioner during the same period is given in the following table:

Table 22: T&D Losses (%) approved vis-à-vis Actual/Estimated

Particular	Approved	Actual/ Estimate (E)
FY 2019-20	12.50%	12.75%
FY 2020-21	11.75%	12.00%
FY 2021-22	11.00%	11.50% (E)

It is being noticed that the Petitioner was not able to achieve the normative T&D losses approved in the previous Control Period. The estimated T&D losses by the Petitioner for FY 2021-22 are 11.5% which are higher than approved T&D losses of 11.00%. Therefore, the Commission finds it prudent to continue with the allowed 11.00% T&D losses of FY 2021-22 in FY 2022-23. In respect of the T&D loss trajectory proposed by the Petitioner for the upcoming 3rd Control Period, the Commission finds that the proposed T&D losses trajectory is commensurate with the capital expenditure plan and capitalisation plan proposed by the Petitioner. Accordingly, the Commission has approved the Petitioner's submission of T&D loss trajectory for the subsequent years. The T&D loss trajectory approved by the Commission for the 3rd MYT Control Period is given below:

Table 23: T&D Loss Reduction (%) Trajectory approved by the Commission for 3rd Control Period

Particular	Projections		
	FY 2022-23	FY 2023-24	FY 2024-25
T&D loss (%)	11.00%	10.75%	10.50%

3.4. Inter-State transmission loss

Petitioner's Submission

The Petitioner had submitted Inter-State Transmission Losses of 2.50% for each year of the 3rd MYT Control Period in its Business Plan Petition.

Commission's analysis

The Commission observed that the inter-state loss proposed by the Petitioner is same as considered by the Petitioner in APR of FY 2021-22. Accordingly, the Commission has considered the provisional Inter-State Transmission Loss of 2.50% for the FY 2021-22 for each year of the Control Period. The same shall be revised based on actuals during the True-up exercise of the respective years.

The following table provides the Inter-State Transmission Losses approved by the Commission for the 3rd MYT Control Period.

Table 24: Inter-state losses approved by the Commission for 3rd Control Period

Consumer Category	FY 2022-23	FY 2023-24	FY 2024-25
Inter-state Transmission losses	2.50%	2.50%	2.50%

3.5. Energy Balance

Petitioner's Submission

The Petitioner has submitted the energy balance as shown in the following table:

Table 25: Energy Balance submitted by the Petitioner (MU)

S. No.	Particulars	FY 2022-23	FY 2023-24	FY 2024-25
A	ENERGY REQUIREMENT			
1	Sales within UT (MU)	2824.25	2878.90	2934.13
4	T&D Loss(%)	11.00%	10.75%	10.50%
5	Loss(MU)	349.06	346.76	344.23
7	Energy requirement at periphery(MU)	3,173.31	3,225.66	3,278.36
B	ENERGY AVAILABILITY			
1	Gross Energy Purchase	3238.46	3281.81	3335.86
2	PGCIL Loss (%)	2.50%	2.50%	2.50%
3	External Loss (MU)	65.14	56.16	57.51
4	Net Energy Availability	3,173.31	3,225.66	3,278.36

Commission's analysis

Based on the Energy sales, Power Procurement and Inter & Intra-State Losses as approved above the Energy Balance for the Control Period has been shown in following table:

Table 26: Energy Balance approved by Commission (MU)

S. no.	Item	FY 2022-23	FY 2023-24	FY 2024-25
1	Sales Within Territory	2,826.36	2,880.47	2,935.74
2	Sales to TANGEDCO	-	-	-
3	Sale to Open access consumer	-	-	-
4	Sales to Traders/Exchanges	-	-	-
5	Total Sales	2,826.36	2,880.47	2,935.74
6	Distribution losses (%)	11.00%	10.75%	10.50%
7	Energy Requirement @ State periphery (MU)	3,175.68	3,227.42	3,280.16
8	Transmission loss	81.43	82.75	84.11
9	Transmission loss %	2.50%	2.50%	2.50%
10	Energy required at the Ex-bus	3,257.11	3,310.17	3,364.26

3.6. Power Procurement Plan

3.6.1. Energy Availability

Petitioner's Submission

The Petitioner submitted that power requirement for the 3rd MYT Control Period would be met from the following sources:

- Central Generating Stations
- PPCL
- Renewable Energy Tie-ups

The Petitioner has made the following assumptions for projecting the quantum of power purchase for the upcoming Control Period:

Share Allocation:

The Petitioner has considered the firm allocation and allocation from the unallocated quota from the above stations as per the notification of the Southern Region Power Committee vide SRPC Order No: No. SRPC/SE(O)/54/UA/2021-22/ dated 28.06.2021. has been considered for calculation of revised projections of base year FY 2021-22. The same has been considered for the entire Control Period without any variations.

Power Purchase from New Stations:

The Petitioner has envisaged supply from 150 MW of solar power and 240 MW from wind power sources. PED submitted that it has executed a Power Sale Agreement (PSA) on 24th October 2019 with SECI for Procurement of 50 MW Solar Power (Tranche II) for 25 years at a fixed tariff for INR 2.44/kWh plus trading margin of Rs. 0.07/kWh for fulfilment of Solar RPO. Accordingly, PED had filed a petition before the Commission for approval of purchase of solar Power capacity of 50 MW and adoption of tariff. The Commission vide its order dated 09th September 2021 has accorded its approval for adoption of said PSA.

PED has submitted that it has executed a Power Sale Agreement (PSA) on 05th February 2019 with SECI for Procurement of 100 MW Wind Power (Tranche V) for 25 years at a fixed tariff for INR 2.77/kWh plus trading margin of INR 0.07/kWh for fulfilment of Non-Solar RPO. Accordingly, PED had filed a petition before the Commission for approval of purchase of wind Power capacity of 100 MW and adoption of tariff. The Commission vide its order dated 09th September 2021 has accorded its approval for adoption of said PSA.

PED has submitted that it has executed a Power Sale Agreement (PSA) on 21st May 2019 with SECI for Procurement of 140.64 MW Wind Power (Tranche VIII) for 25 years at a fixed tariff for INR 2.84/kWh plus trading margin of INR 0.07/kWh for fulfilment of Non-Solar RPO. Accordingly, PED had filed a petition before the Commission for approval of purchase of wind Power capacity of 140.64 MW and adoption of tariff. The Commission vide its order dated 09th September 2021 has accorded its approval for adoption of said PSA.

Further, PED has also executed a Power Sale Agreement (PSA) with NTPC for Procurement of 100 MW Solar Power for 25 years at a fixed tariff for INR 2.67/kWh for fulfilment of Non-Solar RPO.

Sr.	Renewable Power Projects	Capacity (MW)	Estimated date of Power Supply
1	SECI Solar (Tranche II)	50	Oct 2022
2	NTPC Solar	100	Oct 2022
3	SECI Wind Power (Tranche V)	100	Oct 2022
4	SECI Wind Power (Tranche VIII)	140.64	Oct 2022

Plant Load Factor:

The Petitioner has submitted that since the present scenario for the conventional power stations is very volatile and competitive, hence, the past data cannot be relied upon for the correct picture. Accordingly, the Petitioner has considered the present PLF for FY 2021-22 (H1) as per the notification of the Southern Region Power Committee vide SRPC Order No: No. SRPC/SE-1/4(REA)/2021/ dated 22.10.2021. The same PLF has been considered for the entire 3rd MYT Control Period.

For PPCL, the normative PLF as approved in the Tariff Order for FY 2021-22 has been considered for the entire Control Period.

Based on above assumptions, the Power purchase quantum submitted by the Petitioner for the 3rd MYT Control Period is as under:

Table 27: Quantum of Power Purchase quantum submitted by the Petitioner for the 3rd MYT Control Period

Sr. No.	Source	Capacity (MW)	Firm allocation to Licensee		PAF (%)	PLF (in %)	Gross Generation (MU)	Aux consumption (%)	Net Generation (MU)	Power Purchase (MUs)			
			%	MW						Base Year Projections	Projections		
										FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
A	Central Sector Power Stations												
I	NTPC	5,600		213.24					29,736.88	1,159.11	1,159.11	1,159.11	1,159.11
	RSTPS Stage I & II	2,100	4.70	98.70	85%	76%	11,916	6.92%	11,091	521.29	521.29	521.29	521.29
	RSTPS Stage -III	500	4.96	24.81	85%	88%	3,269	6.01%	3,073	152.47	152.47	152.47	152.47
	Talcher Stage- II	2,000	3.68	73.63	85%	81%	12,060	6.09%	11,325	416.96	416.96	416.96	416.96
	Simhadri Stage- II	1,000	1.61	16.10	85%	61%	4,543	7%	4,247	68.38	68.38	68.38	68.38
II	NLC	2,390		202.35			-		-	1,044.89	1,044.89	1,044.89	1,044.89
	NLC TPS II Stage I	630	12.21	76.93	85%	82%	3,849	10%	3,477	424.57	424.57	424.57	424.57
	NLC TPS II Stage II	840	3.66	30.74	85%	82%	5,106	10%	4,593	168.09	168.09	168.09	168.09
	NLC TPS I (Expn)	420	3.93	16.51	85%	94%	2,948	9%	2,680	105.31	105.31	105.31	105.31
	NLC TPS II (Expn)	500	3.93	19.65	85%	47%	1,752	16%	1,478	58.07	58.07	58.07	58.07
	New NLC TS-I (NNTPS)	1,000	5.85	58.52	85%	72%	5,356	8%	4,936	288.85	288.85	288.85	288.85
III	NPCIL	3,320		117.03			-		-	583.49	583.49	583.49	583.49
	MAPS	440	1.89	8.32	85%	48%	1,574	10%	1,417	26.80	26.80	26.80	26.80
	KAPS Stage I	440	4.59	20.20	85%	95%	3,097	10%	2,788	127.95	127.95	127.95	127.95
	KAPS Stage II	440	4.14	18.21	85%	95%	3,097	10%	2,788	115.36	115.36	115.36	115.36
	Kudankulam U1	1,000	3.68	36.80	85%	67%	4,953	10%	4,458	164.05	164.05	164.05	164.05
	Kudankulam U2	1,000	3.35	33.50	85%	67%	4,953	10%	4,458	149.34	149.34	149.34	149.34
IV	Others	2,500		58.88			-		-	225.16	225.16	225.16	225.16

Sr. No.	Source	Capacity (MW)	Firm allocation to Licensee		PAF (%)	PLF (in %)	Gross Generation (MU)	Aux consumption (%)	Net Generation (MU)	Power Purchase (MUs)				
			%	MW						Base Year Projections	Projections			
										FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	
	TNEB (Pondy)			-			-		-	-	-	-		
	TNEB (Karaikal)			-			-		-	-	-	-		
	KSEB			-			-		-	-	-	-		
	Vallur Thermal Project (NTECL)	1,500	1.83	27.48	85%	57%	6,390	10%	5,781	105.89	105.89	105.89	105.89	
	NTPL (Tuticorin)	1,000	3.14	31.40	85%	55%	4,101	7%	3,798	119.27	119.27	119.27	119.27	
V	UI									-	-	-	-	
	OverDrawl													
	Under Drawl													
VI	Open Market									-	(406.26)	(766.41)	(712.36)	
	IEX Purchase													
	IEX Sale										406.26	766.41	712.36	
	Traders													
VI	Open Access									-	-	-	-	
VII	Renewable Sources	391							-	806	-	402.84	805.68	805.68
	Solar									-	118.26	236.52	236.52	
	SECI Solar Tranche II - 50 MW	50	100	50.00		18%	79		79		39.42	78.84	78.84	
	NTPC Solar	100	100	100.00		18%	158		158		78.84	157.68	157.68	
	Non-Solar									-	284.58	569.16	569.16	

Sr. No.	Source	Capacity (MW)	Firm allocation to Licensee		PAF (%)	PLF (in %)	Gross Generation (MU)	Aux consumption (%)	Net Generation (MU)	Power Purchase (MUs)			
			%	MW						Base Year Projections	Projections		
										FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
	<i>SECI Wind Tranche V 100 MW</i>	100	100	100.00		27%	237		237		118.26	236.52	236.52
	<i>SECI Wind Tranche VIII 140.64 MW</i>	140.64	100	140.64		27%	333		333		166.32	332.64	332.64
	Solar REC												
	Non-Solar REC												
B	Within State Generations	33								229.90	229.90	229.90	229.90
I	PPCL	33	100	33	100%	85%	242	5%	230	229.90	229.90	229.90	229.90
C	OTHER CHARGES												
	<i>PGCIL Transmission Charges, Wheeling & Other Charges</i>												
	<i>Power purchase expenses for prior period</i>												
	<i>Sale to TANGEDCO</i>												
	<i>Adjustments Bills / Debit Notes / Credit Notes for prior period</i>												
D	Additional Income												
E	Total	14,233	-	623.99		-			-	3,242.54	3,239.12	3,281.81	3,335.86

Commission's analysis:

The Commission has employed the following approach and assumptions to forecast the quantum of power procurement for the upcoming Control Period:

- Allocation from CGS: The firm allocation and allocation from the unallocated quota from the central generating stations has been considered as per the notification of the Southern Region Power Committee vide SRPC Order No: No. SRPC/SE(O)/54/UA/2021-22/ dated 28.06.2021. The same share of allocation as per the SRPC Order has been assumed for all the years of the Control Period.
- Plant Load Factor (PLF): The Commission considered the historical PLF trends for last 3 year for all Plants.
- Power from New Stations: The Commission has considered power purchase from following new RE station, as submitted by the Petitioner:
 - SECI Solar (Tranche II)- 50 MW (PSA approved by the Commission vide Order dated 09 September 2021).
 - NTPC Solar – 100 MW (Petitioner has submitted petition 59/2021 for approval of PSA by the Commission, same is under process)
 - SECI Wind Power (Tranche V)- 100 MW (PSA approved by the Commission vide Order dated 09 September 2021).
 - SECI Wind Power (Tranche VIII)- 140.64 MW (PSA approved by the Commission vide Order dated 09 September 2021)

Accordingly, the Commission has determined the energy availability for the 3rd MYT Control Period as under:

Table 28: Source wise power availability projected by the Commission for 3rd MYT Control Period (Mus)

Sr. No.	Source	Capacity (MW)	Firm allocation to Licensee		PAF (%)	PLF	Aux consumption (%)	Base Year Projections FY 2021-22	Projections		
			%	MW					FY 2022-23	FY 2023-24	FY 2024-25
A	Central Sector Power Stations										
I	NTPC	5,600		213.24				1,209.53	1,209.53	1,209.53	1,209.53
	RSTPS Stage I & II	2,100	4.70	98.70	85%	67%	6.92%	537.74	537.74	537.74	537.74
	RSTPS Stage -III	500	4.96	24.81	85%	66%	6.01%	135.80	135.80	135.80	135.80
	Talcher Stage- II	2,000	3.68	73.63	85%	75%	6.09%	454.27	454.27	454.27	454.27
	Simhadri Stage- II	1,000	1.61	16.10	85%	62%	6.51%	81.72	81.72	81.72	81.72
II	NLC	2,390		202.35				1,099.04	1,099.04	1,099.04	1,099.04
	NLC TPS II Stage I	630	12.21	76.93	85%	70%	10%	424.88	424.88	424.88	424.88
	NLC TPS II Stage II	840	3.66	30.74	85%	56%	10%	136.64	136.64	136.64	136.64
	NLC TPS I (Expn)	420	3.93	16.51	85%	76%	9%	99.34	99.34	99.34	99.34
	NLC TPS II (Expn)	500	3.93	19.65	85%	41%	10%	64.20	64.20	64.20	64.20
	New NLC TS-I (NNTPS)	1,000	5.85	58.52	85%	79%	8%	373.99	373.99	373.99	373.99
III	NPCIL	3,320		117.03				633.72	633.72	633.72	633.72
	MAPS	440	1.89	8.32	85%	37%	10%	24.42	24.42	24.42	24.42
	KAPS Stage I	440	4.59	20.20	85%	93%	10%	295.73	295.73	295.73	295.73
	KAPS Stage II	440	4.14	18.21	85%	0%	10%				
	Kudankulam U1	1,000	3.68	36.80	85%	54%	10%	313.56	313.56	313.56	313.56
	Kudankulam U2	1,000	3.35	33.50	85%	0%	10%				
IV	Others	2,500		58.88				223.93	223.93	223.93	223.93
	TNEB (Pondy)			-				-	-	-	-

Sr. No.	Source	Capacity (MW)	Firm allocation to Licensee		PAF (%)	PLF	Aux consumption (%)	Base Year Projections FY 2021-22	Projections			
			%	MW					FY 2022-23	FY 2023-24	FY 2024-25	
	TNEB (Karaikal)			-				-	-	-	-	
	KSEB			-				-	-	-	-	
	Vallur Thermal Project (NTECL)	1,500	1.83	27.48	85%	47%	10%	103.09	103.09	103.09	103.09	
	NTPL (Tuticorin)	1,000	3.14	31.40	85%	47%	7%	120.84	120.84	120.84	120.84	
V	UI							-	-	-	-	
	Over Drawl											
	Under Drawl											
VI	Open Market							-	-	-	-	
	IEX Purchase											
	IEX Sale											
	Traders											
VI	Open Access							-	-	-	-	
VII	Renewable Sources	391						-	-	402.84	805.68	805.68
	Solar							-	-	118.26	236.52	236.52
	SECI Solar Tranche II -50 MW	50	100	50.00	18%				39.42	78.84	78.84	
	NTPC Solar	100	100	100.00	18%				78.84	157.68	157.68	
	Non-Solar							-	-	284.58	569.16	569.16
	SECI Wind Tranche V 100 MW	100	100	100.00	27%				118.26	236.52	236.52	
	SECI Wind Tranche VIII 140.64 MW	140.64	100	140.64	27%				166.32	332.64	332.64	

Sr. No.	Source	Capacity (MW)	Firm allocation to Licensee		PAF (%)	PLF	Aux consumption (%)	Base Year Projections	Projections		
			%	MW					FY 2021-22	FY 2022-23	FY 2023-24
B	Within State Generations	33						224.11	224.11	224.11	224.11
I	PPCL	33	100	33	85%	83%	5%	224.11	224.11	224.11	224.11
		14,233	-	623.99				3,390.33	3,793.17	4,196.01	4,196.01

3.6.2. Renewable Purchase Obligation (RPO)

Petitioner's Submission:

The Petitioner has submitted that the Commission has notified the JERC (Procurement of Renewable Energy), (Third Amendment) Regulations, 2016 on 22nd August 2016 and revised the RPO targets up to FY 2021-22. However, the Commission has not defined the RPO targets after FY 2021-22. PED has submitted that the RPO obligations can be met through the purchase of energy from renewable sources only since REC are mere certificate which will not cater the actual load demand. In this process the PED has tied up with SECI for procuring 240 MW of wind power and 50 MW of Solar power for 25 years. Further the PED has also tied up with NTPC for procurement of 100 MW solar power for 25 years. PED has submitted that it is obliged to comply with the Renewable Purchase Obligation.

Commission's analysis:

The Commission has approved the Renewable Purchase Obligation (RPO) for the 3rd Control Period considering the JERC (Procurement of Renewable Energy) Regulations, 2010, amended from time to time.

Table 29: Renewable Purchase Obligation (RPO) approved by the Commission for 3rd Control Period (MUs)

S. No	Particulars	FY 2022-23	FY 2023-24	FY 2024-25
1	Solar Target	9.00%	10.00%	11.00%
2	Non Solar Target	9.35%	9.91%	10.58%
	Total Target	18.35%	19.91%	21.58%
3	Sales Within UT	2,826.36	2,880.47	2,935.74
	RPO Target			
5	Solar	254.37	288.05	322.93
6	Non Solar	264.26	285.45	310.60
	Total RPO Target	518.64	573.50	633.53
	RPO Compliance (Actual Purchase)			
7	Solar	118.26	236.52	236.52
8	Non Solar	284.58	569.16	569.16
	Total RPO Compliance (Actual Purchase)	402.84	805.68	805.68
	RPO Compliance (REC Certificate Purchase)			
9	Solar	-	-	-
10	Non Solar	-	-	-
	Total RPO Compliance (REC Certificate)	-	-	-
	RPO Compliance (REC+ Actual)			
11	Solar	118.26	236.52	236.52
12	Non Solar	284.58	569.16	569.16
	Total RPO Compliance	402.84	805.68	805.68

S. No	Particulars	FY 2022-23	FY 2023-24	FY 2024-25
	Cumulative Requirement till current year			
13	Solar	1,022.25	1,310.30	1,633.23
14	Non Solar	1,537.29	1,822.74	2,133.34
	Total	2,559.54	3,133.04	3,766.57
	Cumulative Compliance till current year			
15	Solar	245.16	481.68	718.20
16	Non Solar	769.34	1,338.50	1,907.66
	Total	1,014.50	1,820.19	2,625.87
	Net Shortfall in RPO Compliance till current year			
17	Solar	777.09	828.61	915.02
18	Non Solar	767.94	484.24	225.68
	Total	1545.03	1312.85	1140.70

3.7. Capital Investment Plan

3.7.1. Capital Expenditure

Petitioner's Submission

Petitioner plans to carry out the capital expenditure during the Control Period for augmentation and expansion of its capacity and to reduce the transmission and distribution loss in the system. The works to be carried out are with an intention to maintain a reliable and efficient system. All the ongoing capital expenditure plans will be closed by December 2021. RDSS scheme would be the only capital expenditure scheme to be carried out in the upcoming years. The following are the proposed capital expenditure to be carried out in the upcoming years of the Control Period.

Table 30: Capital expenditure proposed by the Petitioner for business plan of 3rd Control Period (in INR Cr)

Sr. No.	Particulars	Projections			
		Capital Expenditure			
		FY 2022-23	FY 2023-24	FY 2024-25	Total
A	Transmission Schemes	50.00	90.00	75.00	215.00
B	Distribution Schemes	35.00	70.00	75.00	180.00
	Total	85.00	160.00	150.00	395.00

The following are the proposed capitalisation in the upcoming years of the Control Period.

Table 31: Capitalisation proposed by the Petitioner for business plan of 3rd Control Period

Sr. No.	Particulars	Projections (in INR Cr)
		Capital capitalisation

		FY 2022-23	FY 2023-24	FY 2024-25	Total
A	Transmission Schemes	17.65	75.94	92.50	186.08
B	Distribution Schemes	12.35	59.06	92.50	163.92
	Total	30.00	135.00	185.00	350.00

PED has submitted that Government of India has announced Revamped Distribution Sector Scheme - A Reforms based and Results linked Scheme to ensure commitment for providing 24 X 7 uninterrupted, quality, and reliable and affordable power supply to the consumer. The above scheme supports DISCOMs to undertake reforms and improve performance of Power Sector through a financially sustainable and operationally efficient distribution system.

PED has submitted that the scheme consists of two parts: Part A – Financial support for upgradation of the Distribution Infrastructure and Prepaid Smart metering & System Metering and Part B includes Training and Capacity Building and other Enabling & Supporting Activities.

Under Part A of the scheme, Government of India has directed to replace all the existing consumers in the UT of Puducherry by Smart pre-paid Energy meters through M/sPFC Consulting Limited (PFCCL). It is proposed to provide 4.04 lakh Smart meters under this scheme by implementing the project under TOTEX model. The proposal is under consideration of the Government of Puducherry. On approval, the proposal seeking approval of the scheme to be executed on nomination basis at an estimated cost of INR 282 Cr by M/s PFCCL will be sent to Ministry of Home Affairs, Govt. of India. M/s PFCCL has forwarded the draft RFP and is being examined by the Govt. of Puducherry.

The other reforms in Distribution Infrastructure proposed under the RDSS scheme include energy accounting with 100% feeder and transformer metering, ensure annual tariff fixation and minimizing regulatory asset, Corporatization / Privatization of the Electricity Department, compliance of RPO trajectories. Ensuring AT&C losses at the PAN-India level of 12-15% and reducing ACS-ARR gap to 0 by 2024-25.

In order to strengthen the Distribution System and reduce the line losses, works have been identified to the tune of INR 843 Cr for building up infrastructure at distribution system upto a level of 110 KV. Establishment of new Sub-stations, augmentation of capacities of existing Sub-stations, interconnection EHV lines / Under Ground Cables between Sub-stations, implementation of SCADA system for Sub-stations, Aerial Bunched Cables to avoid theft of energy, Provision of High Voltage Distribution System, Erection of new Energy Efficient Distribution Transformers, replacement of old LT UG cable in Puducherry town and laying of new HT UG cable feeders including provision of SF6 Ring Main Units. Besides, Sectionalizes/ load break switches are also proposed to minimize the outage time of Distribution feeders.

PED has proposed to implement all the above works within a period of next four years, as per the guidelines of the scheme.

Table 32: Transmission Improvement work under RDSS

No.	Description
	NEW SUB-STATIONS
1	New 110/22 kV Gas Insulated Substation at Lawspet with 2*25 MVA Capacity power transformer including prop. Linking of EHC cable to the existing cable
2	New 110/22 kV AIR insulated substation at Thavalukuppam with 2*25 MVA capacity

No.	Description
3	New 110/22 kV AIR insulated substation at Mannadipet with 2*16 MVA capacity
4	New 110/22 kV AIR insulated substation at Kottucherry with 2*16 MVA capacity
5	4 nos. of New 33/11 kV substation with 2*5 MVA capacity in each SS at Karaikal
	INTER-CONNECTION OF SUB-STATIONS
6	110 kV cable laying from Marapalam SS to proposed Thavalakuppam 110/22kV sub-station including 1 no. line bay at Marapalam 110/22-11 Kv SS
7	110 kV Bay extension at existing Korkadu 110/22 kV SS and 110 kV cable laying from Korkadu SS to proposed Thavalakuppam 110/22kV sub-station
8	Erection of 110 kV DC line on DC towers between Mannadipet – Thirubhuvanai SS
9	110 kV Bay extension at existing Sorakudy 110/11 kV SS and 110 kV cable laying from Sorakudy SS to proposed Kottucherry 110/11kV sub-station
10	110 kV Bay extension at existing Pillaitheruvasal 110/11 kV SS and 110 kV cable laying from Pillaitheruvasal SS to proposed Kottucherry 110/11kV sub-station
	R&M AND AUGMENTATION OF SUB-STATIONS
11	R&M of 110 kV Bay equipment at Bahoor 110/22 kV sub-station & Augmentation of capacity with replacement of extg. 2x16 into 25 MVA Power transformer & erection of 1no. released 16 MVA power transformer in the extg. plinth
12	Augmentation of capacity of Sedharapet 110/22 kV SS with 2x25 MVA power transformer
13	R&M of existing structures & augmentation of capacity (2x25 MVA) of 110/22 kV Kalapet SS
14	R&M of structures/ Bay eqpts at Thethampakkam 110/22 kV SS
15	R&M of structures at 22 kV side at Villinur 110/22 kV SS & augmentation of capacity with 1x25 MVAA addl. Power transformer
16	Augmentation of capacity (2x16 into 25 MVA) of existing 110/11 kV Air insulated P.T. Vasal SS including erection of addl. 1 no. 110/33 kV, 25 MVA power transformer along with feeder arrangements
17	Augmentation of capacity of existing 110/22-11 kV, 1x16 MVA Pr. Tr. With 31.5 MVA & erection of additional 1 no. 110/22-11 kV, 31.5 MVA Pr. Tr. Including bay eqpts. At 110/22-11 kV Marapalam SS
18	Augmentation of capacity (2x25 MVA) & renovation & modernization of existing 110/11 kV air insulated Sorakudy SS including erection of addl. 1 no. 110/33 kV, 25 MVA power transformer along with feeder arrangements
19	Renovation & modernization of existing Pallur 110/11 kV SS with replacement of Bay/SS equipments including 2x10 MVA power transformer
20	Renovation & modernisation of Mettacur 110/11 kV SS at Yanam
	OTHER WORKS
21	Providing of Numerical Relays & SCADA Automation at existing EHV substations in all regions
22	Providing of new 22 kV, 2.4MVAR capacitor banks at six existing SS in Puducherry
23	Providing of new 11kV, 2.4 MVAR capacitor banks at various SS in Karaikal, Mahe&Yanam

Table 33: Distribution Improvements works under RDSS

No	Description	Quantity
1	Erection of new 22 kV HT overhead feeders	120
2	Laying of new HT UG cable feeder with 11 kV, 3x400 sq. mm XLPE cable	160
3	Replacement of existing LT UG cable in entire Puducherry town	1
4	Conversion of LT OH distribution system into LT UG cable in Puducherry Town area	1
5	Conversion of LT OH distribution system into UG cable in Karaikal Town area	1
6	Conversion of LT OH distribution system into UG cable in Yanam	1
7	Conversion of LT OH distribution system into UG cable in Mahe	1
8	Provision pf aerial bunched cables for replacement of Overhead HT/LT lines	100
9	Provision of single pole mounted three ph. 63 kVA DT under HVDS system	25
10	Erection of 22/0.433 kV, 200KVA energy efficient distribution transformer with HT & LT works	240
11	Erection of 22/0.433 kV, 315KVA energy efficient distribution transformer with HT & LT works	135
12	Erection of 11/0.433 kV, 315KVA energy efficient distribution transformer with HT & LT works	60
13	Erection of 11/0.433 kV, 200KVA energy efficient distribution transformer with HT & LT works	110
14	Automatic power factor controller for distribution transformers	
A	54 KVAR	200
b	90 KVAR	175
15	Establishment of SCADA/DMS for Karaikal region	1
16	Erection of 3 panel SF6 RMU suitable for SCADA system	350
17	Provision of sectionalizer/ Load break switch in 22/11 kV OH feeders	170
18	Provision of Auto Reclosure for 22/11 kV OH feeders	85

The Petitioner in data-gap submitted that the estimated cost for RDSS scheme was originally proposed for INR 800 Cr, which has been revised to INR 333 Cr. Component- wise revised estimated cost as submitted by the Petitioner is shown in table below:

Table 34: Revised estimated cost submitted by the Petitioner for RDSS -scheme (in INR Crore)

S no.	Scheme Name	Projected Capital Expenditure				
		FY 2022-23	FY 2023-24	FY 2024-25	Total (3rd MYT)	Beyond FY 2024-25
A	System Modernisation Work					
1	R&M of 110kv & 22kv bay equipment including structures at bahour 110/22kv sub-station and augmentation of capacity of 2 No. of power transformers from 16mva to 25mva and erection of 1no of released 16mva power transformer after reconditioning at nearby already constructed plinth at bahour 110/22kv ss , Puducherry.	0	5.04	5.04	10.09	10.09

S no.	Scheme Name	Projected Capital Expenditure				
		FY 2022-23	FY 2023-24	FY 2024-25	Total (3rd MYT)	Beyond FY 2024-25
2	R&M of structures/bay equipment and erection of one additional 110/22kv25mva pr. Tr. With bay extension and allied equipment & works at the thampakkam 110/22kv ss , Puducherry	0	4.38	4.38	8.75	8.75
3	R&M of 110kv & 22kv bay equipment including structures and augmentation of capacity of 2 Nos. of power transformers from 16mva to 25mva at sedarapet 110/22kv sub-station , Puducherry	0	0.00	8.56	8.56	8.56
4	R&M of 110kv & 11kv bay equipment including structures and augmentation of capacity of 2 Nos of power transformers from 16mva to 25mva at sorakudy 110/11kv ss, karaikal	0	4.24	4.24	8.49	8.49
5	R&M of 110kv & 11kv bay equipment including structures and augmentation of capacity of 2 Nos of power transformers from 16mva to 25mva at pillaiteruvasal 110/11kv ss, karaikal.			8.20	8.20	8.20
6	R&M of 110kv & 11kv bay equipment including structures and replacement of 2 nos of 10mva power transformers at mettacur 110/11kv ss, yanam .			7.99	7.99	7.99
7	R&M of existing pallur 110/11kv ss with replacement of bays/ss equipment including 2x10mva, power transformer in mahe.		4.42	4.42	8.84	8.84
8	Establishment of SCADA for Puducherry, KARAIKAL , Mahe & Yanam Regions		16.22	16.22	32.43	0.00
	Total Modernisation capital Work proposed (A)	0.00	34.29	59.04	93.33	60.90
B.	Loss Reduction Program					
1	Segregation of Agriculture Feeders	1.70	3.24	4.32	9.25	0.00
2	Additional feeders for bifurcation of load	0.00	2.50	3.40	5.90	0.00
	Replacement /strengthening of old/frayed conductors in HT/LT lines					
3	Replacement of Old Frayed Conductor in HT Line	2.64	4.62	6.77	14.04	0.00
4	Replacement of Old Frayed Conductor in LT Line	0.92	1.84	1.92	4.68	0.00
	Conversion of OH Lines into UG Cables					
5	Conversion of Over Head HT line into UG Cable	0	24.37	31.20	55.57	0.00
6	Conversion of Over Head LT line into UG Cable	0	4.11	5.61	9.72	0.00
	Replacement of Bare conductor with HT/LT ABC cables					
7	Replacement of Existing Bare conductor with HT ABC conductor	0.48	0.84	1.42	2.74	0.00
8	Replacement of Existing Bare conductor with LT ABC conductor	2.35	2.94	4.92	10.22	0.00
9	New//Additional 11 KV 3 x 400 Sq mm XLPE HT UG Cable	0.00	8.42	4.08	12.50	0.00
10	Provision of 63 KVA 11/0.433 KV distribution Transformer	0.81	1.35	1.08	3.24	0.00

S no.	Scheme Name	Projected Capital Expenditure				
		FY 2022-23	FY 2023-24	FY 2024-25	Total (3rd MYT)	Beyond FY 2024-25
11	Replacement of existing old non- star rated 22&11KV, 433V, 200 & 315 KVA DTRs into Energy Efficient DTRs	3.46	2.96	1.88	8.30	0.00
12	Provision of New 22& 11KV, 433 V, Energy Efficient DTRs (New DTRs to overcome overloaded DTs)	1.227	4.91	6.14	12.27	0.00
	Capacitor bank in Substation					
15	Replacement of Defective 22 KV 4.8 MVar Capacitor Bank in Sub Station	0	1.92	2.56	4.48	0.00
16	Replacement of Defective 11 KV 2.4 MVar Capacitor Bank in Sub Station	0	0.80	1.59	2.39	0.00
17	IT Billing Module			24.23	24.23	0.00
	Total Loss reduction capital proposed (B)	13.59	64.82	101.12	179.53	0.00
	Total Capital Expenditure (A)+(B)	13.59	99.11	160.16	272.86	333.76

Further, the Petitioner in its data gap submission has stated that the list of work is proposed under Modernisation and Loss Reduction Program, preparation of DPR is yet to be prepared by PMA namely PFCCL. Since, the project is yet to be approved, at this juncture it is difficult to project the year-wise capitalisation. Thus, the Petitioner has not submitted projected capitalisation, based on the revised estimate cost submitted in Table above.

Commission's analysis

With regards to Capital Investment Plan, Regulation 8.5 of the JERC MYT Regulations, 2021 specifies as follows:

"8.5 Capital Investment Plan

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

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

c) During the Annual Performance Review, the Commission shall monitor the progress of the actual capital expenditure incurred by the Licensee vis-à-vis the approved capital expenditure. The Licensees shall submit the actual capital expenditure incurred along with the annual performance review, true-up and determination of tariff filing;

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

Provided if the actual capital cost incurred on year to year basis is lesser than the capital cost approved for determination of tariff by the Commission on the basis of the projected capital cost as on the date of commercial operation or on the basis of the projected additional capital cost, by twenty (20) percent or more, the excess tariff/revenue realized corresponding to excess capital cost as approved by the Commission, along with interest

at 1.10 times of the Carrying Cost, as prevalent on the first day of April of the respective financial year, shall be adjusted from the annual revenue requirement of the respective year at the time of true-up.

Provided if the actual capital cost incurred on year to year basis is higher than the capital cost approved for determination of tariff by the Commission on the basis of the projected capital cost as on the date of commercial operation or on the basis of the projected additional capital cost, by twenty (20) percent or more, the shortfall in tariff/revenue realized corresponding to excess capital cost as incurred by the licensee vis-à-vis approved by the Commission, along with interest at 0.9 times of the Carrying Cost, as prevalent on the first day of April of the respective financial year, shall be allowed in the annual revenue requirement of the respective year at the time of true-up.

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

Provided that in case capital expenditure is required for emergency work or unforeseen situation to mitigate threat to life and property and if prior intimation thereof to the Commission shall cause any irreparable loss or injury, the Licensee may undertake that capital expenditure and submit the details along with adequate justification for post facto approval of the Commission:

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

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

The Petitioner has submitted the following capital expenditure and capitalisation plan in its Business Plan petition for the Control Period.

Table 35: Capital expenditure proposed by the Petitioner for Business Plan of 3rd Control Period (in INR Cr)

Sr. No.	Particulars	Projections			
		Capital Expenditure			
		FY 2022-23	FY 2023-24	FY 2024-25	Total
A	Transmission Schemes	50.00	90.00	75.00	215.00
B	Distribution Schemes	35.00	70.00	75.00	180.00
	Total	85.00	160.00	150.00	395.00

The following are the proposed capitalisation in the upcoming years of the Control Period.

Table 36: Capitalisation proposed by the Petitioner for business plan of 3rd Control Period

Sr. No.	Particulars	Projections (in INR Cr)			
		Capital capitalisation			
		FY 2022-23	FY 2023-24	FY 2024-25	Total
A	Transmission Schemes	17.65	75.94	92.50	186.08
B	Distribution Schemes	12.35	59.06	92.50	163.92
	Total	30.00	135.00	185.00	350.00

Further, the Petitioner in data-gap submitted that the estimated cost for RDSS scheme was originally proposed for INR 800 Cr, which has been revised to INR 333 Cr. Component- wise revised estimated cost as submitted by the Petitioner is shown in table below:

Table 37: Revised estimated cost submitted by the Petitioner for RDSS -scheme (in INR Crore)

S no.	Scheme Name	Projected Capital Expenditure				
		FY 2022-23	FY 2023-24	FY 2024-25	Total (3rd MYT)	Beyond FY 2024-25
A	System Modernisation Work					
	Total Modernisation capital Work proposed (A)	0.00	34.29	59.04	93.33	60.90
B.	Loss Reduction Program					
	Total Loss reduction capital proposed (B)	13.59	64.82	101.12	179.53	0.00
	Total Capital Expenditure (A)+(B)	13.59	99.11	160.16	272.86	333.76

The Commission approves the revised Capital Expenditure of INR 272.86 Cr for the 3rd Control Period as per revised submission of the Petitioner.

Further, the Petitioner in its data gap submission has also stated that the list of work is proposed under Modernisation and Loss Reduction Program, preparation of DPR is yet to be prepared by PMA namely PFCCCL. Since, the project is yet to be approved, at this juncture it is difficult to project the year-wise capitalisation. Thus, the Petitioner has not submitted projected capitalisation, based on the revised estimate cost submitted in Table above.

Due to non-availability of the capitalisation figure, the Commission has considered the revised capitalisation on pro-rata basis to original capitalisation submitted for the 3rd Control Period. The Capital expenditure and capitalisation allowed for the 3rd MYT Control Period are as under:

Table 38: Capital Expenditure and Capitalisation approved by the Commission for 3rd Control Period (in INR Crore)

Particular	FY 2022-23	FY 2023-24	FY 2024-25	3 rd control Period
System Modernisation Work	0.00	34.29	59.04	93.33
Loss reduction Program	13.59	64.82	101.12	179.53
Total Revised Capital Expenditure approved for FY	13.59	99.11	160.16	272.86
Capitalisation considered for FY	12.04	87.82	141.92	241.77

The Commission approved the total Capitalisation of INR 241.77 Cr for 3rd Control Period.

3.7.2. Capital Expenditure Scheme for Customer Relationship Management

The Commission observed that the Petitioner has not proposed any Capital expenditure towards the implementation of Customer Relations Manager (CRM) system the UT to improve the consumer convenience, improved customer retentions, centralized information management, etc. in light of Electricity (Rights of Consumers) Rules, 2020 issued by the Central Government.

In view of the above, the Commission directs the Petitioner to submit the Detailed Project Report with estimated capital expenditure towards the implementation of CRM system within 90 days of release of this order.

3.7.3. Funding Plan

Petitioner's Submission

The following pattern of the proposed capital expenditure in the upcoming years of the Control Period is shown in Table below:

Table 39: Funding of Capital Expenditure Proposed by the Petitioner for business plan of 3rd Control Period

Sr. No.	Sources of Funds	Component	FY 2022-23	FY 2023-24	FY 2024-25
1	Revamped Distribution sector scheme (RDSS) through M/s. PFC	Debt	23.00	45.00	60.00
A	Total Debt		23.00	45.00	60.00
2	EDP Funding from Budgetary Allocation	Equity	17.00	25.00	30.00
B	Total Equity (2)		17.00	25.00	30.00
C	Grant from Central Govt Schemes (RDSS)	Grant	45.00	90.00	60.00
D	Consumer Contributions		0.00	0.00	0.00
E	Total Capital Expenditure (A+B+C+D)		85.00	160.00	150.00
	Debt		58%	64%	67%
	Equity		43%	36%	33%

Commission's analysis

Para 5.1.2 of MoP guideline for the RDSS, states as follows:

“5.1.2 For the purpose of the grant under the Scheme, the states have been divided into two groups:

(i) All North Eastern States including Sikkim and States/Union Territories of Jammu & Kashmir, Ladakh, Himachal Pradesh, Uttarakhand, Andaman & Nicobar Islands, and Lakshadweep are categorized as Special Category States and will be eligible for grant of 90% the approved cost of Distribution infrastructure works and approved cost of PMA and 22.5% of the approved cost of metering including the operational cost, provided that it is not more than INR 1350 per meter for consumer metering only.

(ii) All other States will be eligible for grant of 60% of the approved cost of Distribution infrastructure works and approved cost of PMA and 15% of the approved cost of the metering works including the operational cost, provided that it is not more than INR 900 per meter for consumer metering only.”

Accordingly, the Commission has considered the Capital structure for 3rd Control Period as shown in Table below:

Table 40: Capital structure approved by the Commission for 3rd Control Period (in INR Crore)

Particular	FY 2022-23	FY 2023-24	FY 2024-25	3 rd control Period
Capitalisation considered for FY	12.04	87.82	141.92	241.77

Particular	FY 2022-23	FY 2023-24	FY 2024-25	3rd control Period
Capitalisation from Grant	7.22	52.69	85.15	145.06
Net Capitalisation	4.82	35.13	56.77	96.71
Capitalisation from Loan (70% of Net Capitalisation)	3.37	24.59	39.74	67.70
Capitalisation from Equity (30% of Net Capitalisation)	1.44	10.54	17.03	29.01

3.8. Reliability Indices

Petitioner's submission

The Petitioner has submitted the details of SAIFI and SAIDI for the upcoming Control Period along with actual values achieved by the Petitioner during FY 2020-21. The details of the reliability indices submitted by the Petitioner are given in the Table below:

Table 41: Reliability Indices submitted by the Petitioner

Particulars	FY 2020-21 Actual	FY 2022-23 Projected	FY 2023-24 Projected	FY 2024-25 Projected
SAIFI	5.315	5.00	4.70	4.00
SAIDI	13.65	12.50	12.00	11.50

Commission's Analysis

The Commission has analysed the details of the reliability indices submitted by the Petitioner. It is observed that Petitioner is already maintaining a healthy record of reliability indices with minimal interruptions and lesser duration of outages in the power supply within the UT. The Commission appreciates the efforts being put in by the Petitioner to further reduce the incidence of outages and achieve the reduction in reliability indices. Accordingly, the Commission approves the reliability indices as projected by the Petitioner for the Control Period. The reliability indices approved by the Commission for each year of the Control Period are given in the Table below:

Table 42: Reliability Indices approved by the Commission

Particulars	FY 2022-23 Approved	FY 2023-24 Approved	FY 2024-25 Approved
SAIFI	5.00	4.70	4.00
SAIDI	12.50	12.00	11.50

3.9. Manpower Plan

Petitioner's Submission

The Petitioner has forecasted the no. of employees on the basis of the retirements and recruitments in the 3rd Control Period.

Table 43: Manpower Plan submitted by the Petitioner for 3rd Control Period (in INR Crore)

Sr. No.	Particulars	Actuals		Projections			
		FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
1	Number of employees as on 1st April	2,064	1,954	1,848	1,772	1,604	1,355
2	Employees on deputation/ foreign service as on 1st April						
3	Total number of employees (1+2)	2,064	1,954	1,848	1,772	1,604	1,355
4	Number of employees retired/ retiring during the year	110	106	76	168	249	338
5	Net transfers [In / (Out)]						
6	Recruitment	-	-	-	-	-	-
7	Number of employees at the end of the year (3-4+5+6)	1,954	1,848	1,772	1,604	1,355	1,017

Commission's analysis

The Commission approves the Manpower plan as submitted by the Petitioner for 3rd Control Period.