Business Plan

Approval of Business Plan for MYT Control Period

from FY 2022-23 to FY 2024-25

Petition No. 67/2021

For

DNH Power Distribution Corporation Ltd.

Administration

31st March 2022

JOINT ELECTRICITY REGULATORY COMMISSION
For the State of Goa and Union Territories,
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List of Abbreviations

Abbreviation	Full Form
AC	Auxiliary Consumption
Act	The Electricity Act, 2003
APR	Annual Performance Review
ARR	Aggregate Revenue Requirement
CAGR	Compound Annual Growth rate
Capex	Capital Expenditure
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CGRF	Consumer Grievance Redressal Forum
CGS	Central Generating Stations
Cr	Crores
CRM	Customer Relationship Management
DSM	Deviation Settlement Mechanism
ED	Electricity Department
EHT	Extra High Tension
ERP	Enterprise Resource Planning
FY	Financial Year
GoI	Government of India
HR	Human Resource
HT	High Tension
IEX	Indian Energy Exchange Limited
IPP	Independent Power Producer
JERC	Joint Electricity Regulatory Commission for the state of Goa and Union Territories
kV	Kilo Volt
kVA	Kilo Volt Ampere
kW	Kilo Watt
LT	Low Tension
MAIFI	Momentary Average Interruption Frequency Index
MU	Million Units
MVA	Mega Volt Ampere
MW	Mega Watt
MYT	Multi Year Tariff
NSPCL	NTPC-Sail Power Corporation Ltd
NTPC	National Thermal Power Corporation Ltd
PAF	Plant Availability Factor
PLF	Plant Load Factor
REC	Renewable Energy Certificate
RPO	Renewable Purchase Obligation
Rs	Rupees
SAIDI	System Average Interruption Duration Index

SAIFI	System Average Interruption Frequency Index
T&D	Transmission & Distribution Loss
TVS	Technical Validation Session
UI	Unscheduled Interchange
UT	Union Territory
Y-o-Y	Year on Year

Before the

Joint Electricity Regulatory Commission

For the State of Goa and Union Territories, Gurugram

QUORUM

Smt. Jyoti Prasad, Member (Law)

Petition No.67/2021

In the matter of

Approval of Business Plan for Multi-Year Control Period from FY 2022-23 to FY 2024-25

And in the matter of

DNH Power Distribution Corporation Limited (DNHPDCL)..... **Petitioner**

ORDER

Dated: 31st March 2022

1. This order is passed in respect of the Petition filed by the DNH Power Distribution Corporation Limited (DNHPDCL) (herein after referred to as "The Petitioner" or "DNHPDCL" or "The Licensee") for approval of its Business Plan for the Multi-Year Control Period of three years commencing from 1st April 2022 to 31st March 2025.

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 16 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 scrutinized the said Petition and generally found it in order. The Commission admitted the Petition on 30th December 2021. The Commission thereafter requestioned 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.

Secretary, JERC
(For Goa and UTs)

5. Due to the COVID-19 pandemic that has 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. In view of the same, suggestions/ comments/ views and objections, were invited from the Stakeholders and Electricity Consumers. Public Hearing through video-conferencing was also held on 2nd February 2022, and all the Stakeholders/ Electricity Consumers present in the Public Hearing were heard.

6. Based on the information/documents submitted by the Petitioner and keeping in view the provisions of the Electricity Act, 2003 and the relevant Regulations framed thereunder, the Commission approves the Business Plan for the Control Period from FY 2022-23 to FY 2024-25, which covers the capital investment plan, sales forecast, power procurement plan, performance targets, 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 Joint Electricity Regulatory Commission (JERC) Formation

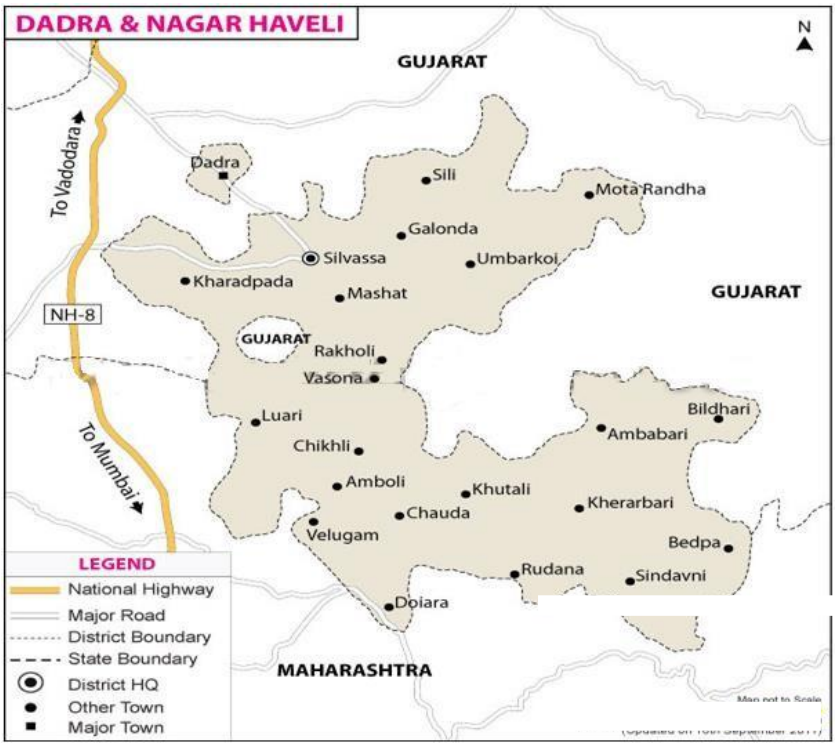
In exercise of powers conferred by the Electricity Act 2003, the Central Government constituted a Joint Electricity Regulatory Commission for all the Union Territories except Delhi to be known as "Joint Electricity Regulatory Commission for the Union Territories" vide notification no. 23/52/2003-R&R dated 2 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 "JERC" or "Commission") vide notification no. 23/52/2003-R&R (Vol. II) dated 30 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 Island, 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 interest of consumers and ensuring supply of electricity to all areas.

1.2 Union Territory of Dadra and Nagar Haveli

The Union Territory of Dadra and Nagar Haveli (hereinafter referred to as "UT") is spread over 491 sq. km, has 72 villages with a population of 3, 42,853 as per Census 2011. The natural attractions of this region have made it a popular tourist destination in the Western region of India. Additionally, due to liberalized policies of Central Government of tax benefits, the State has also developed into a highly industrialized area.

The rapid development of the DNH has led to a tremendous increase in the demand for power. Currently, ~97% of total sales are to HT and LT industrial consumers. The present average demand of this territory is 760 MW to 780 MW. The present peak demand of DNH is 888 MW. DNH has also achieved 100% electrification and provided 100 % metering to all the categories of the consumers. The electronic tri-vector meters have been provided to all the H.T. and E.H.T. consumers of the territory.



1.3 DNH Power Distribution Corporation Ltd.

Dadra & Nagar Haveli Power Distribution Corporation Limited (hereinafter referred to as "DNHPDCL" or "Utility") was created from the erstwhile Electricity Department of Dadra & Nagar Haveli (ED-DNH) and started its operation from 1 April, 2013. It is responsible for ensuring quality and continuous power supply to every resident in the UT of Dadra & Nagar Haveli at the most economical rates.

The key duties being discharged by DNHPDCL are:

- Laying and operating of electric line, sub-station and electrical plant that is primarily maintained for the purpose of distributing electricity in the area of supply of DNHPDCL;
- Arranging, in-coordination with the Generating Company(ies) operating in or outside the UT, for the supply of electricity required within the UT and for the distribution of the same in the most economical and efficient manner;
- Supplying electricity, as soon as practicable to any person requiring such supply, within its competency to do so under the said Act;
- Preparing and carrying out schemes for distribution and generally for promoting the use of electricity within the UT.

DNHPDCL does not have its own generation (other than Solar plant) and procures power from its allocation from Central Generating Stations i.e. NTPC, NSPC, EMCO and other IPPs.

Existing Network

The present distribution system of DNHPDCL consists of 279.9 km of 66 kV D/C lines, 833.7 circuit km of 11 kV lines along with 1102 distribution transformers.

At present, DNH gets power from 400/220 kV Vapi Substation of POWERGRID and 400/220 kV Kala Substation of POWERGRID.

The details of the transmission and distribution system of DNHPDCL are as follows:

Table 1: Transmission & Distribution System of DNHPDCL

Sr. No.	Description	UOM	Length in Circuit (in km)
1	LT Line	Km	1778.50
2	11 kV Line	Km	833.70
3	66 kV Line (Double Circuit)	Km	279.90
4	220 kV Line (Double Circuit)	Km	36.88
5	Distribution Transformers	Nos.	1102

Table 2: Existing 66 kV Sub-Stations

Sr. No.	Sub-Station	Capacity
1	66/11KV Amli Sub-Station	3 x 15 + 2 X 20= 85 MVA
2	66/11KV Masat Sub-Station	3 x 15 + 2 x 20 = 85 MVA
3	66/11KV Rakholi Sub-Station	4 x 20 = 80 MVA
4	66/11 KV Khadoli Sub-Station	2X20 + 10 + 3 x 15 = 95 MVA
5	66/11KV Dadra Sub-Station	5 x 20 = 100 MVA
6	66/11KV Kharadpada Sub-Station	2 x 16 + 15 = 47 MVA
7	66/11 KV Silli Sub-Station	2 x 15 + 1 x 20 = 50 MVA
8	66/11KV Khanvel Sub-Station	2 x15 = 30 MVA
9	66/11KV Athal Sub-station	3 x 20 = 60 MVA

Sr. No.	Sub-Station	Capacity
10	66/11KV Waghdhara Sub-station	1 x 15 + 1 x 20 = 35 MVA
11	66/11KV Piparia Sub-station	2 x 20= 40 MVA
12	66/11KV Velugam Sub-station	1x 15 + 1X20 = 35 MVA
13	66/11KV Kala Sub-station	2x 20 = 40 MVA
14	66/11KV Jhanda Chow GIS Sub-station	2x 20 = 40 MVA
	Total	**822 MVA**

1.4 Electricity Regulatory Process in Dadra and Nagar Haveli

The Commission had issued the first Multi-Year Order for "Approval of Business Plan for MYT Control Period FY 2016-17 to FY 2018-19" on 15 December, 2015 in respect of DNHPDCL.

The Commission had issued the second Multi-Year Order for "Approval of Business Plan for MYT Control Period FY 2019-20 to FY 2021-22" on 05 November, 2018 in respect of DNHPDCL.

1.5 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 on 22 March, 2021. The said Regulations have been hereinafter referred to as the "JERC MYT Regulations". These Regulations are applicable in the third 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 and transmission and distribution licensees in the State of Goa and Union Territories of Andaman & Nicobar Islands, Lakshadweep, Chandigarh, Daman & Diu, Dadra & Nagar Haveli and Puducherry.

1.6 Filing and admission of Petition for Multi-Year Business Plan from FY 2022-23 to FY 2024-25

As per Clause 8.1 of the JERC MYT Regulations, 2021 the Petitioner is required to file Business Plan Petition for the three year Control Period from FY 2022-23 to FY 2024-25 with details for each year of the Control Period for approval of the Commission.

The DNHPDCL submitted the current Petition for approval of 'Business Plan for MYT Control Period FY 2022-23 to FY 2024-25 vide letter no. 1-2(795)/PDCL-AE(Comml)/2021/2305 dated 24 December 2021.

The present Petition was admitted on 30 December, 2021 and was marked as Petition no. 67/2021.

1.7 Interaction with the Petitioner

A preliminary scrutiny/analysis of the Petition was conducted and certain deficiencies were observed. Accordingly, deficiency notes were issued to the Petitioner. Further, additional information/clarifications were solicited from the Petitioner as and when required. The Petitioner submitted its response on the issues through various letters/emails. The following table provides the list of interactions with the Petitioner along with the dates:

Table 3: Interactions with the Petitioner

S. No	Subject	Date
1	Issuance of First Deficiency Note	26 January, 2022
2	Public Hearing	2 February, 2022
3	Issuance of Second Deficiency Note	4 February, 2022
4	Reply received from Petitioner	10 February,2022
5	Technical Validation Session (TVS) with Petitioner at JERC Office	18 February, 2022
6	Reply received from Petitioner	19 February, 2022
7	Reply received from Petitioner	25 February, 2022
8	Reply received from Petitioner	28 February, 2022

S. No	Subject	Date
9	Issuance of Third Deficiency Note	7 March, 2022
10	Reply received from Petitioner	11 March, 2022

The Order has referred at numerous places to various actions taken by the "Commission". It may be mentioned for the sake of clarity that the term "Commission," except for the Hearing and Orders, denotes the Secretariat of the Commission responsible for carrying out technical due diligence and validation of data of the Petitions filed by the Utilities, obtaining and analysing information/clarifications received from the Utilities, and submitting relevant issues for consideration of the Commission.

1.8 Public Hearing Process

The Commission directed the Petitioner to publish the summary of the Business Plan proposal in the abridged form to ensure due public participation. The Public Notices were published by the Petitioner for inviting objections/ suggestions from the stakeholders on the Business Plan Petition as detailed below:

Table 4: Public Notices published by the Petitioner

Sr. No.	Date	Name of Newspaper	Place of circulation
1	19.01.2022	Hindustan Times (English)	Dadra & Nagar Haveli
2	19.01.2022	Nishpaksha Janasansar (Hindi)	Dadra & Nagar Haveli
3	19.01.2022	Vartman Prabha (Gujarati)	Dadra & Nagar Haveli

The Petitioner also uploaded the Petition on its website (http://electricity.and.nic.in) for inviting objections and suggestions on the Petition. Interested parties/stakeholders were requested to file their objections / suggestions on the Petition to the Commission with a copy to the Petitioner on or before February 01, 2022. The Commission has also uploaded the copy of the Petition on its website to facilitate the stakeholders.

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 Virtual Public Hearing to be conducted by the Commission on 02 February, 2022. The details of the public notices published by the Commission is as below:

Table 5: Public Notices published by the Commission

Sr. No.	Date	Name of Newspaper	Place of Circulation
1	07.01.2022/31.01.2022	Indian Express (English)	Dadra & Nagar Haveli
2	07.01.2022/31.01.2022	Nishpaksha Janasansar (Hindi)	Dadra & Nagar Haveli
3	07.01.2022/31.01.2022	Gujarat Samachar (Gujarati)	Dadra & Nagar Haveli
4	07.01.2022/31.01.2022	Navbharat Times (Hindi)	Dadra & Nagar Haveli

The Commission has examined the issues and concerns raised by the stakeholders in writing and/or voiced by them. The major issues raised by the stakeholders, the responses of the Petitioner thereon and the views of the Commission, have been summarized in Chapter 2 of this Order.

2 Chapter 2: Stakeholder Consultation

2.1 Regulatory Process

The Public Hearing was held on 02 February 2022 via video conferencing in respect of the Multi-Year Business Plan Petition for the Control Period from FY 2022-23 to FY 2024-25. During the Public Hearing, stakeholders presented their views in person before the Commission. All the participants from the public, who had not submitted written comments earlier, were also given an equal opportunity to present their views/suggestions in respect of the Petition.

The DNHPDCL has also filed the Multi Year Tariff Petition ("MYT Petition") for the Control Period from FY 2022-23 to FY 2024-25. The combined public hearing was held on the both the Petitions i.e., Business Plan Petition and MYT Petition. The issues raised by the stakeholders related to Business Plan Petition are discussed in this Order and the issues related to Truing up of FY 2020-21, APR of 2021-22 and Multi Year Tariff for FY 2022-23 to FY 2024-25 are dealt in the MYT Order.

2.2 Suggestions/Objections of the Stakeholders, Response of the Petitioner and the Commission's Views

The Commission is appreciative of the efforts of various stakeholders in providing their suggestions/comments/observations to make the Electricity Sector responsive and efficient. The Commission has noted the concerns of all stakeholders and has tried to address them to the extent possible in the subsequent sections and/or through directives. The comments of the Stakeholders', response of the Petitioner and the views of the Commission are summarized issue-wise below:

2.2.1.1 T&D Losses

Stakeholder's Comment:

The actual line loss has increased from 3.47% in FY 2019-20 to 3.62% in FY 2020-21. The Petitioner should submit the detailed justification for the same as approximately 1% of line loss amounts to INR. 33 Cr loss for the Utility and becomes burden to the Consumer. The petitioner has to submit the detailed justification for the same. Further, the petitioner has proposed much higher losses for the Control Period from FY 2022-23 to FY 2024-25. The Commission is requested to approve the trajectory of losses for the Control Period from FY 2022-23 to FY 2024-25 considering the actual loss level of 3.47% achieved in FY 2019-20

Petitioner's Response:

DNHPDCL submitted that actual T&D losses for FY 2020-21 is 3.62% as against 3.47% in FY 2019-20, thereby registering very marginal increase of 0.15%. The detailed justification in the said matter has already provided in the Annual Report of the Corporation for FY 2020-21 under the operational performance.

As regards to the 0.15% increase in T&D losses becomes burden to the consumers, DNHPDCL submitted that the said understanding is not in line with provisions of the applicable regulation / approved tariff order. The approved T&D losses by JERC for FY 2020-21 is 4.20% and as the actual T&D losses is 3.62%. Being the said matter an approved aggregate gain on account of controllable factors shall be shared equally between licensee and consumers as per the JERC MYT Regulation 2018. Hence, the consumers would be ultimately benefitted on the account of the said performance.

As regards to the determination of future year approved losses on the basis of actual losses of previous year, the matter has already been before the commission in previous years also and it was ordered that the same should be determined on achievable, reasonable, and natural basis, which is more scientific basis.

Commission's View:

As regards the actual T&D loses of FY 2020-21, the Commission has dealt with the issue in its Order on Multi Year Tariff Petition of DNHPDCL while approving the truing up for FY 2020-21.

The Commission has taken note of Stakeholder's observations regarding the higher projection of Distribution Losses. In this regard, the Commission has duly scrutinized the loss trajectory proposed by DNHPDCL for 3rd Control Period and based on the actual achievement trend during previous Control Period, the Commission has approved the distribution losses target for the 3rd Control Period.

2.2.1.2 Renewable Energy Purchase from Short-Term Market

Stakeholder's Comments

The petitioner has now the option to fulfil their existing RPO obligations as well as future RPO targets by procuring RE power from short term market through Green-DAM and Green-TAM products available at IEX platform.

Petitioner's Response

DNHPDCL has noted the observations regarding Renewable power from the short-term Market.

Commission's View

The Commission has taken note of the suggestions regarding renewable energy purchase from the short term market and has dealt with this issue while discussing the RPO for the Control Period FY 2022-23 to FY 2024-25 in subsequent section of the Order.

3 Chapter 3: Approval of the various components of the Multi-Year Business Plan Petition for the Control Period from FY 2022-23 to FY 2024-25

3.1 Introduction

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 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 chosen FY 2021-22 as the Base Year. For estimating the sales for FY 2021-22, the Petitioner has considered the actual data for six months from April to September 2021.The Petitioner has used past years CAGR to forecast the number of consumers, connected load and sales for the upcoming Control Period.

Summary of the past data and the CAGR considered by the Petitioner for each category for projecting number of consumers, connected load and sales and historical Year on Year growth and CAGR is as given in the Tables below:

Table 6: Summary of category wise No. of Consumers considered by the Petitioner for projection

Number of Consumers	Actuals					
Consumer Category	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Domestic	40773	42835	45205	47402	52072	54371
LIG/ Kutir Jyoti	13443	14603	14879	15089	17232	17419
Commercial	7306	7586	7809	7980	8061	8163
Agriculture	1211	1263	1313	1366	1286	1319
LT Industry	2038	2063	2064	2077	2191	2254
HT/EHT Industry	889	895	918	930	916	915
Public Lighting	324	350	374	398	411	421
Public Water Works	340	358	398	434	460	464
Temp. Supply	334	347	379	379	334	391

Number of Consumers	Actuals					
Consumer Category	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Total	66,658	70,300	73,339	76,055	82,963	85,717

Table 7: Summary of category wise Connected Load considered by the Petitioner for projections

Connected load (kVA)	Actuals					
Consumer Category	FY 2015- 16	FY 2016- 17	FY 2017- 18	FY 2018-19	FY 2019-20	FY 2020-21
Domestic	93,886.64	96,077.52	1,01,282.64	105192.00	94309.00	106754.00
LIG/ Kutir Jyoti	1,343.30	1,477.10	1,486.25	1585.00	1389.00	1547.00
Commercial	24,488.24	25,751.93	26,690.54	27865.00	21347.00	34238.00
Agriculture	5,479.20	5,590.32	5,778.89	5935.00	6593.00	7411.00
LT Industry	1,09,910.05	1,13,066.56	1,15,920.90	119051.00	134784.00	140224.00
HT/EHT Industry	11,46,822.00	11,43,066.00	11,57,756.00	1177554.00	1185935.00	1167507.00
Public Lighting	2,346.00	2,536.05	2,706.48	2886.00	2046.00	2568.00
Public Water Works	2,257.12	2,443.62	2,885.62	3272.00	4790.00	4860.00
Temp. Supply	2,358.59	2,358.78	2,536.66	2537.00	1690.00	2727.00
Total	**13,88,891.14**	**13,92,367.88**	**14,17,043.98**	**1445877**	**1452883**	**1467836**

Table 8: Summary of category wise Sales considered by the Petitioner for projections

Sales (MU)	Actuals					
Consumer Category	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Domestic	101.52	104.46	116.91	128.60	143.57	149.28
LIG/Kutir Jyoti	0.00	0.00	0.00	0.00	10.45	7.28
Commercial	28.78	30.36	32.72	34.20	36.60	32.65
Agriculture	5.77	6.20	6.50	7.23	5.25	4.85
LT Industry	200.86	211.70	208.24	216.07	219.44	193.09
HT/EHT Industry	4421.50	3384.17	5295.13	5,670.85	5,860.85	4898.91
Public Lighting	7.46	8.27	7.97	5.80	3.06	2.45
Public Water Works	3.56	4.55	5.45	6.24	5.01	5.15
Temp. Supply	2.95	3.20	3.39	3.43	3.75	3.83
Total	**4772.40**	**3752.91**	**5676.30**	**6,072.42**	**6,288.00**	**5,297.50***

** reduction on account of covid lockdown restriction*

The Petitioner's projections of number of consumers, connected load and sales for FY 2021-22 and the upcoming MYT Control Period is as given in the tables below:

Table 9: Petitioner's submission on projection of Number of Consumers for upcoming MYT Control Period

Number of Consumers	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	CAGR
Consumer Category	RE	Projected	Projected	Projected	
Domestic	57593	61005	64620	68448	5.93%

LIG/Kutir Jyoti	17419	17419	17419	17419	5.32%
Commercial	8346	8533	8725	8920	2.24%
Agriculture	1342	1365	1388	1412	1.72%
LT Industry	2300	2347	2394	2443	2.04%
HT/EHT Industry	920	926	931	936	0.58%
Public Lighting	444	467	493	519	5.38%
Public Water Works	488	514	541	569	5.25%
Temp. Supply	391	391	391	391	
Total	**89,243**	**92,967**	**96,632**	**1,01,057**	

Petitioner has submitted the methodology to project the load growth for the different consumer categories where the petitioner has computed the CAGR based on the actual load growth during the past years. To project the load growth in the domestic, commercial, agriculture and HT category a CAGR of 5 years has been used. For the LT industry a CAGR of 3 years has been used. For Public Lightning a CAGR of 4 years has been used. For the public water works category a normalized CAGR of 5% has been used. The CAGR along with the projected load for the control period has been given in the table below:

Table 10: Petitioner's submission on projection of Connected Load for upcoming MYT Control Period

Connected Load (kVA)	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	CAGR
Consumer Category	**RE**	**Projected**	**Projected**	**Projected**	
Domestic	109531.80	112381.88	115306.12	118306.46	2.60%
LIGH	1547.00	1547.00	1547.00	1547.00	2.86%
Commercial	36611.59	39149.72	41863.82	44766.08	6.93%
Agriculture	7872.43	8362.59	8883.26	9436.36	6.23%
LT Industry	149408.70	159195.00	169622.30	180732.60	6.55%
HT/EHT Industry	1171688.56	1171688.56	1171688.56	1171688.56	0.36%
Public Lighting	2576.05	2584.13	2592.23	2600.35	0.31%
Public Water Works	5103.00	5358.15	5626.06	5907.36	5.00%
Temp. Supply	2727.00	2727.00	2727.00	2727.00	
Total	**1487066.12**	**1502994.03**	**1519856.36**	**1537711.76**	

Table 11: Petitioner's submission on projection of Sales for upcoming MYT Control Period

Sales (MU)	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	CAGR
Consumer Category	**RE**	**Projected**	**Projected**	**Projected**	
Domestic	173.53	189.22	206.33	224.99	9.04%
LIGH	7.33	7.85	8.40	8.98	7.00%
Commercial	37.33	39.66	42.14	44.76	6.24%
Agriculture	4.77	4.97	5.17	5.38	**4.04%**

LT Industry	225.33	233.65	242.28	251.23	3.69%
HT/EHT Industry	6128.60	6321.68	6520.85	6726.29	**3.15%**
Public Lighting	2.50	2.62	2.75	2.89	5.00%
Public Water Works	5.04	5.29	5.55	5.83	5.00%
Temp. Supply	4.36	4.40	4.45	4.49	1.00%
Total	**6,588.80**	**6,809.35**	**7,037.92**	**7,274.84**	

Commission's Analysis

The overall approach of the Commission for projecting the number of consumers, connected load and sales for FY 2021-22 and the upcoming 3rd 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, connected load and sales are primarily based 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 growth
  - CAGR (multiple periods)
  - Specific (per-consumer) consumption

- It is observed that the actual sales during FY 2020-21 have substantially reduced as compared to previous years due to lock down on account of COVID-19. Hence, the Commission has computed the historical CAGRs till FY 2019-20 for the category-wise sales.

- For estimating the category-wise sales for FY 2021-22, the Commission obtained the actual sales data for first nine months of April 2021 to December 2021 and has considered the same. For all the consumer categories, the Commission has estimated the proportion of actual energy sales till the month of December over total energy sales during the financial year FY 2019-20. Using this average proportion of sales, the Commission has extrapolated the actual energy sales till the month of December 2021 for the full year to determine the revised estimated energy sales for FY 2021-22.

The historical Year on Year growth and CAGR for number of consumers is as shown in the following Table:

Table 12: Historical Year-on-Year growth and CAGR for Number of Consumers

Number of Consumers	Y-o-Y growth						CAGR			
Consumer Category	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	4.63%	5.06%	5.53%	4.86%	9.85%	4.42%	5.71%	5.93%	6.14%	6.35%
LIG/Kutir Jyoti	-5.48%	8.63%	1.89%	1.41%	14.20%	1.09%	3.44%	5.32%	4.51%	5.39%
Commercial	4.58%	3.83%	2.94%	2.19%	1.02%	1.27%	2.63%	2.24%	1.85%	1.49%
Agriculture	2.71%	4.29%	3.96%	4.04%	-5.86%	2.57%	1.89%	1.72%	1.09%	0.15%

LT Industry	1.85%	1.23%	0.05%	0.63%	5.49%	2.88%	2.00%	2.04%	2.24%	2.98%
HT/EHT Industry	0.23%	0.67%	2.57%	1.31%	-1.51%	-0.11%	0.52%	0.58%	0.55%	-0.11%
Public Lighting	4.52%	8.02%	6.86%	6.42%	3.27%	2.43%	5.23%	5.38%	4.73%	4.02%
Public Water Works	10.75%	5.29%	11.17%	9.05%	5.99%	0.87%	7.13%	6.42%	6.70%	5.25%
Temp. Supply	4.70%	3.89%	9.22%	0.00%	-11.87%	17.07%	3.45%	3.20%	3.03%	1.04%

The historical Year on Year growth and CAGR for Connected Load is as shown in the following Table:

Table 13: Historical Year-on-Year growth and CAGR for Connected Load

Connected Load	Y-o-Y growth						CAGR			
Consumer Category	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	-11.55%	2.33%	5.42%	3.86%	-10.35%	13.20%	0.09%	2.60%	2.67%	1.77%
LIG/Kutir Jyoti	-5.56%	9.98%	0.61%	6.66%	-12.37%	11.38%	1.41%	2.87%	1.16%	1.35%
Commercial	-31.10%	5.16%	3.65%	4.40%	-23.39%	60.39 %	-0.62%	6.93%	7.38%	8.65%
Agriculture	5.02%	2.03%	3.38%	2.70%	11.09%	12.41%	6.03%	6.23%	7.30%	8.64%
LT Industry	3.35%	2.87%	2.52%	2.70%	13.22%	4.04%	4.72%	4.99%	5.53%	6.55%
HT/EHT Industry	1.79%	-0.33%	1.29%	1.71%	0.71%	-1.55%	0.60%	0.36%	0.53%	0.28%
Public Lighting	5.06%	8.10%	6.70%	6.65%	-29.11%	25.51%	2.36%	1.82%	0.31%	-1.73%
Public Water Works	13.99%	8.29%	18.09%	13.37%	46.39%	1.46%	16.14%	16.58%	18.75%	18.97%
Temp. Supply	-35.58%	0.00%	7.55%	0.00%	-33.39%	61.36%	-4.79%	2.94%	3.69%	2.44%

The historical Year on Year growth and CAGR for Sales is as shown in the following Table. The Commission has computed the CAGR for sales till FY 2019-20 as the sales during FY 2020-21 was substantially lower due to impact of lockdown on account of COVID 19:

Table 14: Historical Year-on-Year growth and CAGR for Sales

Sales	Y-o-Y growth						CAGR			
Consumer Category	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	9.16%	2.90%	11.92%	10.00%	19.77%	1.65%	11.31%	10.62%	10.98%	13.82%
Commercial	6.59%	5.49%	7.77%	4.52%	7.02%	-10.79%	3.37%	6.27%	6.19%	6.43%
Agriculture	44.25%	7.45%	4.84%	11.23%	-27.39%	-7.62%	4.64%	5.59%	-2.33%	-5.39%
LT Industry	6.84%	5.40%	-1.63%	3.76%	1.56%	-12.01%	3.65%	3.14%	2.24%	1.20%
HT/EHT Industry	6.29%	3.79%	2.76%	2.81%	3.35%	16.41%	3.89%	3.79%	3.18%	2.97%
Public Lighting	-6.75%	10.86%	-3.63%	-27.23%	-47.24%	-19.93%	-10.62%	-17.49%	-19.97%	-28.21%

Sales	Y-o-Y growth						CAGR			
Consumer Category	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
Public Water Works	18.67%	27.81%	19.78%	14.50%	-19.71%	2.79%		10.80%	8.92%	3.26%
Temp. Supply	-1.67%	8.47%	5.94%	1.18%	9.33%	2.13%	11.05%	4.56%	6.18%	5.43%

3.2.2 Category-wise analysis

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 has considered the CAGR of last 5 years for projecting the number of consumers connected load and sales for domestic category. Accordingly, the Petitioner has used growth rate of 5.93%, 2.60% and 9.04% for projecting number of consumers, connected load and sales, respectively.

Commission's analysis

The Commission notes that the CAGR considered by the Petitioner for projecting the number of consumers and connected load appears to be appropriate considering the trends observed in the past. The Commission observes that the Petitioner has proposed a CAGR of 5.93% in number of consumers, which translates to addition of ~3222 connections in FY 2021-22 and ~3412 connections in FY 2022-23. The Commission has analysed the new connections data for previous years and observed that the new connections in FY 2018-19, FY 2019-20 and FY 2020-21 were 2197, 4670 and 2299 respectively with average of 3055. Hence, the projection of new connections by the Petitioner appears to be in line with past trends and the Commission approves the proposed CAGR in number of consumers.

The Commission has analysed the specific (per consumer) consumption and observes that the same has marginally increased (from 2058 in FY 2018-19 to 2222 in FY 2019-20). As discussed above, the Commission has re-assessed the sales for FY 2021-22 considering the 9 months actual data and accordingly projected the sales for the future years.

The Commission is of opinion that it would be prudent to consider 5-year CAGR of 10.62% from FY 2014-15 to FY 2019-20 for sales growth. Hence, the Commission has considered the growth rate of 10.62% for projecting the sales.

The Commission agrees with the Petitioner's submission for load growth projections and hence, approves the CAGR for last 5 years. The growth rates approved by the Commission are as below:

Table 15: Growth rates approved by the Commission for Domestic category

Consumer Category	Growth in no. of consumers		Load growth		Sales growth	
	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved
Domestic	5.93%	5.93%	2.60%	2.60%	9.04%	10.62%

Commercial

Petitioner's submission

The Petitioner has considered the CAGR of last 5 years for projecting the number of consumers, connected load and sales for commercial category. Accordingly, the Petitioner has used growth rate of 2.24%, 6.93% and 6.24% for number of consumers, connected load and sales, respectively.

Commission's Analysis

The Commission is of the opinion that CAGR considered by the Petitioner for projecting number of consumers and connected load are consistent with the trends observed in the past. Therefore, the Commission has approved the growth rates for number of consumers and connected load as submitted by the Petitioner. As discussed above, the Commission has re-assessed the sales for FY 2021-22 considering the 9 months actual data and accordingly projected the sales for the future years. The Commission is of opinion that it would be prudent to consider 5-year CAGR of 6.27% from FY 2014-15 to FY 2019-20 for sales growth. Hence, the Commission has considered the growth rate of 6.27% for projecting the sales. The difference in the CAGR considered is on account of the variation in the sales figure considered by the petitioner and the sales figure considered by the Commission vide order dated 05 November, 2018 in Business Plan Petition No. 258/18.

The growth rates approved by the Commission are as follows:

Table 16: Growth rates approved by the Commission for Commercial category

Consumer Category	Growth in no. of consumers		Load growth		Sales growth	
	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved
Commercial	2.24%	2.24%	6.93%	6.93%	6.24%	6.27%

Agriculture

Petitioner's submission

The Petitioner has considered the CAGR of last 5 years for projecting the number of consumers, connected load and sales for agriculture category.

Accordingly, the Petitioner has used a growth rate of 1.72%,6.23% and 4.04% for number of consumers, connected load and sales respectively.

Commission's Analysis

The Commission is of the opinion that CAGR considered by the Petitioner for projecting number of consumers and connected load are consistent with the trends observed in the past. Therefore, the Commission has approved the growth rates for number of consumers and connected load as submitted by the Petitioner. As discussed above, the Commission has re-assessed the sales for FY 2021-22 considering the 9 months actual data and accordingly projected the sales for the future years. The Commission is of opinion that it would be prudent to consider 5-year CAGR of 5.59% from FY 2014-15 to FY 2019-20 for sales growth. Hence, the Commission has considered the growth rate of 5.59% for projecting the sales.

The growth rates approved by the Commission are as follows:

Table 17: Growth rates approved by the Commission for agriculture category

Consumer Category	Growth in no. of consumers		Load growth		Sales growth	
	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved
Agriculture	1.72%	1.72%	6.23%	6.23%	4.04%	5.59%

LT Industry

Petitioner's Submission

The Petitioner has considered the CAGR of last 5 years for projecting the number of consumers for LT Industrial category. Further, the Petitioner has based its forecast of connected load on 3-year CAGR from FY 2018-19 to FY 2020-21. However, the petitioner has projected the energy sales for the MYT control period by applying a CAGR of 4.04% on the estimated sales for FY 2021-22. Accordingly, the Petitioner has used a growth rate of 2.04%, 6.55% and 4.04% for number of consumers, connected load and sales respectively.

Commission's Analysis

The Commission is of the opinion that CAGR considered by the Petitioner for projecting number of consumers is consistent with the trends observed in the past. Therefore, the Commission has approved the growth rates for number of consumers as submitted by the Petitioner. The Petitioner has considered the 3 years CAGR for projecting connected load while for number of consumers it has consider CAGR of 5 years. The Commission does not find any reason in adopting CAGR of different periods for projecting number of consumers and connected load. Hence, the Commission has considered 5 years CAGR for projecting connected load also. As discussed above, the Commission has re-assessed the sales for FY 2021-22 considering the 9 months actual data and accordingly projected the sales for the future years. The Commission is of opinion that it would be prudent to consider 5-year CAGR of 3.14% from FY 2014-15 to FY 2019-20 for sales growth. Hence, the Commission has considered the growth rate of 3.14% for projecting the sales.

The growth rates approved by the Commission are as follows:

Table 18: Growth rates approved by the Commission for LT Industry category

Consumer Category	Growth in no. of consumers		Load growth		Sales growth	
	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved	CAGR Submitted	CAGR approved
LT Industry	2.04%	2.04%	6.55%	4.99%	4.04%	3.14%

HT/EHT Industry

Petitioner's submission

The Petitioner has considered the CAGR of last 5 years for projecting the number of consumers and connected load of HT/EHT industrial category. Further, for forecasting sales, the Petitioner has used a normative growth rate. Accordingly, the Petitioner has used a growth rate of 0.58%, 0.36% and 3.15% for number of consumers, connected load and sales respectively.

Commission's Analysis

The Commission is of the opinion that CAGR considered by the Petitioner for projecting number of consumers and connected load are consistent with the trends observed in the past. Therefore, the Commission has approved the growth rates for number of consumers and connected load as submitted by the Petitioner. As discussed above, the Commission has re-assessed the sales for FY 2021-22 considering the 9 months actual data and accordingly projected the sales for the future years. The Commission is of opinion that it would be prudent to consider 5-year CAGR of 3.79% from FY 2014-15 to FY 2019-20 for sales growth. Hence, the Commission has considered the growth rate of 3.79% for projecting the sales.

The growth rates approved by the Commission are as follows:

Table 19: Growth rates approved by the Commission for HT/EHT Industry category

Consumer Category	Growth in no. of consumers		Load growth		Sales growth	
	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved
HT/EHT Industry	0.58%	0.58%	0.36%	0.36%	3.15%	3.79%

Public Lighting

Petitioner's submission

The Petitioner has considered the CAGR of last 5 years for projecting the number of consumers for Public Lighting category. Further, the Petitioner has based its forecast of connected load on 4 years CAGR. However, the petitioner has projected the energy sales for the MYT control period by applying a normative growth of 5% on the estimated sales for FY 2021-22. Accordingly, the Petitioner has used a growth rate of 5.38%, 0.31% and 5% for number of consumers, connected load and sales respectively.

Commission's Analysis

The Commission is of the opinion that CAGR considered by the Petitioner for projecting number of consumers is consistent with the trends observed in the past. Therefore, the Commission has approved the growth rates for number of consumers as submitted by the Petitioner. The Petitioner has considered the 4 years CAGR for projecting connected load while for number of consumers it has consider CAGR of 5 years. The Commission does not find any reason in adopting CAGR of different periods for projecting number of consumers and connected load. Hence, the Commission has considered 5 years CAGR for projecting connected load also. As discussed above, the Commission has re-assessed the sales for FY 2021-22 considering the 9 months actual data and accordingly projected the sales for the future years. As the CAGR of sales for the previous year's works out to be negative, the Commission has considered the normative growth of 5% for projecting sales as proposed by the Petitioner.

The growth rates approved by the Commission are as follows:

Table 20: Growth rates approved by the Commission for public lighting category

Consumer Category	Growth in no. of consumers		Load growth		Sales growth	
	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved
Public Lighting	5.38%	5.38%	0.31%	1.82%	5.00%	5.00%

Public Water Works

Petitioner's submission

The Petitioner has considered the CAGR of last 3 years for projecting the number of consumers. However, for forecasting connected load and sales, the Petitioner has used a normative growth rate of 5%. Accordingly, the Petitioner has used a growth rate of 5.25%, 5.00% and 5.00% for number of consumers, connected load and sales respectively.

Commission's Analysis

The Commission observed that the 6 years CAGR, 5 years CAGR and 4 years CAGR for number of consumers work out to be 7.13%, 6.42% and 6.70%. Considering the past trends, the Commission has considered 5 years CAGR for projecting the number of consumers. For connected load, the 6 years CAGR, 5 years CAGR and 4 years CAGR works out to be around 16-18%. Considering the abnormal increase in connected load in previous years, the Commission has considered a normative growth rate of 5% for considered by the Petitioner for projecting connected load. As discussed above, the Commission has re-assessed the sales for FY 2021-22 considering the 9 months actual data which shows on increasing trend and accordingly projected the sales for the future years. The Commission has considered the normative growth of 5% for projecting sales as proposed by the Petitioner.

The growth rates approved by the Commission are as follows:

Table 21: Growth rates approved by the Commission for public water works category

Consumer Category	Growth in no. of consumers		Load growth		Sales growth	
	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved
Public Water Works	5.25%	6.42%	5%	5.00%	5.00%	5.00%

Temporary Supply

Petitioner's submission

The Petitioner has not projected any growth in number of consumers and connected load for temporary category, whereas the petitioner has considered the normative growth of 1% for projecting the sales.

Commission's analysis

As Temporary Supply does not follow any particular trend, the Commission has considered a 0% growth rate for projecting number of consumers and connected load as proposed by the Petitioner. However, for projecting the sales, the Commission considered a growth rate of 4.56% equivalent to 5 years CAGR for projecting the sales.

Table 22: Growth rates approved by the Commission for temporary supply category

Consumer Category	Growth in no. of consumers		Load growth		Sales growth	
	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved
Temporary Supply	N.A	0.00%	N.A	0.00%	0.00%	4.56 %

3.2.3 Projections of Number of Consumers approved by the Commission

The summary of the projection of number of consumers approved by the Commission for the upcoming Control Period based on approved CAGRs are as follows:

Table 23: Consumer growth projections approved by the Commission for the upcoming Control Period

Number of Consumers	CAGR Approved	Estimated	Approved Projections		
		Base Year	Control Period		
Consumer Category		FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Domestic	5.93%	57593	61005	64623	68455
LIG/Kutir Jyoti	5.32%	18345	19321	20349	21432
Commercial	2.24%	8346	8533	8724	8920
Agriculture	1.72%	1342	1365	1388	1412
LT Industry	2.04%	2300	2347	2395	2443
HT/EHT Industry	0.58%	920	926	931	936
Public Lighting	5.38%	444	467	493	519
Public Water Works	6.42%	494	525	553	582
Temporary Supply	0.00%	391	391	391	391
Total		**90174**	**94881**	**99847**	**105090**

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 approved CAGRs is given in the following Table:

Table 24: Load growth projections approved by the Commission for the upcoming Control Period

Connected Load (kW)	CAGR Approved	Estimated	Approved Projections		
		Base Year	Control Period		
Consumer Category		FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Domestic	2.60%	109532	112382	115304	118302
LIG/Kutir Jyoti	2.87%	1591	1637	1684	1732
Commercial	6.93%	36612	39150	41863	44764
Agriculture	6.23%	7872	8363	8884	9437
LT Industry	4.99%	147224	154574	164699	175486
HT/EHT Industry	0.36%	1171689	1175885	1180118	1184367
Public Lighting	1.82%	2615	2663	2671	2679
Public Water Works	5.00%	5103	5358	5626	5907
Temporary Supply	0.00%	2727	2727	2727	2727
Total		**1484965**	**1502738**	**1523575**	**1545401**

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 approved CAGRs is as follows:

Table 25: Sales growth projections approved by the Commission for the upcoming Control Period

Sales (MU)	CAGR Approved	Estimated	Approved Projections		
		Base Year	Control Period		
Consumer Category		FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Domestic	10.62%	160.72	177.78	196.66	217.54
LIG/Kutir Jyoti	10.62%	7.33	8.11	8.97	9.92
Commercial	6.27%	36.53	38.82	41.25	43.84
Agriculture	5.59%	4.28	4.52	4.78	5.04
LT Industry	3.14%	236.36	243.78	251.44	259.34
HT/EHT Industry	3.79%	6200.57	6435.60	6679.54	6932.73
Public Lighting	5.00%	2.40	2.52	2.64	2.78
Public Water Works	5.00%	5.10	5.35	5.62	5.90
Temporary Supply	4.56%	7.07	7.40	7.74	8.09
Total		**6660.36**	**6923.89**	**7198.64**	**7485.18**

3.3 Transmission &Distribution (T&D) losses

Petitioner's submission

The Petitioner has submitted that the system improvement works executed every year under the plan schemes as well as planned maintenance activities of systems has resulted in the reduction of T & D losses.

The Petitioner has submitted that it has achieved Distribution loss level of 3.62% for the FY 2020-21 as against the target of 4.20%. The petitioner has proposed the T&D losses at the same level of 4.10% as approved by the

Commission for FY 2021-22. Further, the reduction of Distribution loss will involve significant amount of capital expenditure and that it will be DNHPDCL's endeavour to bring the Distribution loss level further down in the subsequent years. The Petitioner has proposed 0.04% reduction in each year of the Control Period in T&D loss target of 4.10% approved for FY 2021-22 The T&D loss trajectory proposed by the Petitioner for FY 2021-22 and the upcoming Control Period is as given below:

Table 26: T&D loss (%) trajectory proposed by the Petitioner for the upcoming Control Period

Base Year	Projections		
FY 2021-22 (Estimated)	FY 2022-23	FY 2023-24	FY 2024-25
4.10%	4.06%	4.02%	4.00%

Commission's Analysis

The T&D losses approved by the Commission for the existing Control Period (FY 2022-23 to FY 2024-25) vis-à-vis T&D losses achieved by the Petitioner during the same period is given in the following Table:

Table 27: T&D losses approved by the Commission in the existing Control Period vis-à-vis T&D losses achieved by the Petitioner

	T&D loss (%)	
	Approved	Actuals (A)/ Estimate (E)
FY 2019-20	4.30%	3.47% (A)
FY 2020-21	4.20%	3.62% (A)
FY 2021-22	4.10%	4.10% (E)

The Commission appreciates the efforts put in by the Petitioner in overachieving the targets specified by the Commission in FY 2019-20 and FY 2020-21. The Commission also takes the note of difficulties expressed by the Petitioner in further reducing T&D losses and the reduction in T&D losses proposed by the Petitioner. In view of capital expenditure proposed by the Petitioner and nature of schemes planned to be carried out, the Commission is of the opinion that the Petitioner should be in a position to further reduce losses in the Control Period from FY 2022-23 to FY 2024-25. Accordingly, the Commission approves the T&D loss trajectory for the upcoming Control Period as under:

Table 28: T&D loss trajectory approved by the Commission in the upcoming Control Period

	FY 2022-23		FY 2023-24		FY 2024-25	
	Petitioner's submission	Approved by Commission	Petitioner's submission	Approved by Commission	Petitioner's submission	Approved by Commission
T&D loss trajectory (%)	4.06%	3.20%	4.02%	3.00%	4.00%	2.80%

3.4 Power Procurement Plan

3.4.1 Energy Requirement

Petitioner's submission

The Petitioner has submitted the projection of energy requirement at the periphery by grossing up the retail sales projections with T&D loss trajectory proposed by the Petitioner. The summary of the energy requirement as estimated by the Petitioner is as given in following table:

Table 29: Energy requirement as estimated by the Petitioner for the upcoming Control Period (Figures in MU)

Particulars	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
	RE	Projected	Projected	Projected
Sales	6588.80	6809.35	7037.92	7274.84
Open Access Sales	0.00	0.00	0.00	0.00

Particulars	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
	RE	Projected	Projected	Projected
Less: Energy Savings	0.00	0.00	0.00	0.00
Total Sales	6588.80	6809.35	7037.92	7274.84
Add: Losses	281.69	288.16	294.77	303.12
T&D Losses	4.10%	4.06%	4.02%	4.00%
Energy Required at Periphery	**6870.49**	**7097.51**	**7332.69**	**7577.96**
Add: Sales to common pool consumer	0.17	0.94	0.75	0.48
Add: Sales through IEX	4.63	0.00	0.00	0.00
Less: Own Generation (Solar)	5.91	5.91	5.91	5.91
Total energy requirement at UT periphery	**6869.38**	**7092.54**	**7327.54**	**7572.54**
Less: Energy Purchased through UI at Periphery	28.99	0.00	0.00	0.00
Less: Purchase from Renewable Sources	0.00	0.00	0.00	0.00
Less: Open Access Purchase	0.00	0.00	0.00	0.00
Less: Purchased through IEX	931.83	841.00	1076.00	1321.00
Total Energy Required at Periphery	**5908.57**	**6251.54**	**6251.54**	**6251.54**
Transmission loss	224.47	237.50	237.50	237.50
Transmission loss (%)	3.66%	3.66%	3.66%	3.66%
Total Energy to be purchased	**6133.04**	**6489.04**	**6489.04**	**6489.04**
Total Energy requirement from tied up sources + UI at generator end + renewable sources	7099.76	7335.94	7570.94	7815.94
Total Energy requirement in UT including Open Access	7099.76	7335.94	7570.94	7815.94

Commission's analysis

Based on the sales projections approved by the Commission and the T&D losses approved by the Commission, the energy requirement at UT periphery estimated by the Commission for the upcoming Control Period is as given below:

Table 30: Energy requirement at UT periphery approved by the Commission

Particulars (MU)	Revised Estimate	Approved		
	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Sales	6660.36	6923.89	7198.64	7485.18
T&D Losses (%)	4.10%	3.20%	3.00%	2.80%
Total energy requirement at Periphery	6945.11	7152.78	7421.28	7700.80
Add: Sales to common pool consumer	0	0.94	0.75	0.48
Less: Own Generation (Solar)	5.91	5.91	5.91	5.91
Total energy requirement at UT periphery	**6939.20**	**7147.81**	**7416.12**	**7695.37**
Less: Energy Purchased through DSM	44.64	0	0	0
Less: Energy Purchased through IEX	944.37	584.76	853.07	1132.32
Total energy requirement at UT periphery from Tied up Sources	5950.19	6563.05	6563.05	6563.05
Inter-state Loss (%)	3.66%	3.66%	3.66%	3.66%
Total energy requirement from Tied-Up sources	**6176.24**	**6812.38**	**6812.38**	**6812.39**
Total Energy requirement from tied up sources, UI	**7171.16**	**7403.05**	**7671.36**	**7950.62**

and renewable sources at Generator end				

The main reason for substantial variation in Energy Requirement as approved by the Commission with respect to the Petitioner's projection is due to variation in sales projection approved by the Commission.

3.4.2 Generation and Power Purchase Quantum

Petitioner's submission

The Petitioner has made the following assumptions for projecting the quantum of power purchase 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 based on the revised allocation issued by the Western Region Power Committee (WRPC) vide No. WRPC/Comml-I/6/Alloc/2021/1048 dated 29.10.2021. Power purchase quantum from the NTPC stations for the FY 2021-22 and the MYT Control Period has been calculated based on the installed capacity of each plant and by applying the PLF approved by the Hon'ble Commission vide order for the Business Plan dated 5th November, 2018.
- The petitioner is not getting any power from Ratnagiri during the MYT Control period and therefore no power purchase from the said plant has been considered.
- **Auxiliary consumption:** The Petitioner has considered an auxiliary consumption of 7.75% and 2.5% for coal and gas based generating stations, respectively
- **Inter-State transmission losses:** The Petitioner has considered 3.66% Inter-State transmission losses

Based on the above inputs and assumptions, the Petitioner has projected the availability of power from tie-up sources as below.

Table 31: Power purchase plan proposed by the Petitioner for the upcoming MYT Control Period

Particulars	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
	RE	Projected	Projected	Projected
NTPC Stations				
KSTPS	400.54	390.64	390.64	**390.64**
KSTPS 3	169.11	164.98	164.98	**164.98**
VSTPP-I	307.55	301.71	301.71	**301.71**
VSTPP-II	224.82	230.26	230.26	**230.26**
VSTPP- III	237.95	246.87	246.87	**246.87**
VSTPP- IV	342.56	323.28	323.28	**323.28**
KGPP	143.58	277.51	277.51	**277.51**
GGPP	118.86	210.72	210.72	**210.72**
Sipat-I	644.64	655.42	655.42	**655.42**
Sipat-II	243.51	233.52	233.52	**233.52**
Mauda	0.00	0.01	0.01	**0.01**
VSTPS-V	191.30	180.93	180.93	**180.93**
Mauda 2	288.56	243.14	243.14	**243.14**
Solapur	312.80	366.82	366.82	**366.82**
LARA	520.92	511.07	511.07	**511.07**
Gadarwara	502.96	585.30	585.30	**585.30**
Kharagaon	375.64	480.50	480.50	**480.50**
KHSTPP-II	21.67	22.06	22.06	**22.06**
Subtotal – NTPC	**5047.00**	**5424.73**	**5424.73**	**5424.73**

Particulars	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
	RE	Projected	Projected	Projected
NSPCL – Bhilai	**709.28**	**703.06**	**703.06**	**703.06**
NPCIL				
KAPS	84.23	93.46	93.46	**93.46**
TAPS	292.53	267.79	267.79	**267.79**
Subtotal – NPCIL	**376.76**	**361.25**	**361.25**	**361.25**
Power purchase from Other Sources				
Indian E. Exchange/Bilateral	931.83	841.00	1076.00	**1321.00**
UI	28.99	0.00	0.00	**0.00**
Solar	5.91	5.91	5.91	**5.91**
Non Solar	0.00	0.00	0.00	**0.00**
Solar REC	0.00	0.00	0.00	**0.00**
Non Solar REC	0.00	0.00	0.00	**0.00**
Subtotal – Other Sources	**966.72**	**846.91**	**1081.91**	**1326.91**
Rebate				
Total Power Purchase	**7099.76**	**7335.94**	**7570.94**	**7815.94**
External Losses				
Availability at ED-DNH Periphery	**7099.76**	**7335.94**	**7570.94**	**7815.94**

Commission's Analysis

The Commission has employed the following approach and assumptions to forecast the power purchase from tied-up sources for the upcoming Control Period:

- **Allocation from CGS:** The firm allocation and allocation from the unallocated quota from the various generating stations has been considered based on the revised allocation issued by the Western Region Power Committee (WRPC) vide No. WRPC/Comml-I/6/Alloc/2021/1048 dated 29 October 2021. The same share of allocation has been assumed for all the years of the upcoming Control Period.

- **Purchase of power from Ratnagiri:** As per the submissions of DNHPDCL, no power purchase has been considered from Ratnagiri for upcoming Control Period.

- **Plant Load Factor (PLF):** For NTPC, NSPCL and NPCIL, the Commission has considered the PLF based on actual PAF and PLF achieved during the previous three years. For the newer plants such as Solapur, Lara, Gadarwara and Khargone normative PLF for the Control Period has been considered at 85%.

- **Auxiliary consumption:** The Commission has considered an auxiliary consumption of 5.75% and 2.80% for coal and gas based generating stations, respectively as per CERC Tariff Regulations, 2019.

- **Inter-State transmission losses:** The Commission has considered Inter-State transmission losses as 3.66% for all years of the upcoming Control Period, as per the Petitioner's submission.

- **Power Purchase from IEX/Bilateral Sources:** In order to meet the total energy requirement, the Commission has considered the balance energy requirement after availability from firm sources to be procured from IEX/Bilateral sources.

The quantum of power procurement projected by the Commission for the upcoming Control Period is given in *Table 31*.

Table 32: Power purchase plan approved by the Commission for the upcoming MYT Control Period

Sr. No.	Source	Capacity (MW)	Weighted average allocation to Licensee		PLF Considered	Gross Generation (MU)	Aux consumption (%)	Net Generation (MU)	Power Purchase (MU)		
									Approved Projections		
			%	MW					2022-23	2023-24	2024-25
A	**Central Sector Power Stations**										
I	**NTPC**	**20,814**		**898.76**					**5757.60**	**5757.60**	**5757.60**
	KSTPS	2,100	2.59%	54.32	90.00%	16,556	6.68%	15,450	399.61	399.61	399.61
	KSTPS 3	500	4.54%	22.68	90.00%	3,942	5.75%	3,715	168.55	168.55	168.55
	VSTPP-I	1,260	3.45%	43.41	88.69%	9,789	9.00%	8,908	306.93	306.93	306.93
	VSTPP-II	1,000	3.35%	33.52	88.69%	7,769	5.75%	7,323	245.46	245.46	245.46
	VSTPP- III	1,000	3.55%	35.52	88.69%	7,769	5.75%	7,323	260.11	260.11	260.11
	VSTPP- IV	1,000	4.65%	46.52	88.69%	7,769	5.75%	7,323	340.62	340.62	340.62
	KGPP	656	12.38%	81.23	40%	2,299	5.75%	2,167	268.26	268.26	268.26
	GGPP	657	8.94%	58.74	42%	2,419	5.75%	2,280	203.70	203.70	203.70
	Sipat-I	1,980	4.55%	90.12	90.00%	15,610	5.75%	14,713	669.63	669.63	669.63
	Sipat-II	1,000	3.21%	32.11	90.00%	7,884	5.75%	7,431	238.59	238.59	238.59
	Mauda	1,000	0.00%	0.00	48.00%	4,205	5.75%	3,963			
	VSTPS-V	500	5.21%	26.03	86.00%	3,767	5.75%	3,550	184.85	184.85	184.85
	Mauda 2	1,320	4.75%	62.68	55.00%	6,360	5.75%	5,994	284.64	284.64	284.64
	Solapur	1,320	5.73%	75.65	85.00%	9,829	5.75%	9,264	530.92	530.92	530.92
	LARA3	1,600	4.71%	75.43	85.00%	11,914	5.75%	11,229	529.32	529.32	529.32

Sr. No.	Source	Capacity (MW)	Weighted average allocation to Licensee		PLF Considered	Gross Generation (MU)	Aux consumption (%)	Net Generation (MU)	Power Purchase (MU)		
									Approved Projections		
			%	MW					2022-23	2023-24	2024-25
	Gadarwara	1,600	5.40%	86.38	85.00%	11,914	5.75%	11,229	606.20	606.20	606.20
	Khargone	1,320	5.37%	70.91	85.00%	9,829	5.75%	9,264	497.66	497.66	497.66
	KHSTPP-II	1000	0.35%	3.50	78.00%	6,833	5.75%	6,440	22.54	22.54	22.54
II	**NSPCL Bhilai**	500	20.00%	100.00	87.00%	3,811	9.00%	3,468	**693.53**	**693.53**	**693.53**
III	**NPCIL**	**1520**		**58.60**					**361.25**	**361.25**	**361.25**
	KAPS	440	3.72%	16.37	72.00%	2,775	9.5%	2,512	93.46	93.46	93.46
	TAPP 3&4	1080	3.91%	42.22	80.00%	7,569	9.5%	6,850	267.79	267.79	267.79
IV	**Power Purchase from Other Sources**								**584.76**	**853.07**	**1132.32**
	Indian E. Exchange/Bilateral								584.76	853.07	1132.32
	UI								-	-	-
V	**Renewable Sources**								**5.91**	**5.91**	**5.91**
	Solar								5.91	5.91	5.91
	REC								-	-	-
VI	**POWERGRID Losses**										
	Transmission Loss (%)								3.66%	3.66%	3.66%
	Transmission Loss (MU)								249	249	249
VII	**Total power available at UT Periphery from all sources (including Renewable sources)**								**7403.05**	**7671.36**	**7950.62**

The Commission notes that the Petitioner is resorting to short-term procurement of power through Exchange for 11.5% of its total power requirement for FY 2022-23. The proportion of short term further increases to around 17% by the end of the Control Period. The Commission strongly feels that this arrangement is not sustainable and results in exposure of consumers to risk of fluctuating tariffs. Further, the Commission observes that the Petitioner despite carrying huge backlog towards the RPO fulfilment in the previous years, has not considered enough power procurement from renewable sources including Solar and Non-Solar while projecting the power purchase for the Control Period. This is expected to create huge backlog towards the fulfilment of RPO obligation.

The proportion of short-term power as projected by the Commission for each year of the Control Period is substantially lower than that projected by the Petitioner due to following reasons:

- Sales projected by the Commission is slightly lower than the Petitioner's sales projections
- T&D loss targets approved by the Commission are lower than the loss targets proposed by the Petitioner
- Power availability from firm sources as worked out by the Commission is higher than that projected by the Petitioner.

The Commission directs the Petitioner to explore long-term/ medium term power purchase arrangements and thereby minimizing its dependence on more risk-free sources of power and reduce its dependence on purchase of power from short-term sources such as UI/ Traders / Power Exchange. Further, the Commission directs the Petitioner to increase the share of power purchase from renewable sources in the energy mix planned during the Control Period so that the share of clean energy increases in the energy mix and the backlog of RPO targets is cleared by the end of the Control Period.

3.4.3Energy Balance

Petitioner's submission

The Energy Balance for FY 2021-22 and the upcoming Control Period as estimated by the Petitioner is as given below:

Table 33: Energy Balance as estimated by the Petitioner

Particulars	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
	RE	Projected	Projected	Projected
Sales	6588.80	6809.35	7037.92	7274.84
Open Access Sales	0.00	0.00	0.00	0.00
Less: Energy Savings	0.00	0.00	0.00	0.00
Total Sales	6588.80	6809.35	7037.92	7274.84
Add: Losses	281.69	288.16	294.77	303.12
T&D Losses	4.10%	4.06%	4.02%	4.00%
Energy Required at Periphery	**6870.49**	**7097.51**	**7332.69**	**7577.96**
Add: Sales to common pool consumer	0.17	0.94	0.75	0.48
Add: Sales through IEX	4.63	0.00	0.00	0.00
Less: Own Generation (Solar)	5.91	5.91	5.91	5.91
Total energy requirement at UT periphery	**6869.38**	**7092.54**	**7327.54**	**7572.54**

Particulars	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
	RE	Projected	Projected	Projected
Less: Energy Purchased through UI at Periphery	28.99	0.00	0.00	0.00
Less: Purchase from Renewable Sources	0.00	0.00	0.00	0.00
Less: Open Access Purchase	0.00	0.00	0.00	0.00
Less: Purchased through IEX	931.83	841.00	1076.00	1321.00
Total Energy Required at Periphery	**5908.57**	**6251.54**	**6251.54**	**6251.54**
Transmission loss	224.47	237.50	237.50	237.50
Transmission loss (%)	3.66%	3.66%	3.66%	3.66%
Total Energy to be purchased	**6133.04**	**6489.04**	**6489.04**	**6489.04**
Total Energy requirement from tied up sources & UIat generator end + Renewable	7099.76	7335.94	7570.94	7815.94
Total Energy requirement in UT including Open Access	**7099.76**	**7335.94**	**7570.94**	**7815.94**

Commission's Analysis

The energy balance for the upcoming Control Period based on the Commission's analysis is given below:

Table 34: Energy requirement at UT periphery approved by the Commission

Particulars	Approved by the Commission		
	FY 2022-23	FY 2023-24	FY 2024-25
Retail Sales (a)	6923.89	7198.64	7485.18
Open Access Sales (b)	0	0	0
Less: Energy Savings (c)	0	0	0
Total Sales (d=a+b-c)	6923.89	7198.64	7485.18
Distribution Loss (MU) (e=g-d)	228.89	222.64	215.62
Distribution Loss (%) (f=e/g)	3.20%	3.00%	2.80%
Energy Required at Periphery (g)	7152.78	7421.28	7700.80
Sale to common pool consumer/UI Sale(h)	0.94	0.75	0.48
Own generation (i)	5.91	5.91	5.91
Total energy requirement at UT periphery(j=g+h-i)	**7147.81**	**7416.12**	**7695.37**
Less: Energy Purchased through UI at Periphery (k)	0.00	0.00	0.00
Less: Energy Purchase from IEX (l)	584.76	853.07	1132.32
Less: Open Access Purchase at Periphery (m)	0.00	0.00	0.00
Energy requirement at UT periphery from tied up sources (n=j-k-l-m)	**6563.05**	**6563.05**	**6563.05**
Interstate loss (MU) (o=p-n)	**249.33**	**249.33**	**249.33**
Interstate loss (%)	3.66%	3.66%	3.66%
Energy requirement at UT periphery from generator end (p)	6812.39	6812.39	6812.39
Total Energy requirement from tied up sources, UI and IEX at generator end (q=p+k+l)	**7403.05**	**7671.36**	**7950.62**
Total Energy requirement in UT including Open Access (r=p+m)	**7403.05**	**7671.36**	**7950.62**

3.4.4 Renewable Purchase Obligation (RPO)

Petitioner's Submission

The Petitioner has considered the RPO targets for each year of the Control Period as per the Joint Electricity Regulatory Commission for State of Goa & Union Territories (Procurement of Renewable Energy), Third Amendment Regulations, 2016 notified on 22 August 2016. As per the aforementioned Regulations, if the Petitioner fails the RPO targets, it has to compensate by purchasing Renewable Energy Certificates (REC) proportionate to the deficit in RPO procurement.

The Petitioner submitted that it has already installed 4.585 MW of solar plants in its territory for generation of solar energy out of which 4.1 MW is ground mounted and 485 kW is solar rooftop. The summary of projected Solar and Non-Solar RPO for the Control Period as submitted by the Petitioner is as given below:

Table 35: RPO plan proposed by the Petitioner for the upcoming MYT Control Period

Description	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Sales within UT (MU)	**6,588.80**	**6,809.35**	**7,037.92**	**7,274.84**
RPO targets (%)	**17.00%**	**17.00%**	**17.00%**	**17.00%**
Solar	8.00%	8.00%	8.00%	8.00%
Non-Solar	9.00%	9.00%	9.00%	9.00%
RPO targets (MU)	**1120.10**	**1157.59**	**1196.45**	**1236.72**
Solar	527.10	544.75	563.03	581.99
Non-Solar	592.99	317.49	633.41	654.74
RPO Compliance (Procurement and own generation)	**643.26**	**643.26**	**800.00**	**800.00**
Solar	325.77	325.77	400.00	400.00
Non-Solar	317.49	317.49	400.00	400.00
RPO Compliance (REC purchase)	**476.84**	**514.33**	**396.45**	**436.72**
Solar	201.34	218.98	163.03	181.99
Non-Solar	275.50	295.35	233.41	254.74

Commission's Analysis

The Commission has made note of the submission of the Petitioner and expects the Petitioner to comply with RPO targets. Actual compliance in respect of the pending RPO obligations would be reviewed at the time of true-up of the respective years and supporting details such as purchase of RECs, and bills from solar/non-solar plants for the respective years must be submitted along with the MYT filing.

The Commission observed that for meeting the RPO compliance, the Petitioner has proposed to procure 325.77 MU Solar power which is inclusive of 5.91 MU of solar own generation and 317.49 MU non-solar power during FY 2022-23, but the same has not been submitted separately by the Petitioner while estimating power purchase quantum from various sources as summarised in Table No. 30. The Commission discussed this issue with the Petitioner during the Technical Validation Session and the Petitioner informed that it has considered the same as part of power purchase from IEX and hence it has not been shown separately in source wise Power purchase.

In view of the sales projections approved by the Commission in Section 3.2.5, the Commission has approved the RPO for each year of the Control Period based on the Fourth amendment to JERC (Procurement of Renewable Energy) Regulations, 2010 and amendments issued till date. Considering the submissions made by the Petitioner, the Commission has considered the projected Solar Power procurement of 5.91 MU during each year of the Control Period. With regard to remaining RPO Target during each year of the Control Period, the Commission has considered RPO to be fulfilled by Power Purchase from IEX to the extent of energy requirement from short term sources and directs the Petitioner to purchase such power from GTAM market which may be considered as Renewable Power Purchase. Further, the Commission approves balance RPO to be met through physical power purchase/REC Certificate Purchase. The details of RPO approved by the Commission for the Control Period is as under:

Table 36: RPO plan approved by the Commission

Description	Approved Projections		
	FY 2022-23	FY 2023-24	FY 2024-25
Sales within UT (MU)	6924	7199	7485
RPO targets (%)	**18.35%**	**19.91%**	**21.58%**
Solar	9.00%	10.00%	11.00%
Non-Solar	9.35%	9.91%	10.58%
RPO targets (MU)	**1271**	**1433**	**1615**
Solar	623	720	823
Non-Solar	647	713	792
RPO Compliance (own generation)	**5.91**	**5.91**	**5.91**
Solar	5.91	5.91	5.91
Non-Solar	0	0	0
RPO Compliance (Power Procurement)			
Solar			
Non Solar			
RPO Compliance (REC purchase)			
Solar			
Non-Solar			
Energy Purchase through Exchange	585	853	1132
Balance RPO to be fulfilled through Physical Power Purchase/REC Certificate	**680**	**574**	**477**

3.5 Capital Investment Plan

3.5.1 Details of capital expenditure and capitalisation

Summary of capital expenditure and capitalisation for new schemes

Petitioner's submission

The petitioner submitted that DNHPDCL is broadly engaged in the procurement, transmission and distribution of electricity to the various categories of consumers. However, it does not have its own power generating stations, except solar power plants. Therefore, the union territory of Dadra and Nagar Haveli is completely relied upon the Central Sector Generating Stations (CSGS) in Western Region to meet its energy demand.

The Petitioner plans to carry out the capital expenditure during the Control Period for augmentation and expansion of its capacity and to reduce the T&D loss in the system. DNHPDCL has undertaken significant capital expenditure during the previous Control Period from FY 2019-20 to FY 2021-22 and has plans to implement schemes for development of infrastructure during the upcoming Control Period from FY 2022-23 to FY 2024-25. The capital expenditure plan includes the details of various capital expenditure schemes in the identified areas and their respective estimates for each year of the MYT Control Period from FY 2022-23 to FY 2024-25.

The summary of capital expenditure projections of new schemes for the upcoming Control Period is given below:

Table 37: Capital expenditure plan proposed by the Petitioner for the upcoming Control Period

Sr. No.	Name of Scheme	Estimated Scheme cost (INR Cr)	Proposed Expenditure (INR Cr)		
			FY 2022-23	FY 2023-24	FY 2024-25
1	Erection of various capacity of new distribution transformer, extension of HT/LT line, releasing of new service connection under normal development scheme	3.00	1.00	1.00	1.00
2	Conversion of 66/11 KV (15X3+20X2=85MVA) substation into GIS substation at Amli	40.00	-	20.00	20.00
3	Augmentation of 66/11 Waghdara Substation from 2X20 MVA to 3x20 MVA	10.00	10.00	-	-
4	Establishment of 66/11 GIS substation at Dadra (2X20 MVA)	25.00	-	10.00	15.00
5	Augmentation of 66/11 Piparia Substation from 2X20 MVA to 3x20 MVA	15.00	-	15.00	-
6	66 KV line from Wagchipa to Sayali (10 KM)	25.00	-	25.00	-
7	66 KV line from Wagchipa to Masat (15 KM)	40.00	-	15.00	25.00
8	66 KV line from Wagchipa to Dadra (10 KM)	25.00	-	25.00	-
9	Establishment of new 66/11 kV , 2x20 MVA substation at Sayali	40.00	-	10.00	30.00
10	Establishment of new 66/11 kV, 2x20 MVA substation at Silli	25.00	-	25.00	-

Sr. No.	Name of Scheme	Estimated Scheme cost (INR Cr)	Proposed Expenditure (INR Cr)		
			FY 2022-23	FY 2023-24	FY 2024-25
11	Conversion of double circuit 66 KV line from 220 kV Kharadpada to Masat substation from Panther to TACSR	2.70	2.70	-	-
12	Conversion of double circuit 66 KV line from 220 kV Kharadpada to Rakholi substation from panther to TACSR	2.65	2.65	-	-
13	Conversion of double circuit 66 KV line from 220 KV Khadoli substation to Rakholi substation	2.75	2.75	-	-
14	Renovation of Central room building and replacement of 66 KV breakers, isolator, CTs, PTs etc. at 66/11 KV substation Kharadpada	4.00	1.00	3.00	-
15	Other office assets, office automation and other equipment etc.	5.00	1.00	2.00	2.00
16	Strengthening of old HT line (11 kV Mandoni Rural feeder) by new insulated ACSR HT conductor from Khanvel Substation to village Khedpa / Bedpa Vadpada	14.94	-	14.94	-
17	Construction of new control room building at Dadra sub-station	5.00	-	5.00	-
	Total	**285.04**	**21.10**	**170.94**	**93.00**

The overview of the capital expenditure and capitalisation plan proposed by the Petitioner for the upcoming Control Period is as given in the Table below:

Table 38: Year-Wise Capital Expenditure and Capitalisation as proposed by the Petitioner

Particulars	Proposed Capitalisation (INR Cr)			Total estimated Amount (INR Cr)
	FY 2022-23	FY 2023-24	FY 2024-25	
Capital Expenditure	21.10	170.94	93.00	285.04
Capitalisation	18.35	120.94	145.75	285.04

Description of CAPEX schemes proposed by the petitioner for the MYT Control Period

A. Erection of new distribution transformers, extension of HT/LT lines and releasing of new service connections.

The petitioner has submitted that some human colonies are developed in the area alongwith other infrastructure developments that increases the power demand in the area of utility. Hence, to fulfill demand and accommodate new connections, the petitioner is required to construct new distribution transformer centers and service lines for power supply. Therefore, the petitioner has proposed the said scheme with an estimated cost of INR 3 Cr needed to execute the scheme.

The capital expenditure and capitalization proposed by the petitioner for this scheme is as given below:

Table 39: Capital Expenditure and capitalisation proposed by the Petitioner for Erection of new distribution transformers, extension of HT/LT lines and releasing of new service connections

Particulars	Total Estimated Amount (INR Cr)	Proposed Expenditure (INR Cr)			Capitalisation schedule
		FY 2022-23	FY 2023-24	FY 2024-25	
A scheme for erection of New DT, Extension in HT/LT & New connections	3.00	1.00	1.00	1.00	FY 2024-25

B. <u>Conversion of 66/11 KV (15x3+20x2=85 MVA) substation into GIS substation at Amli.</u>

The petitioner has submitted that the existing substation of capacity 66/11 KV has been constructed long back in 1980 and has already reached to the end of its life. Hence the petitioner wants to reconstruct the existing substation with latest technology i.e., GIS sub-station, during the upcoming control period. The estimated cost for carrying out the said work would be around INR. 40 Cr. The petitioner further adds that upon implementation of the said scheme, the petitioner will be able to reduce the power interruption and line losses.

The capital expenditure proposed by the petitioner for this scheme is as given below:

Table 40: Capital Expenditure and capitalisation proposed by the Petitioner for Conversion of 66/11 KV (15X3+20X2=85 MVA) substation in to GIS substation at Amli

Particulars	Total Estimated Amount (INR Cr)	Proposed Expenditure (INR Cr)			Capitalisation schedule
		FY 2022-23	FY 2023-24	FY 2024-25	
A scheme for Conversion of 66/11 KV (15X3+20X2=85 MVA) substation in to GIS substation at Amli	40.00	-	20.00	20.00	FY 2024-25

C. <u>Augmentation of 66/11 Waghdara Substation from 2X20 MVA to 3x20 MVA.</u>

The petitioner has submitted that the existing transformer center at Waghdara substation is loaded with 80% to 90% of the capacity. Hence, the augmentation of the said substation is required to be carried out. In view of above, it is proposed that the augmentation of the said sub-station shall be carried out during the MYT control period. Furthermore, the estimated cost to execute the said scheme will be INR. 10 Cr. The petitioner further adds that upon implementation of the said scheme, the petitioner will be able to reduce the power interruption, line losses and can achieve optimization of load distribution.

The capital expenditure proposed by the petitioner for this scheme is as given below:

Table 41: Capital Expenditure and capitalisation proposed by the Petitioner for Augmentation of 66/11 KV Waghdara Substation from 2X20 MVA to 3x20 MVA

Particulars	Total Estimated Amount (INR Cr)	Proposed Expenditure (INR Cr)			Capitalisation schedule
		FY 2022-23	FY 2023-24	FY 2024-25	
A scheme for Augmentation of 66/11 KV Waghdara Substation from 2X20 MVA to 3x20 MVA	10.00	10.00	-	-	FY 2022-23

D. <u>Establishment of 66/11 GIS substation at Dadra (2X20 MVA).</u>

The petitioner has submitted that due to substantial load increase in the Dadra area, the available capacity of the existing substation is completely utilized and hence no scope for further expansion/ augmentation. In view of above, the petitioner has proposed to construct a new substation of capacity 40MVA with latest technology of GIS Substation during MYT Control Period. The proposed amount to execute the scheme is INR 25 Cr. The petitioner adds further that upon implementation of the said scheme, the petitioner will be able to reduce the power interruption.

The capital expenditure proposed by the petitioner for this scheme is as given below:

Table 42: Capital Expenditure and capitalisation proposed by the Petitioner for Establishment of 66/11 GIS substation at Dadra (2X20 MVA)

Particulars	Total Estimated Amount (INR Cr)	Proposed Expenditure (INR Cr)			Capitalisation schedule
		FY 2022-23	FY 2023-24	FY 2024-25	
A scheme for *Establishment of 66/11 GIS substation at Dadra (2X20 MVA)*	25.00	-	10.00	15.00	FY 2024-25

E. <u>Augmentation of 66/11 Piparia Substation from 2x20 MVA to 3x20 MVA.</u>

The petitioner has proposed the augmentation of Piparia substation because the existing transformers at the given substation are already loaded with 80% to 90% of the capacity. Therefore, the petitioner is planning to execute the scheme of augmentation during control period with an estimated cost of INR 15 Cr. The petitioner adds further that upon implementation of the said scheme, the petitioner will be able to reduce the power interruption, line losses and can achieve optimization of load distribution.

The capital expenditure proposed by the petitioner for this scheme is as given below:

Table 43: Capital Expenditure and capitalisation proposed by the Petitioner for Augmentation of 66/11 Piparia Substation from 2X20 MVA to 3x20 MVA

Particulars	Total Estimated Amount (INR Cr)	Proposed Expenditure (INR Cr)			Capitalisation schedule
		FY 2022-23	FY 2023-24	FY 2024-25	
A scheme for *Augmentation of 66/11 Piparia Substation from 2X20 MVA to 3x20 MVA*	15.00	-	15.00	-	FY 2023-24

F. 66 KV line from Wagchipa to Sayali (10 KM).

The petitioner has submitted that the existing line of 66KV is utilized upto 90% of its capacity. Hence, to support the existing line, an alternate source of supply to Sayali to be created from the 220/66 KV wagchipa substation. Therefore, the petitioner has proposed to lay multi circuit 66 KV line from Wagchipa to Sayali (approximately 10 KM) during the MYT Control Period with an estimated cost of INR 25 Cr. The implementation of the said scheme would also strengthen the existing network and thereby achieves more reliable power supply.

The capital expenditure proposed by the petitioner for this scheme is as given below:

Table 44: Capital Expenditure and capitalisation proposed by the Petitioner for 66 KV line from Wagchipa to Sayali (10 KM)

Particulars	Total Estimated Amount (INR Cr)	Proposed Expenditure (INR Cr)			Capitalisation schedule
		FY 2022-23	FY 2023-24	FY 2024-25	
A scheme *for 66 KV line from Wagchipa to Sayali (10 KM)*	**25.00**	**-**	**25.00**	**-**	**FY2023-24**

G. 66 KV line from Wagchipa to Masat (15 KM).

The petitioner has submitted that the existing line of 66KV is utilized upto 90% of its capacity. Hence, to support the existing line, an alternate source of supply to Masat to be created from the 220/66 KV Wagchipa substation. Therefore, the petitioner has proposed to lay multi circuit 66 KV line from Wagchipa to Masat (approximately 15 KM) during the MYT Control Period with an estimated cost of INR 40 Cr. The implementation of the said scheme would also strengthen the existing network and thereby achieves more reliable power supply.

The capital expenditure proposed by the petitioner for this scheme is as given below:

Table 45: Capital Expenditure and capitalisation proposed by the Petitioner for 66 KV line from Wagchipa to Masat (15 KM)

Particulars	Total Estimated Amount (INR Cr)	Proposed Expenditure (INR Cr)			Capitalisation schedule
		FY 2022-23	FY 2023-24	FY 2024-25	
A scheme for 66 KV line from Wagchipa to Masat (15 KM)	40.00	-	15.00	25.00	FY2024-25

H. 66 KV line from Wagchipa to Dadra (10 KM).

The petitioner has submitted that the existing line of 66KV is utilized upto 90% of its capacity. Hence, to support the existing line, an alternate source of supply to Dadra to be created from the 220/66 KV Wagchipa substation. Therefore, the petitioner has proposed to lay multi circuit 66 KV line from Wagchipa to Dadra (approximately 10 KM) during the MYT Control Period with an estimated cost of INR 25 Cr. The implementation of the said scheme would also strengthen the existing network and thereby achieves more reliable power supply.

The capital expenditure proposed by the petitioner for this scheme is as given below:

Table 46: Capital Expenditure and capitalisation proposed by the Petitioner for 66 KV line from Wagchipa to Dadra (10 KM)

Particulars	Total Estimated Amount (INR Cr)	Proposed Expenditure (INR Cr)			Capitalisation schedule
		FY 2022-23	FY 2023-24	FY 2024-25	
A scheme for 66 KV line from Wagchipa to Dadra (10 KM)	25.00	-	25.00	-	FY2023-24

I. Establishment of new 66/11 kV, 2x20 MVA substation at Sayali.

Petitioner's Submission

The petitioner has submitted that a substantial load increase is expected due to establishment of medical college, sports complex, police training center and industrialization in sayali area. Whereas there is no substation to cater such demand. Hence the petitioner has proposed to construct a new GIS substation along with laying of 66 KV underground line and the construction of a new substation with 40 MVA load capacity shall be carried out during the MYT Control Period. The petitioner has proposed an amount of INR 40 Cr to execute the scheme. The petitioner adds further that upon implementation of the said scheme, the petitioner will be able to reduce the power interruption.

The capital expenditure proposed by the petitioner for this scheme is as given below:

Table 47: Capital Expenditure and capitalisation proposed by the Petitioner for Establishment of new 66/11 kV, 2x20 MVA substation at Sayali

Particulars	Total Estimated Amount (INR Cr)	Proposed Expenditure (INR Cr)			Capitalisation schedule
		FY 2022-23	FY 2023-24	FY 2024-25	
A scheme for establishment of new 66/11 kV, 2x20 MVA substation at Sayali	40.00	-	10.00	30.00	FY2024-25

J. Establishment of new 66/11 kV, 2x20 MVA Substation at Silli.

Petitioner's Submission

The petitioner has submitted that a severe problem of low voltage has been found in the areas of silli, morkhal and randha including the fact that the existing 11KV feeders are so long that it is incapable to transport better quality of power supply. Hence the petitioner has proposed to develop a new substation of 40 MVA load capacity with latest technology of GIS substation at Silli during the MYT Control Period at an estimated cost of INR 25 Cr. The petitioner adds further that upon implementation of the said scheme, the petitioner will be able to reduce the power interruption.

The capital expenditure proposed by the petitioner for this scheme is as given below:

Table 48: Capital Expenditure and capitalisation proposed by the Petitioner for Establishment of new 66/11 kV, 2x20 MVA substation at Silli

Particulars	Total Estimated Amount (INR Cr)	Proposed Expenditure (INR Cr)			Capitalisation schedule
		FY 2022-23	FY 2023-24	FY 2024-25	
A scheme for establishment of new 66/11 kV, 2x20 MVA substation at Silli	25	-	25	-	FY2023-24

K. Conversion of double circuit 66 KV line from 220 kV Kharadpada to Masat substation from panther to TACSR (6 Kms).

The petitioner has submitted that the existing overhead line is overloaded and having the panther conductor. In view of above, with an aim to strengthen with the capacity enhancement, it is proposed to lay TACSR conductor during the MYT control period. The petitioner has proposed an estimated cost of INR 2.70 Cr. for carrying out the said work. The petitioner adds further that upon implementation of the said scheme, the petitioner will be able to reduce the power interruption, line losses and can achieve optimization of load distribution.

The capital expenditure proposed by the petitioner for this scheme is as given below:

Table 49: Capital Expenditure and capitalisation proposed by the Petitioner for Conversion of double circuit 66 KV line from 220 kV Kharadpada to Masat substation from Panther to TACSR

Particulars	Total Estimated Amount (INR Cr)	Proposed Expenditure (INR Cr)			Capitalisation schedule
		FY 2022-23	FY 2023-24	FY 2024-25	
A scheme for Conversion of double circuit 66 KV line from 220 kV Kharadpada to Masat substation from Panther to TACSR	2.70	2.70	-	-	FY2022-23

L. Conversion of double circuit 66 KV line from 220 kV Kharadpada to Rakholi substation from panther to TACSR.

Petitioner's Submission

The petitioner has submitted that the existing overhead line is overloaded and having the panther conductor. In view of above, with an aim to strengthen with the capacity enhancement, it is proposed to lay TACSR conductor during the MYT control period. The petitioner has proposed an estimated cost of INR 2.65 Cr. for carrying out the said work. The petitioner adds further that upon implementation of the said scheme, the petitioner will be able to reduce the power interruption, line losses and can achieve optimization of load distribution.

The capital expenditure proposed by the petitioner for this scheme is as given below:

Table 50: Capital Expenditure and capitalisation proposed by the Petitioner for Conversion of double circuit 66 KV line from 220 kV Kharadpada to Rakholi substation from panther to TACSR

Particulars	Total Estimated Amount (INR Cr)	Proposed Expenditure (INR Cr)			Capitalisation schedule
		FY 2022-23	FY 2023-24	FY 2024-25	
A scheme for Conversion of double circuit 66 KV line from 220 kV Kharadpada to Rakholi substation from panther to TACSR	2.65	2.65	-	-	FY2022-23

M. Conversion of double circuit 66 KV line from 220 KV Khadoli substation to Rakholi substation.

Petitioner's Submission

The petitioner has submitted that the existing overhead line is overloaded and having the panther conductor. In view of above, with an aim to strengthen with the capacity enhancement, it is proposed to lay TACSR conductor during the MYT control period. The petitioner has proposed an estimated cost of INR 2.75 Cr. for carrying out the said work. The petitioner adds further that upon implementation of the said scheme, the petitioner will be able to reduce the power interruption, line losses and can achieve optimization of load distribution.

The capital expenditure proposed by the petitioner for this scheme is as given below:

Table 51: Capital Expenditure and capitalisation proposed by the Petitioner for Conversion of double circuit 66 KV line from 220 KV Khadoli substation to Rakholi substation

Particulars	Total Estimated Amount (INR Cr)	Proposed Expenditure (INR Cr)			Capitalisation schedule
		FY 2022-23	FY 2023-24	FY 2024-25	
A scheme for Conversion of double circuit 66 KV line from 220 KV Khadoli substation to Rakholi substation	2.75	2.75	-	-	FY2022-23

N. Renovation of Control room building and replacement of 66 KV breakers, isolator, CTs, PTs etc. at 66/11 KV substation Kharadpada.

The petitioner has submitted that the existing substation of Kharadpada with capacity 66/11 KV is very old and hence it needs to be replaced by new 66 KV breakers, isolator, CTs, PTs along with renovation of control room building. The petitioner has planned to execute the scheme during the MYT Control Period with an estimated cost of INR 4 Cr.

The capital expenditure proposed by the petitioner for this scheme is as given below:

Table 52: Capital Expenditure and capitalisation proposed by the Petitioner for Renovation of Central room building and replacement of 66 KV breakers, isolator, CTs, PTs etc. at 66/11 KV substation Kharadpada.

Particulars	Total Estimated Amount (INR Cr)	Proposed Expenditure (INR Cr)			Capitalisation schedule
		FY 2022-23	FY 2023-24	FY 2024-25	
A scheme for Renovation of Central room building and replacement of 66 KV breakers, isolator, CTs, PTs etc. at 66/11 KV substation Kharadpada	4.00	1.00	3.00	-	FY2023-24

O. Other office assets, office automation and other equipment etc.

Petitioner's Submission

The petitioner has submitted that the office equipment and assets are required to be procured in day to day operations of the petitioner. The petitioner has proposed to procure computer, laptop, projector, furniture, communication, and other office equipment during the MYT Control Period. Further the petitioner has given

reasons for non-execution of the above activities because of privatization of electricity distribution business in the area of DNH. Hence, the office automation is also planned for the transmission activity during the MYT Control Period with an estimated cost of INR 5 Cr. Accordingly projected the said scheme before the commission for approval.

The capital expenditure proposed by the petitioner for this scheme is as given below:

Table 53: Capital Expenditure and capitalisation proposed by the Petitioner for Other office assets, office automation and other equipment etc.

Particulars	Total Estimated Amount (INR Cr)	Proposed Expenditure (INR Cr)			Capitalisation schedule
		FY 2022-23	FY 2023-24	FY 2024-25	
A scheme for other office assets, office automation and other equipment etc.	5.00	1.00	2.00	2.00	FY2024-25

P. <u>Strengthening of old HT line (11 kV Mandoni Rural feeder) by new insulated ACSR HT conductor from Khanvel Substation to village Khedpa and Bedpa Vadpada.</u>

Petitioner's Submission

The petitioner has submitted that the existing 11 KV Mandoni feeder is emanating from 66/11 KV khanvel substation and the length of main feeder plus tap lines feeding power to various villages and the area of surroundings is around 125 km. The existing conductor capacity is 36 mm square which is required to be replaced by 100 mm square dog conductor with erection of RSJ poles in long mid span for strengthening of the feeder. The petitioner proposed that the estimated cost for carrying out the said scheme would be around INR 14.94 Cr. The petitioner adds further that upon implementation of the said scheme, the petitioner will be able to reduce the power interruption, line losses and can achieve reliable power supply.

The capital expenditure proposed by the petitioner for this scheme is as given below:

Table 54: Capital Expenditure and capitalisation proposed by the Petitioner for Strengthening of old HT line (11 kV Mandoni Rural feeder) by new insulated ACSR HT conductor from Khanvel Substation to village Khedpa / Bedpa Vadpada

Particulars	Total Estimated Amount (INR Cr)	Proposed Expenditure (INR Cr)			Capitalisation schedule
		FY 2022-23	FY 2023-24	FY 2024-25	
A scheme for Strengthening of old HT line (11 kV Mandoni Rural feeder) by new insulated ACSR HT conductor from Khanvel Substation to village Khedpa / Bedpa Vadpada	14.94	-	14.94	-	FY2023-24

Q. Construction of new control room building at Dadra sub-station.

The petitioner has submitted that the existing dada substation, control building is contracted in long back in year 1980. The said area is also having water logging problem in rainy reason due to new construction carried out in the area. Hence, a new elevated substation control building is proposed to be contracted. The design of the building is under the finalization by appointing a consultant. The petitioner is planning to execute the said scheme of construction during the MYT Control Period with an estimated cost of INR 5 Cr.

The capital expenditure proposed by the petitioner for this scheme is as given below:

Table 55: Capital Expenditure and capitalisation proposed by the Petitioner for Construction of new control room building at Dadra sub-station

Particulars	Total Estimated Amount (INR Cr)	Proposed Expenditure (INR Cr)			Capitalisation schedule
		FY 2022-23	FY 2023-24	FY 2024-25	
A scheme for the construction of new control room building at Dadra sub-station	5.00	-	5.00	-	FY2023-24

Commission's Analysis

The Commission has analysed the actual achievement of capital expenditure and capitalisation of the Petitioner vis-à-vis that approved by the Commission in the previous Business Plan of MYT Control Period from FY 2019-20 to FY 2021-22 as given below:

Table 56: Capital Expenditure achieved by the Petitioner vis-à-vis approved by the Commission

Particulars	FY 2019-20		FY 2020-21		FY 2021-22		Total		
	Approved	Actual	Approved	Actual	Approved	Estimated	Approved	Actual/ Estimated	% Achievement
Capital Expenditure (INR Cr)	128.20	42.89	30.19	48.39	18.00	10.00	176.39	101.28	57.42%

Table 57: Capitalisation achieved by the Petitioner vis-à-vis approved by the Commission

Particulars	FY 2019-20		FY 2020-21		FY 2021-22		Total		
	Approved	Actual	Approved	Actual	Approved	Estimated	Approved	Actual/ Estimated	% Achievement
Capitalisation (INR Cr)	5.70	14.88	182.69	163.92	48.00	8.26	236.39	186.66	78.97%

The Commission observes that the Petitioner has achieved only 57.42% of approved capital expenditure and 78.97% of approved capitalisation for MYT Control Period from FY 2019-20 to FY 2021-22.

The Commission as a part of data gaps asked the Petitioner to submit the details of scheme wise status of schemes approved in the previous Business Plan Order and the reasons for not taking up some of the schemes. The Petitioner in its reply submitted the actual capitalisation of schemes approved in previous Business Plan Order as follows:

Table 58: Status of Schemes approved in previous Business Plan

Sr. No.	Scheme	Approved Cost (INR Cr)	Actual Capitalized Value (INR Cr)	Remarks
1	Underground cabling with establishment of 66/11 KV substation in SMC area, Silvassa town	139.00	142.61	The cost of completion of the said project is increased due to increases in number of consumers and resulting in extended area for cable laying.

Sr. No.	Scheme	Approved Cost (INR Cr)	Actual Capitalized Value (INR Cr)	Remarks
2	A scheme for Establishment of new 66/11 KV Sub Station at village Sayali with associated 66 KV underground line	38.82	-	The tender published for the said works is scrapped as the estimation was made considering single length cable. Whereas work is required to be done with 7 layer of cable laying. Thus now estimation with new technology with GIS substation is under finalization and now revised cost is INR 38.82 Cr.
3	A scheme for augmentation of 66/11 KV Kharadpada substation by adding 20 MVA Transformer	3.57	1.55	_
4	A scheme for Replacement of ACSR Panther conductor by High Capacity TACSR conductor of 66 KV Kharadpada – Athal substation	2.13	0.57	_
5	Scheme for integrated solution for various business processes such as billing finance HR and projects. (ERP SOFTWARE)	3.25	-	The said plan is scrapped and ERP scheme would be done for Transmission business.
6	New 66 kV line from 220/66 kV Wagchipa Sub station	21.00	9.82	_
7	Smart Metering Projects	48.00	-	The said plan is scrapped.
	Total	**236.93**	**159.98**	

The Commission as a part of data gaps also asked the Petitioner to submit the following information

a. Cost benefit analysis of various schemes proposed in the Business Plan;
b. Improvement in operational efficiency envisaged in the Control Period owing to the proposed capital investment;
c. Details for ongoing projects approved in previous business plan that will spill over into this Control Period along with justification, if any.
d. Preparedness for each scheme in terms of status of tendering process and funds tied up to execute the Capital works proposed and Planned during MYT Control Period from FY 2022-23 to FY 2024-25.
e. Details of the year-wise Capitalization Plan
f. Copy of DPR's/Work Orders with respect to each proposed scheme for the MYT period FY 2022-23 to FY 2024-25.

Further, the preparedness to execute the capital expenditure schemes was discussed in detail with the Petitioner during the TVS and the Petitioner during TVS agreed to submit the revised capital expenditure and capitalisation plan along with the supporting documents.

The Petitioner submitted the revised capital expenditure plan and capitalisation for the MYT Control Period. The Commission observed that the petitioner has made some changes in the revised capex plan with respect to Capex plan submitted with the Petitioner. As per revised plan, the scheme no. 2 - Conversion of 66/11 KV (15X3+20X2=85MVA) substation into GIS substation at Amli and scheme no. 17 - Construction of new control room building at Dadra sub-station as filed in the petition is removed. Further the scheme no. 10 - Establishment of new 66/11 kV, 2x20 MVA substation at Silli from earlier submissions is substantially modified in the revised plan. Further a new scheme (Providing new 20 MVA transformer at 66/11 KV Dadra substation) is added by the petitioner.

The details of revised capital expenditure and capitalisation plan submitted by the Petitioner is given in the Table below:

Table 59: Revised Capital expenditure plan proposed for the MYT Control Period

Sr. No.	Name of Scheme	Total estimated amount for MYT Control Period (INR Cr)	Proposed Expenditure (INR Cr)			Capitalisation Schedule
			FY 2022-23	FY 2023-24	FY 2024-25	
1	Erection of various capacity of new distribution transformer, extension of HT/LT line work, releasing of new service connection of all type of category under Normal Development scheme	3.00	1.00	1.00	1.00	FY 2024-25
2	Augmentation of 66/11 Waghdara Substation from 2X20 MVA to 3x20 MVA	3.06	3.06	0.00	0.00	FY 2022-23
3	Establishment of 66/11 GIS substation at Dadra (2X20 MVA)	17.74	0.00	10.00	7.74	FY 2024-25
4	Augmentation of 66/11 Piparia Substation from 2X20 MVA to 3x20 MVA	2.47	0.00	2.47	0.00	FY 2023-24
5	66 KV line from Wagchipa to Sayali (10 KM)	31.85	0.00	31.85	0.00	FY 2023-24
6	66 KV line from Wagchipa to Masat (15 KM)	15.03	0.00	5.00	10.03	FY 2024-25
7	66 KV line from Wagchipa to Dadra (10 KM)	15.44	0.00	15.44	0.00	FY 2023-24
8	Establishment of new 66/11 kV , 2x20 MVA substation at Sayali	38.82	0.00	10.00	28.82	FY 2024-25
9	Augmentation of 66/11 kV Silli Sub-station from 1X20 MVA + 2X15 MVA = 50 MVA to	3.06	0.00	3.06	0.00	FY 2023-24

Sr. No.	Name of Scheme	Total estimated amount for MYT Control Period (INR Cr)	Proposed Expenditure (INR Cr)			Capitalisation Schedule
			FY 2022-23	FY 2023-24	FY 2024-25	
	2X20MVA + 2X15 MVA = 70 MVA					
10	Conversion of double circuit 66 KV line from 220 kV Kharadpada to Masat substation from panther to TACSR (6 Kms)	2.96	2.96	0.00	0.00	FY 2022-23
11	Conversion of double circuit 66 KV line from 220 kV Kharadpada to Rakholi substation from panther to TACSR	2.76	2.76	0.00	0.00	FY 2022-23
12	Conversion of double circuit 66 KV line from 220 KV Khadoli substation to Rakholi substation	4.10	4.10	0.00	0.00	FY 2022-23
13	Renovation of Central room building and replacement of 66 KV breakers, isolator, CTs, PTs etc. at 66/11 KV substation Kharadpada	2.50	1.00	1.50	0.00	FY 2023-24
14	Official Assets, establishment of data centre, call centre, website, etc.	5.00	1.00	2.00	2.00	FY 2024-25
15	Strengthening of old HT line (11 kV Mandoni Rural feeder) by new insulated ACSR HT conductor from Khanvel Substation to village Khedpa and Bedpa Vadpada	14.94	0.00	14.94	0.00	FY 2023-24
16	Providing new 20 MVA transformer at 66/11 KV Dadra substation	3.22	0.00	3.22	0.00	FY 2023-24
	Total	**165.95**	**15.88**	**100.48**	**49.59**	

For the above schemes, the Petitioner has submitted the copy of Technical Sanction for all the schemes except Scheme No. 1 and 14. Further, the Petitioner has submitted the copy of DPR for Scheme No. 3 and 8.

Table 60: Revised Year-Wise Capital Expenditure and Capitalisation as proposed by the Petitioner

Particulars	Total Estimated Amount (INR Cr)	Proposed Expenditure (INR Cr)		
		FY 2022-23	FY 2023-24	FY 2024-25
Capital Expenditure	165.95	15.88	100.48	49.59

Particulars	Total Estimated Amount (INR Cr)	Proposed Expenditure (INR Cr)		
		FY 2022-23	FY 2023-24	FY 2024-25
Capitalisation	165.95	15.88	75.48	74.59

Table 61: Year-Wise Capital Expenditure and Capitalisation approved by the commission

Particulars	Total Estimated Amount (INR Cr)	Approved Expenditure (INR Cr)		
		FY 2022-23	FY 2023-24	FY 2024-25
Capital Expenditure	157.95	13.88	97.48	46.59
Capitalisation	157.95	13.88	73.23	70.84

Approach of the Commission

For the upcoming Control Period, the Commission has compared capital expenditure and capitalisation proposed by the Petitioner with the Technical Sanctions and DPRs submitted by the Petitioner along with the Business Plan petition and replies to Deficiency Notes. If the Petitioner has failed to submit the Technical Sanction letters for any of the proposed scheme for the upcoming Control Period or the submitted proofs/details are missing the required information, the Commission has not approved any of the capital expenditure and capitalisation proposed for the said schemes. However, the Commission may make some exceptions, subject to Petitioner furnishing documents within 3 months of this Order. Based on the Petitioner's submissions and the overall approach discussed herein, the scheme wise capital expenditure and capitalisation approved by the Commission is given in following Tables:

Table 62: Summary of capital expenditure scheme wise approved by the Commission for the upcoming MYT Control Period

Sr. No.	Name of Scheme	Approved Expenditure (INR Cr)			Total (INR Cr)
		FY 2022-23	FY 2023-24	FY 2024-25	
1	Augmentation of 66/11 Waghdara Substation from 2X20 MVA to 3x20 MVA	3.06	0	0	3.06
2	Establishment of 66/11 GIS substation at Dadra (2X20 MVA)	0	10	7.74	17.74
3	Augmentation of 66/11 Piparia Substation from 2X20 MVA to 3x20 MVA	0	2.47	0	2.47
4	66 KV line from Wagchipa to Sayali (10 KM)	0	31.85	0	31.85
5	66 KV line from Wagchipa to Masat (15 KM)	0	5	10.03	15.03
6	66 KV line from Wagchipa to Dadra (10 KM)	0	15.44	0	15.44

Sr. No.	Name of Scheme	Approved Expenditure (INR Cr)			Total (INR Cr)
		FY 2022-23	FY 2023-24	FY 2024-25	
7	Establishment of new 66/11 kV , 2x20 MVA substation at Sayali	0	10	28.82	38.82
8	Augmentation of 66/11 kV Silli Sub-station from 1X20 MVA + 2X15 MVA = 50 MVA to 2X20MVA + 2X15 MVA = 70 MVA	0	3.06	0	3.06
9	Conversion of double circuit 66 KV line from 220 kV Kharadpada to Masat substation from panther to TACSR (6 Kms)	2.96	0	0	2.96
10	Conversion of double circuit 66 KV line from 220 kV Kharadpada to Rakholi substation from panther to TACSR	2.76	0	0	2.76
11	Conversion of double circuit 66 KV line from 220 KV Khadoli substation to Rakholi substation	4.1	0	0	4.1
12	Renovation of Central room building and replacement of 66 KV breakers, isolator, CTs, PTs etc. at 66/11 KV substation Kharadpada	1	1.5	0	2.5
13	Strengthening of old HT line (11 kV Mandoni Rural feeder) by new insulated ACSR HT conductor from Khanvel Substation to village Khedpa and Bedpa Vadpada	0	14.94	0	14.94
14	Providing new 20 MVA transformer at 66/11 KV Dadra substation	0	3.22	0	3.22
	Total	**13.88**	**97.48**	**46.59**	**157.95**

Therefore, the commission approves a total capital expenditure of 157.95 Crore for the upcoming Control Period.

Summary of Capitalisation approved by the commission

The Commission has approved the capitalisation of the capital expenditure in line with the capitalisation pattern proposed by the Petitioner for the approved schemes. The summary of capitalisation approved by the Commission for the upcoming Control Period is given below:

Table 63: Summary of capitalisation scheme wise approved by the Commission for the upcoming MYT Control Period

Name of Scheme	Approved Capitalisation (INR Cr)			Total (INR Cr)
	FY 2022-23	FY 2023-24	FY 2024-25	
Capitalisation approved by the Commission	**13.88**	**73.23**	**70.84**	**157.95**

Therefore, the commission approves a total capitalisation of INR 157.95 Cr for the upcoming Control Period.

3.5.2 Funding Plan

Petitioner's submission

The Petitioner has submitted that the funding of the capital expenditure scheme as detailed above shall be done through own funds and by availing loans. The debt equity ratio of 70:30 shall be considered for financing the capital expenditure schemes.

Commission's Analysis

The Petitioner has proposed to fund the capital investment schemes with the normative Debt: Equity ratio of 70:30.

Based on the normative debt: equity ratio of 70:30, the approved funding plan is given in the table below:

Table 64: Approved funding plan for the upcoming Control Period

Sr. No.	Sources of Funds	FY 2022-23	FY 2023-24	FY 2024-25	Total
A	**Total Capitalisation in INR Cr**	**13.88**	**73.23**	**70.84**	**157.95**
B	**Debt (%)**	70%	70%	70%	70%
C	**Equity (%)**	30%	30%	30%	30%
D	**Normative Debt (INR Cr) (B x A)**	9.72	51.26	49.59	110.57
E	**Equity (INR Cr) (C x A)**	4.16	21.97	21.25	47.39

3.5.3 Capital Expenditure Scheme for Customer Relationship Management

The Commission observed that the Petitioner has not specifically proposed any Capital expenditure towards the implementation of Customer Relations Manager (CRM) system in 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. Though the Petitioner has proposed Capital Expenditure of INR 5 Cr towards Official Assets, establishment of data centre, call centre, website, etc., but the Petitioner has not submitted the DPR and Technical Sanction for this Capex.

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.**

3.6 Manpower Plan

Petitioner's submission

The Petitioner has forecasted the number of employees for the MYT Control Period FY 2022-23 to FY 2024-25 based on the proposed recruitments and retirement have been given in the table below. Further, the Petitioner submitted, it is also worth to mention here that the said projection is carried out as keeping the said entity as whole in the current structure. However, the electricity distribution business in the area of DNH is to be privatized in view of directive of GOI and it may have implication on the said projection.

Table 65: Projections of Number of employees for the MYT Control Period as submitted by Petitioner

Financial Year	Manpower Strength (Regular, Deputation, Contractual, Work charge)	New Posts to be Created	Retirement
FY 2021-22	354	-	7
FY 2022-23	347	48	5
FY 2023-24	390	46	7
FY 2024-25	429	48	6

Commission's Analysis

The Commission approves the Petitioner's additional manpower requirement. However, the Commission directs the Petitioner to obtain the Government approvals before recruitment and submit the copy of same to the Commission in the ARR and Tariff Petition of each year.

3.7 Other Expenditure

3.7.1 Expenses related to Safety of man power

Petitioner's submission

The Petitioner has proposed expenditure of INR 0.25 Crore for each year of the Control Period, to be spent on procurement of safety equipment, safety related trainings etc. The Petitioner has further submitted that the actual expenses spent under this head in FY 2020-21 are not available.

Commission's Analysis

The Commission observes that these expenses form part of ARR and hence the Commission has dealt with these expenses while approving the ARR for each year of the Control Period in the Order issued on MYT Petition filed by the Petitioner.

3.7.2 Expenses related to CGRFs.

The Petitioner has submitted that the actual expenditure for CGRF was INR 17.04 Lakhs in FY 2020-21. Further, the Petitioner has proposed the following expenditure related to CGRF for the upcoming Control Period.

Table 66: Summary of expenses related to CGRFs.

Particulars	FY 2021-22 (INR Lakh)	FY 2022-23 (INR Lakh)	FY 2023-24 (INR Lakh)	FY 2024-25 (INR Lakh)
	Actual	Proposed	Proposed	Proposed
Expenses for CGRFs	17.04	18.75	20.62	22.70

Commission's Analysis

The Commission observes that these expenses form part of ARR and hence the Commission has dealt with these expenses while approving the ARR for each year of the Control Period in the Order issued on MYT Petition filed by the Petitioner.

3.7.3 Expenses related to Training/Skilling/Reskilling of the manpower

Petitioner's submission

The Petitioner has proposed the following expenditure related to Training/skilling/reskilling for the upcoming Control Period

Table 67: Summary of expenses related to Training/Skilling/Reskilling cost proposed by the Petitioner

Particulars	FY 2021-22 (INR Lakh)	FY 2022-23 (INR Lakh)	FY 2023-24 (INR Lakh)	FY 2024-25 (INR Lakh)
	Actual	Proposed	Proposed	Proposed
Expenses for Training/skilling/reskilling	NA	25	35	35

Commission's Analysis

The Commission observes that these expenses form part of ARR and hence the Commission has dealt with these expenses while approving the ARR for each year of the Control Period in the Order issued on MYT Petition filed by the Petitioner.

3.8 Reliability Indices

Petitioner's submission

The Petitioner has not submitted the details of reliability indices i.e., SAIFI, SAIDI and MAIFI for the upcoming Control Period.

Commission's Analysis

The Commission asked the Petitioner to submit the actual reliability indices i.e., SAIFI, SAIDI and MAIFI for previous 3 years and proposed for the upcoming Control Period. The Petitioner in its reply has submitted the month wise SAIFI, SAIDI and MAIFI for FY 2020-21.

The Commission based on month wise SAIFI, SAIDI and MAIFI submitted by the Petitioner computed the overall SAIFI, SAIDI and MAIFI for FY 2020-21. The Commission is of the view that the incidence of outages and duration of outages should reduce over a period of time. Hence, the Commission has approved 10% improvement in SAIFI, SAIDI and MAIFI every year with respect to actual values achieved during this FY 2020-21. Accordingly, the reliability indices approved by the Commission for each year of the Control Period are given in the Table below:

Table 68: Reliability Indices approved by the Commission

Particulars	FY 2022-23 Approved	FY 2023-24 Approved	FY 2024-25 Approved
SAIFI	1.78	1.60	1.44
SAIDI	133.88	120.49	108.44
MAIFI	2.38	2.15	1.93

Annexure

Annexure 1: List of Stakeholders

The following is the list of the stakeholders who have attended virtual public hearing conducted on February 2nd 2022:

S. No.	Name of Stakeholders	Designation
1.	Shri Chandrakant M. Parekh	President FIA, Silvassa
2.	Shri P.K.Jadia	Executive Secretary, FIA, Silvassa