

# BUSINESS PLAN

FOR MYT CONTROL PERIOD FY 2021-22 TO FY 2025-26



Submitted by:

**TATA STEEL LIMITED**

Jamshedpur



**The Secretary,  
Jharkhand State Electricity Regulatory Commission  
2<sup>nd</sup> Floor, Utpad Bhawan, New Police Line Road,  
Opposite of C M House, Kanke Road,  
Ranchi PIN - 834008**

PBD / 2095 / 59 – T / 10 / 2020  
November' 29<sup>th</sup> ' 2020

**Sub : Submission of Business Plan & Multi Year Tariff Petition for control period (FY 2021-22 to FY 2025-26) and Tariff proposal for FY 2021-22 by Licensee TSL (Tata Steel Limited)**

Dear Sir,

We would like to submit Business Plan & Multi Year Tariff Petition for control period (FY 2021-22 to FY 2025-26) and Tariff proposal for FY 2021-22 in one original and six copies with all Annexures, as per format prescribed under JSERC (Terms and conditions for Determination of Distribution Tariff) Regulations 2020.

We also attach herewith a receipt of payment made to the Hon'ble Commission for an amount of Rs. 25000/- (Rupees Twenty five Thousand only), towards filing fee of this petition according to JSERC (Conduct of Business regulation) 2016.

We request the Hon'ble commission to kindly consider the above submission.

Thanking You,

Yours Faithfully,

(Sharad Kumar)  
Chief Power Systems & Energy.

**TATA STEEL LIMITED**

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झारखण्ड JHARKHAND

06AA 268891

### AFFIDAVIT

BEFORE THE JHARKHAND STATE ELECTRICITY REGULATORY COMMISSION, RANCHI

Filing No.....

Case No.....

IN THE MATTER OF: Filing of the Petition for Submission of Business Plan & MYT for control period FY 2021-22 to FY 2025-26, and Tariff proposal for FY 2021-22, for the Licensee under Section 45, 46, 61, 62, 64 and 86 of the Electricity Act, 2003 and as per the regulations of Jharkhand State Electricity Regulatory Commission (JSERC) (Terms and Conditions for Distribution Tariff) Regulation, 2020.

AND

IN THE MATTER OF: Tata Steel Limited (hereinafter referred to as "TSL" which shall mean for the purpose of this petition the Licensee), a company incorporated under the provisions of the Companies Act, 2013 and having its registered office at Mumbai – Petitioner.



✓ *[Signature]*

Signed / Put L.T.  
In my Presence

*[Signature]*  
Advocate



## AFFIDAVIT VERIFYING THE PETITION

I, Sharad Kumar son of Late S C Srivastava, aged 58 years residing at Bungalow No. 7, Park Road, Northern Town, P. O. - Bistupur, Jamshedpur do hereby solemnly affirm and state as follows:

1. That I am working as Chief Power Systems and Energy (Tata Steel Limited) in the office of Tata Steel Limited (TSL), the Petitioner in the above matter and I am duly authorised by the said Petitioner to make this affidavit.

2. That Tata Steel Limited power distribution licensee is filing this petition under the Electricity Act 2003 and relevant provisions under JSERC (Terms and conditions for Determination of Distribution Tariff) Regulations 2020, for approval of Business Plan & Multi Year Tariff Petition for control period (FY 2021-22 to FY 2025-26) and Tariff proposal for FY 2021-22, which shall be submitted to the Hon'ble Jharkhand State Electricity Regulatory Commission Ranchi.

3. I solemnly affirm at Jamshedpur on this day of 28th Nov. 2020 that

(i). *The contents of the petition are true to my knowledge and I believe that no part of it is false and no material has been concealed there from.*

(ii). *That the statements made in paragraphs below in the petition are true to my knowledge and are based on information derived from the records of the case, which I believe to be true and rest of the paragraphs are by way of submissions.*

Further, to my knowledge and belief, no material information has been concealed in this Petition.



DEPONENT

### VERIFICATION

I, Sharad Kumar, solemnly affirm that the contents of above affidavit are true to the best of my knowledge and nothing has been concealed there from.

Verified at Jamshedpur on this 28th day of November 2020.

Witness



**PRAMOD KUMAR BHAGAT**  
**NOTARY PUBLIC**  
East Singhbhum, Reg. No.2842 (J)  
Govt. of Jharkhand, JSR. (INDIA)



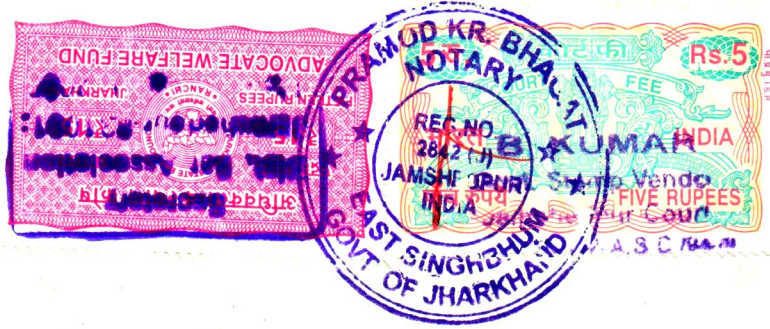
DEPONENT

Signed / Put L.T. In my Presence

Advocate

Date: .....

DBA/AF/JSR/10/2010/ **BV - 0026**



## AFFIDAVIT

*[Handwritten signature]*  
**PRAMOD KUMAR BHAGAT**  
**NOTARY PUBLIC**  
East Singhbhum, Reg. No. 2842 (J)  
Govt. of Jharkhand, JSR. (INDIA)



Signed / Put L.T.I.  
In my Presence  
*[Handwritten signature]*  
**Advocate**

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### List of Abbreviations

Sr. No	Abbreviations	Descriptions
1.	A&G	Administrative and General
2.	ABT	Availability Based Tariff
3.	ALDC	Area Load Dispatch Centre
4.	AMR	Automatic Meter Reading
5.	APDRP	Accelerated Power Development Reforms Program
6.	ARR	Aggregate Revenue Requirement
7.	AS	Accounting Standard
8.	CAGR	Compound Annual Growth Rate
9.	CDM	Clean Development Mechanism
10.	CEA	Central Electricity Authority
11.	CERC	Central Electricity Regulatory Commission
12.	CESC	Calcutta Electric Supply Company
13.	CFL	Compact Fluorescent Lamp
14.	CGS	Central Generating Station
15.	CoS	Cost of Supply/ Service
16.	COVID	Corona Virus Disease
17.	CPPs	Captive Power Plants
18.	CS	Commercial Services
19.	CWIP	Capital Work in Progress
20.	DBT	Direct Benefit Transfer
21.	DDUGJY	Deen Dayal Upadhyay Gram Jyoti Yojna
22.	DELP	Domestic efficient Lighting program
23.	DF	Distribution Franchisee
24.	Discom	Distribution Companies
25.	DPS	Delayed Payment Surcharge
26.	DS	Domestic Service
27.	DSHT	Domestic Service High Tension
28.	DSM	Demand Side Management
29.	DT	Distribution Transformer
30.	DTC	Distribution Transformer
31.	DVC	Damodar Valley Corporation
32.	EA/The Act	The Electricity Act 2003
33.	ECEA	Electricity Contract Enforcement Authority
34.	ERC	Electricity Regulatory Commission
35.	EV	Electric Vehicles
36.	F&A	Finance & Accounts
37.	FAS	Finance Accounting System
38.	FIs	Financial Institutions
39.	FOR	Forum of Regulators
40.	FY	Financial Year
41.	GFA	Gross Fixed Assets
42.	GoI	Government of India
43.	GW	Giga Watt
44.	HP	Horse Power

Sr. No	Abbreviations	Descriptions
45.	HPO	Hydro Purchase Obligation
46.	HR	Human Resource
47.	HRIR	Human Resources and Industrial Relations
48.	HT	High Tension
49.	HTSS	High Tension Special Services
50.	IPDS	Integrated Power Development Scheme
51.	IPDS	Integrated Power Development Scheme
52.	IPP	Independent Power Producers
53.	JBVNL	Jharkhand Bijli Vitaran Nigam Limited
54.	JSEB	Jharkhand State Electricity Board
55.	JSERC	Jharkhand State Electricity Regulatory Commission
56.	JTS	Jamshedpur Town Services
57.	JUSCO	Jamshedpur Utilities & Services Company Limited
58.	JUSNL	Jharkhand Urja Sancharan Nigam Limited
59.	JUUNL	Jharkhand Urja Utpadan Nigam Limited
60.	JUVNL	Jharkhand Urja Vikas Nigam Limited
61.	KRA	Key Result Areas
62.	KV	Kilo Volt
63.	kVA	Kilo Volt Ampere
64.	kVAh	Kilo Volt Ampere Hour
65.	kW	Kilo Watt
66.	kWh	Kilo Watt Hour
67.	LF	Load Factor
68.	LT	Low Tension
69.	LTIS	Low Tension Installation Based
70.	MD	Maximum Demand
71.	MOD	Merit Order Despatch
72.	MOEF	Ministry of Environment and Forest
73.	MoP	Ministry of Power
74.	MOU	Memorandum of Understanding
75.	MU	Million Units (Million kWh)
76.	MVA	Mega Volt Ampere
77.	MW	Mega Watt
78.	MYT	Multi Year Tariff
79.	NAPCC	National Action Plan of Climate Change
80.	NEP	National Electricity Policy
81.	NTP	National Tariff Policy
82.	NTPC	National Thermal Power Corporation
83.	O&M	Operation & Maintenance
84.	OA	Open Access
85.	PF	Provident Fund
86.	PFA	Power For All
87.	PLR	Prime Lending Rate
88.	PPA	Power Purchase Agreement
89.	PSD	Power Service Division
90.	PSS	Power Sub-Station

Sr. No	Abbreviations	Descriptions
91.	R&M	Repair and Maintenance
92.	RE	Renewable Energy
93.	REC	Renewable Energy Certificate
94.	REDB	Rural Electrification Distribution Backbone
95.	RGGVY	Rajiv Gandhi Gram Vidyutikaran Yojna
96.	RMU	Ring Main Unit
97.	ROE	Return on Equity
98.	RPO	Renewable Purchase Obligation
99.	Rs	Rupees
100.	SAIDI	System Average Interruption Duration Index
101.	SAIFI	System Average Interruption Frequency Index
102.	SAIL	Steel Authority of India Limited
103.	SAP	System Application and Procedure
104.	SAP-IS	Systems Applications and Products - Information System
105.	SBI	State Bank of India
106.	SCADA	Supervisory control and data acquisition
107.	SERC	State Electricity Regulatory Commission
108.	SLDC	State Load Dispatch Centre
109.	SLM	Straight Line Method
110.	SWOT	Strength, Weakness, Opportunity and Threats
111.	T&D	Transmission and Distribution
112.	TPCL	Tata Power Company Limited
113.	TSL	Tata Steel Limited
114.	TSUISL	Tata Steel Utilities and Infrastructure Services Limited
115.	UDAY	Ujjwal DISCOM Assurance Yojna
116.	UI Charges	Unscheduled Interchange Charges
117.	UMPP	Ultra Mega Power Plant
118.	UNCCC	United Nations Framework Convention on Climate Change
119.	VEI	Village Electrification Infrastructure
120.	VMV	Vision, Mission and Value Architecture
121.	w.e.f	With effect from
122.	Y-o-Y	Year on Year



## 1. INTRODUCTION

### 1.1 Background – Power Sector

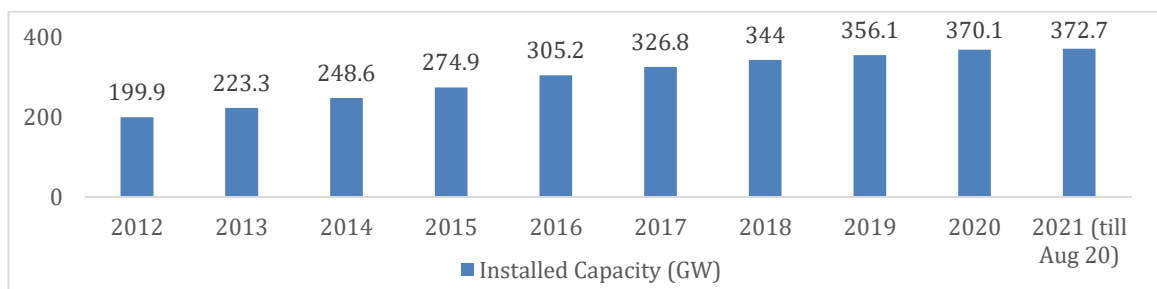
1.1.1 Electricity is a strategic input and one of a key driver for economic and social factor for improvement behind any developing country.

1.1.2 With considerable growth in energy requirement and energy availability, annual per capita energy consumption of India has grown significantly. However Per capita consumption of electricity of India in FY19 is 1181 kWh<sup>1</sup> which is significantly lower than world average of 3,131 kWh<sup>2</sup> and thereby presents a significant potential for growth in the demand for electricity in India.

### 1.2 All India Installed Capacity

1.2.1 Historic trend in grid connected installed capacity (GW) of power generators in India given in below chart:

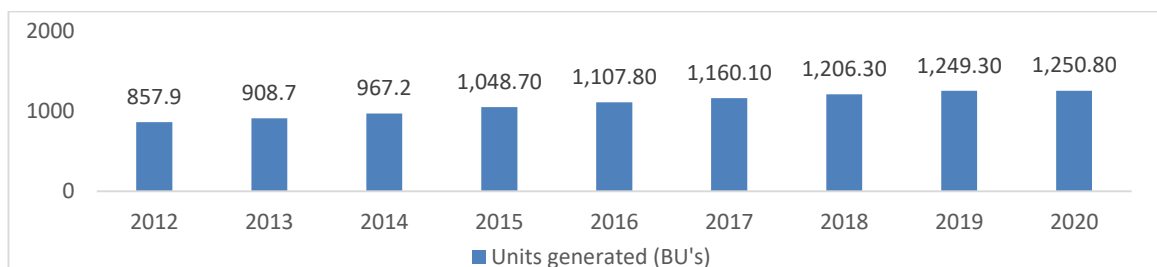
**Figure 1: All India installed Capacity (GW)**



Source: CEA: Monthly Report April 2010-2020, Installed Capacity (Aug-2020)

1.2.2 As it can be seen from above chart that after rapid addition of capacity in power generation in Twelfth Five Year Plan (2012-17), pace of capacity addition has tapered during thirteen plan, mainly as a result of saturation in electricity demand. Moreover in order to mitigate effect of climate change, government of India has focussed more on renewable capacity addition with target of 175 GW by end of thirteen Five year Plan (2022) rather than thermal power generation.

**Figure 2: All India total Generation (in BU)**



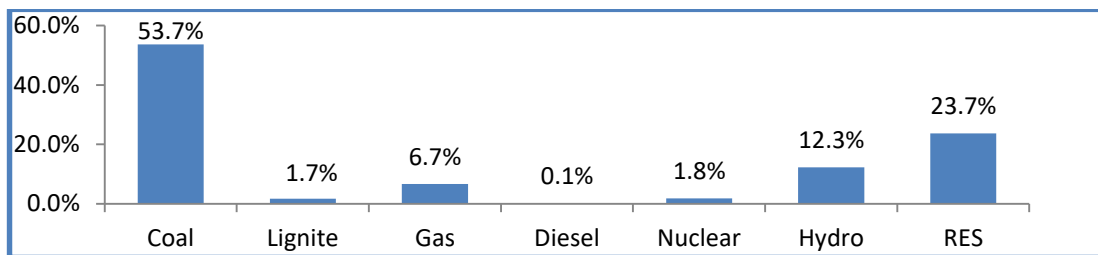
<sup>1</sup>[http://www.cea.nic.in/reports/monthly/executivesummary/2020/exe\\_summary-01.pdf](http://www.cea.nic.in/reports/monthly/executivesummary/2020/exe_summary-01.pdf)

<sup>2</sup> <https://data.worldbank.org/indicator/EG.USE.ELEC.KH.PC>

1.2.3 As can be seen from above graph, due to saturation in demand from Discoms, rate of increase in energy generation has tapered in thirteen five year plan period. This fall is also evident from fall in PLF of thermal plants at 56.08% for FY 2020 from a level of 69.95% in FY 2013. A reason of slowdown in energy demand and thereby energy generation is also due to disbursal of energy efficient Lamps under UJALA scheme.

1.2.4 As of July 2020, installed capacity from coal based generation plants accounts for around 54% of the country's total installed capacity. The breakup of fuel wise share in power generation is given below:

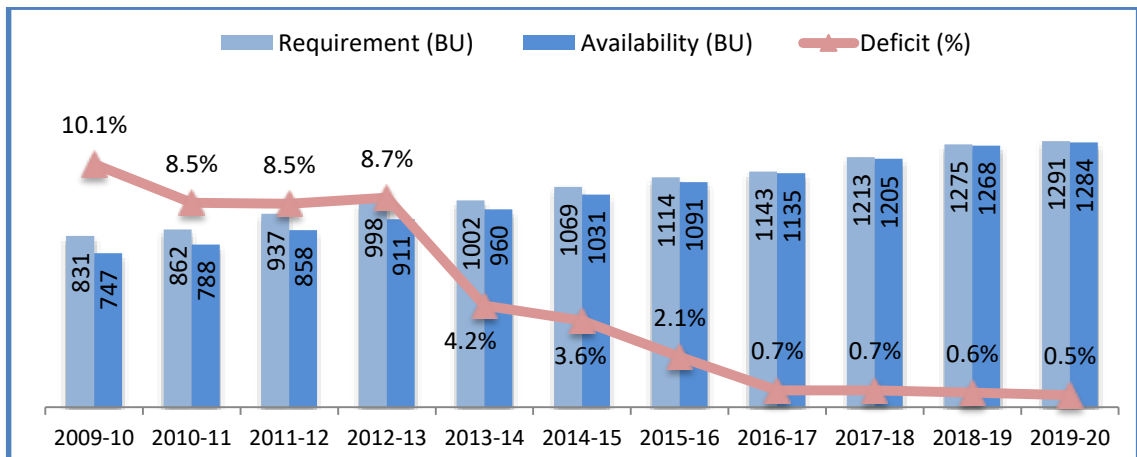
**Figure 3: All India Fuel wise share in installed capacity (%)**



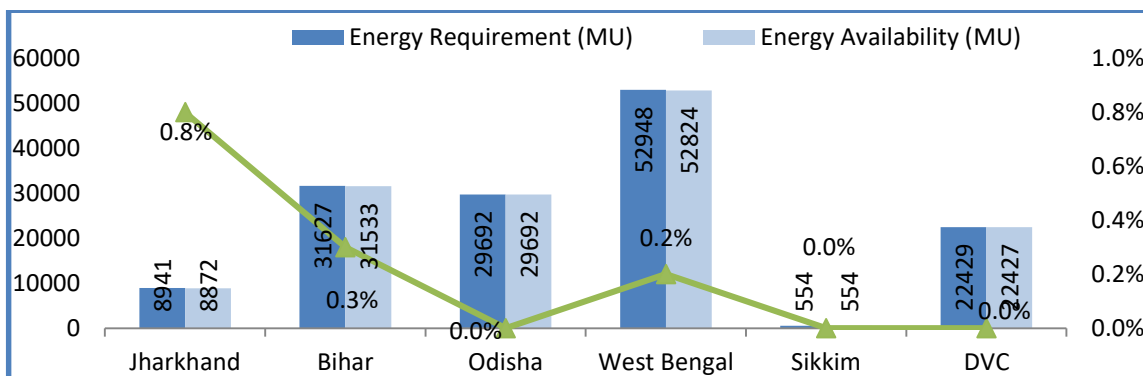
Source: Central Electricity Authority, July – 2020 Executive Summary

1.2.5 Historically, India has experienced shortages in energy and peak power requirements. However due to rapid addition in power generation capacity and energy efficiency measures and reduction in growth rate of demand in the same time frame, the deficit has reduced to a level of 0.5% in FY 2020.

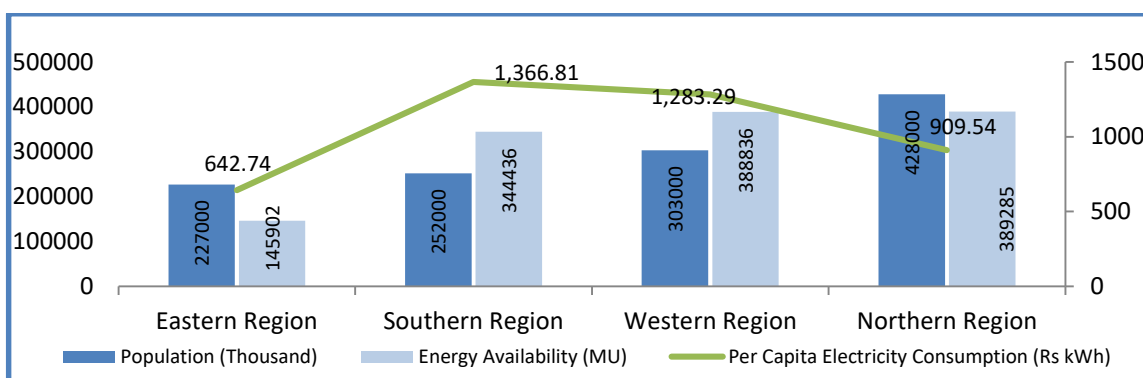
**Figure 4: All India Year wise Energy Requirement, Availability & Deficit (FY 10 to FY 20)**



**Figure 5: Energy Requirement, Availability & Deficit (FY 2019-20) for Eastern Region**

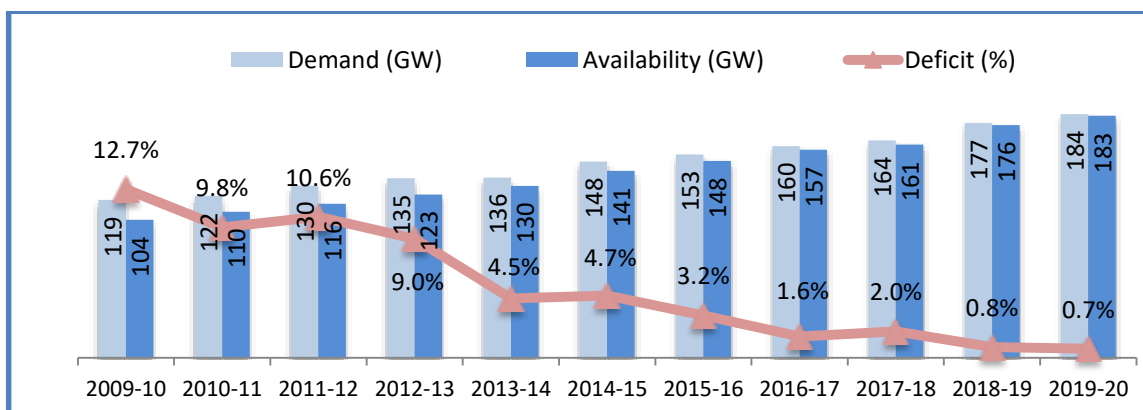


**Figure 6: Per Capita Electricity Consumption for various Regions (FY 2019-20)**



1.2.6 It can be seen from above chart that energy demand of states in eastern region is low as compared to proportion of its population. The main reasons attributable to the same is slower economic growth and limited industrialization despite mineral resources. Poor financial condition of Discoms also contributed to low demand by limiting the supply.

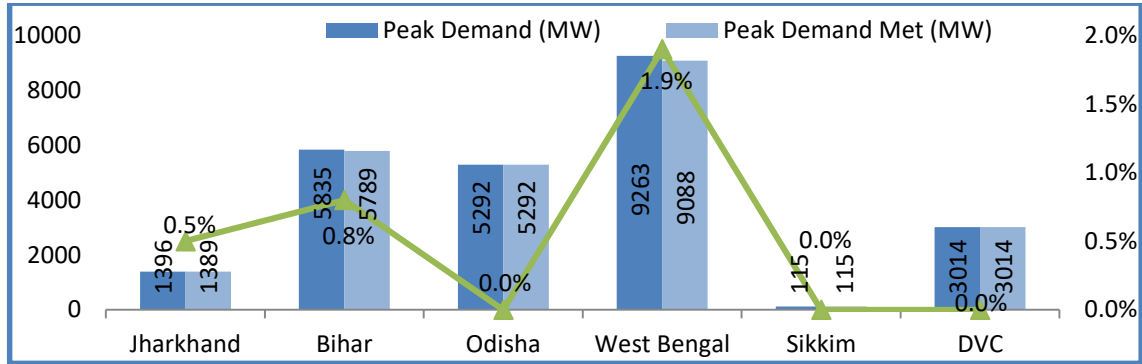
**Figure 7: Year wise Peak Demand, Peak Demand Met & Peak Deficit for India (FY 10 to FY 20)**





- 1.2.7 The Peak Deficit has decreased from 12.7% in FY10 to 0.7% in FY 20, despite 54% increase in demand in past decade which can be attributed to large addition in generation capacity.

**Figure 8: Eastern Region Peak Demand, Peak Demand Met & Peak Deficit  
(FY 2019-20)**



- 1.2.8 DISCOMs in eastern region has been able to reasonably manage the peak demand, given the constraints. However, the financial health<sup>3</sup> of some of the DISCOMs in the eastern region still remains a challenge.

### 1.3 Power Sector Reforms and Schemes in the Distribution Sector

- 1.3.1 The reform process in the Distribution Sector started with unbundling and privatisation of Orissa State Electricity Board which was funded and guided by World Bank. Thereafter Electricity Regulatory Commissions Act (ERC Act) was enacted in 1998. The Electricity Regulatory Commission's Act primarily focused on Constitution of Regulatory Commissions empowering it with certain functions and powers. Its focus was to distance the government from the tariff determination process.
- 1.3.2 Building upon those reformatory steps, Electricity Act (EA), 2003 was enacted in order to promote competition, efficiency in electricity sector and to protect interest of consumers. Under provisions of the act, Central Electricity Regulatory Commission and State Electricity Regulatory Commissions were formed at Central and State level. Further the process of tariff determination as been taken away from government control and is now decided upon by Regulatory Commission under commercial principles or by way of competitive bidding.
- 1.3.3 In addition to EA 2003, along with Tariff Policy 2016, which forms bedrock of Power Distribution functioning in the country, Central Government has also launched various projects/schemes in order to improve condition of Power distribution and Discoms in the country. The schemes are illustrated in below diagram:

**Figure 8: Schemes/Policies Notified by Central Government to Assist Power Distribution Sector**

Power System Improvement and Loss Reduction	Village Electrification and Universal Electricity Access	Scheme for improving Financial Status of Power Utilities
<ul style="list-style-type: none"> <li>• APDRP-2003</li> <li>• R-APDRP-2008</li> <li>• IPDS-2014</li> </ul>	<ul style="list-style-type: none"> <li>• RGGVY-2005</li> <li>• DDUGJY-2014</li> <li>• SAUBHAGYA-2017</li> </ul>	<ul style="list-style-type: none"> <li>• FRP-2012</li> <li>• UDAY-2015</li> <li>• SHAKTI-2017</li> </ul>

### Power System Improvement and Loss Reduction Schemes

- 1.3.4 Central Government rolled-out **Accelerated Power Development Reforms Program (APDRP)** in 2003 which was later re-branded as **Restructured-APDRP** in 2008. The objectives of APDRP and R-APDRP was to reduce AT & C losses to around 15%, augmentation and modernization of power distribution infrastructure, improving customer satisfaction and increasing reliability & quality of power supply.
- 1.3.5 R-APDRP aimed at reliable and automated systems for collection of accurate base line data, and thereafter measuring progress made by Distribution Utilities in reducing its AT&C losses. On basis of reduction in losses, loans given under this scheme was to be converted into grant. This enabled objective evaluation of the performance of utilities before and after implementation of the program. However, assistance under R-APDRP was not applicable for private Utilities.
- 1.3.6 Later on after change of Government at Centre, R-APDRP was subsumed under **Integrated Power Development Scheme (IPDS)** in 2014. The revised scheme in addition to objective of R-APDRP also included metering of Feeders, DTs and consumers.
- 1.3.7 In the case of private sector DISCOMs undertaking distribution of power supply in urban areas, the assets created were to be owned by State Government / State owned companies. These assets were supposed to be transferred to concerned DISCOMs for their use during the license period on mutually agreed terms & conditions. The responsibility of O&M was to be that of the concerned DISCOMs.

### Village Electrification and Universal Electricity Access

- 1.3.8 Central Government also launched **Rajiv Gandhi Gram Vidyutikaran Yojna (RGGVY)** in 2005, to focus on rural electrification through creation of Rural Electrification Distribution Backbone (REDB) comprising of Power Sub-Station (PSS) and 11 kV feeders and Village Electrification Infrastructure (VEI) comprising of Distribution Transformers and LT lines.

- 
- 1.3.9 Later through office Order in December 2014, RGGVY was subsumed under Deen Dayal Upadhyay Gram Jyoti Yojna (DDUGJY). In addition to objectives of RGGVY, DDUGJY also included component on separation of Agricultural and Non-Agricultural feeders facilitating judicious rostering of supply to agricultural and non-agricultural consumers in the rural areas
- 1.3.10 For private sector DISCOMs where the Distribution of power supply in rural areas is with them, projects under the scheme was to be implemented through a State government agency and the assets were to be owned by State Government / State owned companies. These assets thereafter were supposed to be transferred to concerned DISCOMs for their use during the license period on mutually agreed terms & conditions. The responsibility of O&M was to be that of the concerned DISCOMs.
- 1.3.11 **Pradhan Mantri Sahaj Bijli Har Ghar Yojana – ‘SAUBHAGYA’** a new scheme was launched in 2017. Under SAUBHAGYA free electricity connections to all households (both APL and poor families) in rural areas and poor families in urban areas was targeted be provided. Rural Electrification Corporation (REC) has been designated as its nodal agency for the SAUBHAGYA scheme. The total outlay for the scheme was Rs. 16,320 crore. 60% of total expense was to be provided by central government as fund, 30% was to be provided by loans by Banks/FIs. Remaining 10% of the fund would be contributed by utility or state government.
- 1.3.12 The prospective beneficiary households for free electricity connections under the scheme would be identified using SECC 2011 data. However, un-electrified households not covered under SECC data would also be provided electricity connections under the scheme on payment of Rs. 500 which was to be recovered by DISCOMs in 10 instalments through electricity bill.
- 1.3.13 All DISCOMs including Private Sector DISCOMs, State Power Departments and RE Cooperative Societies were eligible for financial assistance under the scheme in line with DDUGJY.

#### **Schemes for improving Financial Status of Power Utilities**

- 1.3.14 The Union Cabinet gave its approval on 5th November 2015 to a new scheme moved by the Ministry of Power - **Ujjwal DISCOM Assurance Yojna or UDAY**.
- 1.3.15 UDAY provides for financial turnaround and revival of Power Distribution companies (DISCOMs), and importantly also ensures a sustainable permanent solution to the problem. States had to take over 75% of DISCOM debt as on 30 September 2015 over two years - 50% of DISCOM debt was to be taken over in 2015-16 and 25% in 2016-17.
- 1.3.16 Due to above scheme, debt was taken away from books of the DISCOMs and hence their interest expense and principal repayment reduced significantly, thereby
-



improving their financial condition. State Government issued bonds after taking loans of DISCOMs, whose interest rate were very low as compared to DISCOMs Loan.

1.3.17 UDAY scheme is meant only for State owned DISCOMs.

1.3.18 **Scheme for Harnessing and Allocating Koyla Transparently in India (SHAKTI)** was designated by the Union Government for the allocation of coal among thermal power plants in a transparent manner. The main objectives of this policy was to make coal available to all the Thermal Power Plants of the country in a transparent and objective manner. Power Plants would get long term security of supply of coal from a source of their choice and hence it also leads to reduction in cost of power

1.3.19 Due to allocation of coal at cheaper rate, variable cost of thermal power plants would be reduced. Direct benefit of this reduction in tariff would go to Discoms/consumers. It was also envisaged that benefit of linkage coal would be transferred to the end consumers in terms of reduced electricity tariff by the Discoms.

1.3.20 TPCL Jojobera Thermal Power Plant, which also supplies power to TSL has got cheaper coal Linkage under SHAKTI scheme and TSL has also considered reduced power purchase in ensuing Control Period.

1.3.21 **TSL submits that, TSL has not received benefit of any grant from state/central government for various power related schemes which were available to Government Discoms and hence its tariff includes all reasonable cost of capital incurred for power distribution.**

#### **1.4 Key Regulations of Jharkhand State Electricity Regulatory Commission (JSERC):-**

1.4.1 Section 86 of the Electricity Act, 2003 lays down the function of the State Commission which include issuing of distribution license, determination of tariff for supply and wheeling of electricity, regulate electricity purchase and procurement process of distribution licensees among various functions.

1.4.2 Further under Section 181 of EA, 2003 SERCs have power to make various regulation to regulate various aspects of Power Sector in their respective states.

1.4.3 In discharge of its function, the Jharkhand State Electricity Regulatory Commission issued various Rules and Regulations applicable in the State of Jharkhand. Some of the key regulations/policies which were issued by the Jharkhand State Electricity Regulatory Commission and Govt. of Jharkhand are outlined below:

**Table 1: Key Regulation's for Distribution Licensee in Jharkhand**

Sr. No	Name of the Regulations/Policies
1	<b>JSERC (Conduct of Business) Regulations, 2016</b> –Guidelines to Power Sector Utilities in the State of Jharkhand for undertaking various Regulatory activities.
2	<b>JSERC (Guidelines for Establishment of Forum for Redressal of Grievances of the Consumer's and Electricity Ombudsman Regulations), 2011</b> - Guidelines to the Distribution licensee in the state for establishing Forum's for redressal of consumer grievances.
3	<b>JSERC (Demand Side Management Regulations), 2010</b> – Guidelines for advancement and implementation of cost effective DSM initiatives in the State of Jharkhand.
4	<b>Jharkhand State Electricity Regulatory Commission (Renewable Energy Purchase Obligation and its compliance) Regulations, 2016'</b> - Specifies a percentage for procurement of energy generated from such sources on the basis of total consumption of electricity within the area of a distribution licensee
5	<b>JSERC (Terms and Conditions for Determination of Distribution Tariff) Regulations, 2015</b> - Determination of Tariff for Licensees and associated companies and laying down the performance parameters
6	<b>JSERC (Terms and Conditions for Intra-State Open Access) Regulations, 2016</b> - It is applicable for access to and use of the distribution system of Distribution licensees
7	<b>Distribution Licensee's Standard of Performance Regulations, 2015</b> - Stipulates the standards of performance to be adhered by the Distribution licensee
8	<b>JSERC (Electricity Supply Code) Regulations, 2015</b>
11	<b>Rooftop Solar PV Grid Interactive Systems and Net /Gross Metering (1st Amendment) Regulations, 2019</b>
12	<b>JSERC (Operation of Parallel Licensees) Regulations, 2019</b>
13	<b>JSERC (Terms and Conditions for Determination of Distribution Tariff) Regulations, 2020</b> - Determination of Tariff for Licensees and associated companies and laying down the performance parameters

1.4.4 The power sector in the State has been regulated based on the above outlined regulations and the same has also brought in an element of regulatory certainty as envisaged in Electricity Act, 2003. As mentioned previously, the above mentioned enactments have had an impact on the sector at the national as well as the state level.

## 1.5 Clean Energy and Energy Efficiency

1.5.1 Jharkhand has 30% of forest cover as compared to national forest cover of 21%. Due to more number of forest patches the availability of land as well as RoW for Renewable projects becomes difficult. There is a need for systematic identification of land parcel for renewable projects in Jharkhand.

1.5.2 In order to promote adoption of green energy, TSL is encouraging its consumers to install roof-top solar on their premise by providing facilitation support and net

metering. TSL has also installed roof-top solar over its own establishment.

Domestic Tariff in Jamshedpur is subsidised. Setting up the domestic tariff at Cost of Supply will lead to faster adoption of Rooftop Solar in domestic segment.

Tata Steel Limited has met its Renewable Power obligation by purchasing the equivalent Renewable Energy Certificates. Owing to limited availability of renewable power, TSL is primarily dependent on Renewable Energy Certificate for meeting its RPO. However, TSL has started promoting Solar Rooftops in the city. TSL is also evaluating option to put up one 60 MWp capacity solar park near Dinma Lake in Jamshedpur and one 3MWp Solar plant in area in the Sonari Airport.

TSL generally adopts following for energy efficiency in electricity distribution operations-

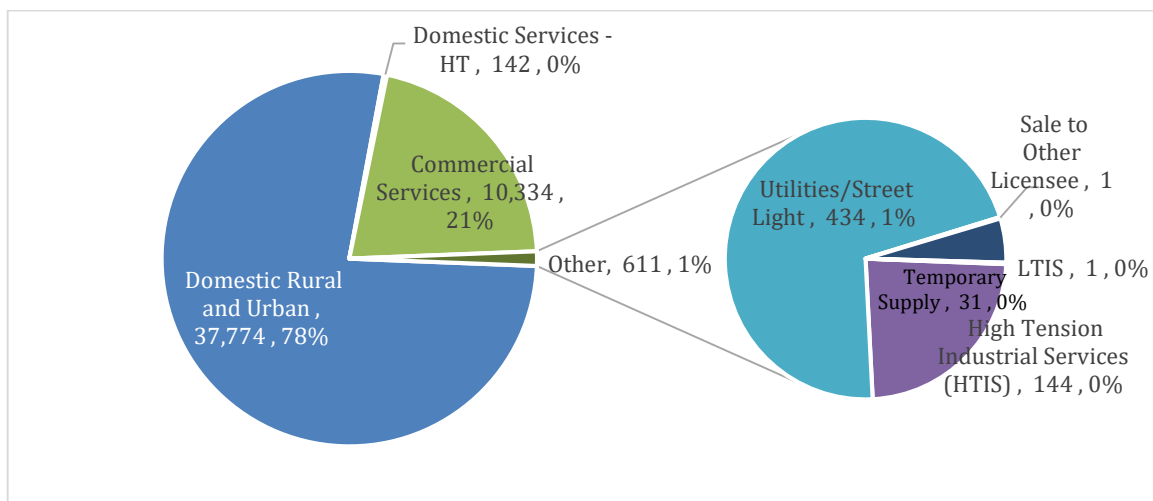
- Purchase decisions based on lifetime costing: At time of purchase of equipment such as transformers considers life-time cost by factoring energy saving by energy efficient transformers. This practice incentivises energy conservation.
  - 100% LED Lights: TSL has installed energy efficient LED lights across all its electricity distribution facilities.
  - Star Rated AC: All new ACs procured are Star Rated.
  - Network of TSL primarily consist of HV Cable which not only reduce losses by theft or leakage but also improves power factor of the system
-

## 2. TSL: POWER BUSINESS IN JAMSHEDPUR

### 2.1 Background

- 2.1.1 Tata Steel is one of largest steel producer in the country. It was established way back in 1907 at Jamshedpur. Subsequently, Jamshedpur started growing, and to meet the power distribution requirement in the city, Tata Steel also started undertaking power distribution at Jamshedpur.
- 2.1.2 Tata Steel was granted sanction under section 28(1) of the erstwhile Indian Electricity Act, 1910 for distribution of electricity at Jamshedpur.
- 2.1.3 Post enactment of Electricity Act 2003, Tata Steel Ltd (TSL) had filed the petition before the Commission for Distribution Licence on December 24, 2003. In the absence of Regulations and in view of provision of Section 14 and Section 172(b) of the Electricity Act 2003, the Commission by order dated March 24, 2004 permitted the applicant to continue to operate under the provisions of the repealed laws.
- 2.1.4 After notification of the Hon'ble JSERC's Conduct of Business Regulations 2003, action for issue of licence was initiated again and subsequently, license was issued to TSL on 12th January 2006 with effect from 24th March 2004.
- 2.1.5 TSL power distribution serves approximately a population base of 7 lakhs through approximately 48,200 metered connections, till date. In several cases where High Tension Domestic supply is given, one metered connection feeds to several domestic consumers.
- 2.1.6 The consumer Mix of TSL as on 30th September 2020 of FY 21 is as presented in the graph below:-

**Figure 9: Category Wise No of Consumers as of FY 21 (till date)**



- 2.1.7 The quality of power supply, its reliability and service levels provided by TSL are one of the best in the country. It has mostly underground network, which ensures

reliable and quality power supply. For customer services, it has implemented 24\*7 customer service call centre namely “JUSCO SAHYOG”, which registers and monitors the complaints/ requests by the customers against a predefined service level guarantees (SLG). TSL has also provided several online payment facility for its consumers so that they can conveniently make payment for their electricity bills.

- 2.1.8 The service levels at Jamshedpur has improved significantly during last control period. The SAIFI value was 10.58 in FY15, which came down to 1.93 in FY20. SAIDI value also reduced from 998.75 to 267.20 during the same period respectively.

## 2.2 Mission and Value Architecture of TSL

- 2.2.1 Tata Steel conducts its business around the five core values, which are: -

- Integrity
- Excellence
- Unity
- Responsibility
- Pioneering

### Mission Statement of TSL:

- 2.2.2 The Mission Statements of any Organisation specifies the organizational purposes and translate these purposes into objectives that can be assessed and controlled.

**TSL Mission statement is as presented below-**



**MISSION**

Consistent with the vision and values of the founder Jamsetji Tata, Tata Steel strives to strengthen India's industrial base through the effective utilization of staff and materials. The means envisaged to achieve this are high technology and productivity, consistent with modern management practices.

Tata Steel recognizes that while honesty and integrity are the essential ingredients of a strong and stable enterprise, profitability provides the main spark for economic activity.

Overall, the Company seeks to scale the heights of excellence in all that it does in an atmosphere free from fear, and thereby reaffirms its faith in democratic values.



## 2.3 Key achievements of TSL in Power Distribution at Jamshedpur

2.3.1 Several decades of experience in power distribution has led to development of effective and efficient processes for customer service, maintenance of Distribution infrastructure, T&D loss management, new connection, billing & Collection functions which has helped TSL in producing the following key achievements:-

- **Uninterrupted Power Supply:** TSL for long has been able to supply uninterrupted power to its consumers thereby not letting its consumers subject to regular load shedding and has the capability to do so in the future. In the last five years i.e. FY 15 to FY 20 TSL has improved the SAIFI value from 10.58 in FY15, to 1.93 in FY20. SAIDI value also reduced from 998.75 to 267.20 during the same period respectively. There has been negligible planned shedding in previous Control Period. Being an industrial town any interruption in electricity would lead to complete halt in industrial activity and would lead to high losses. Residents of city also expect TSL to supply 24x7 power supply.

TSL understands the seriousness of the issues and puts its best efforts to provide an uninterrupted power supply to the consumers. TSL tries to mitigate any factors which would lead to poor power supply.

- **Quality Power Supply:** TSL has been providing quality and reliable power supply to its consumers in Jamshedpur. TSL always ensures that its supplies are free from voltage sag/swell and flicker thereby supporting consumers in avoiding losses related to poor power quality.
- **Lower Losses:** TSL has been efficiently managing the Distribution Losses over the last few years. TSL is committed towards taking the best possible measures to minimise distribution losses by adopting best practices prevalent in the distribution sector in India. TSL distribution losses has remained between 3.53% to 2.4% during the control period, which are among one of the best in the country. However, these losses are subject to change due to loading pattern of consumers, addition of more retail consumers, ability/ availability of reasonable field staff to detect pilfer/theft.
- **Efficient Customer Service:** 24x7 JUSCO SAHYOG helps TSL providing efficient customer services through its well developed backend processes.

## 2.4 Challenges and Opportunities for TSL

- **Addition of Domestic Consumers Leading in fringe areas:** In line with government's plan to provide electricity to every households, TSL is continuously extending its network in fringe areas, where network of JBVNL is already present. However, inhabitants of the fringe area are demanding supply from TSL due to better quality of supply as compared to State Discom. Providing
-

power supply to such consumers is challenge because of Right of Way (RoW) issue as there are narrow roads and also encroachment in RoW. Whatever little space was there, the same had already been occupied by the state utility network.

Such areas are also very dense and often TSL faces issue in disconnecting supply in case of payment default because of resistance created at site by the defaulting consumer.

- **Unsustainable level of Revenue Gap:** Because of issues related with timely recovery of reasonable costs by way of tariff, TSL electricity distribution business already have a accumulated revenue gap of Rs 814 Cr. (Tariff Order dated 26 May, 2020, Hon'ble Commission considered cumulative revenue gap of Rs. 814 crore)

**In the last two tariff orders despite of these large revenue Gaps, tariff increase was not considered as it was said to be given w.e.f.01.04.2020.** However due to outbreak of COVID, this tariff increase was again deferred. In addition, there was waiver of demand and fixed charges for industrial and government consumers for 3 months during the COVID period. In the last tariff order while no increase was given several changes were made in the Terms and condition of power supply, which lead to further reduction in revenue or the petitioner by approx. 120 Cr / year. In view of the above, TSL average tariff effectively had gone down by approx. 9.6% in last tariff order issued by Hon'ble Commission.

High level of Gap not only creates financial pressure on the petitioner, but consumers are also unnecessarily burdened with the carrying cost on these gaps in future.

TSL humbly requests the Hon'ble Commission for a considered view to liquidate this high revenue Gap by appropriate increase in tariff.

- **Difficulty being faced by frequent increase / decrease of Contract Demand by Industrial and Commercial Consumer's:** - Because of the certain provisions made in the Distribution Tariff Regulations 2015, frequent requests are coming up for increase/ decrease of contract demand. Petitioner would like to submit that it has to supply power for 24x7 basis to all consumers. Firm power sourcing decisions are long term and therefore doesn't change with changing load reduction. There is a need to specify minimum timeline for load change of HT consumers to avoid misuse of the regulatory provisions.
- **Increasing RPO Requirement:** RPO compliance requirement is going higher very fast. However adequate capacity addition are yet to be done. In view of the

same REC prices in exchange varies depending upon the buyers. This increases the overall power purchase costs of TSL.

- **Reduction in Industrial sales:** Due to slow down in auto sector since 2019, industrial units in Jamshedpur such as auto-ancillary units and vehicle manufacturing units have either to shut down or have reduced their production. This has led to reduction in sales to industrial consumers and TSL has to under-draw power from plants with which it has PPA, leading to higher effective average power purchase cost. Further in FY2020-21, due to outbreak of COVID, industrial sales were significantly down H1 of FY2020-21. This has led to lesser revenue for FY2020-21 as compared to normal years.

## 2.5 Objective of this Petition:-

2.5.1 The Hon'ble Commission, in exercise of the powers conferred by the EA 2003, notified the Jharkhand State Electricity Regulatory Commission (Terms and Conditions for Determination of Distribution Tariff) Regulations, 2020.

2.5.2 Regulation 6.9 of JSERC (Terms & Conditions for Determination of Distribution Tariff) Regulations, 2020 (hereafter referred as JSERC Distribution Tariff Regulations, 2020) states that:

*"Each licensee shall file for the Commission approval a Business Plan approved by its authorized signatory, as per the timelines specified in Section 11 of these Regulations; "*

2.5.3 Further Regulations 6.10 and 6.11 of JSERC Distribution Tariff Regulations, 2020 states that:

*"...6.10 The Business Plan shall be filed separately for the Retail Supply and Wheeling Business. As specified in Clause 6.7 of these Regulations, in the absence of segregated accounts for the two Businesses, the Licensee shall prepare an allocation statement and submit the same with the Business Plan."*

*"..6.11 The business plan shall be for the entire Control Period and shall inter-alia contain:*

- a) **Capital Investment Plan** for the entire Control Period commensurate with load growth, distribution loss reduction trajectory and quality improvement measures proposed in the Business Plan;*
- b) **Sales/Demand Forecast for each customer category** and sub-categories for each year of the Control Period;*
- c) **Power Procurement Plan based on the sales forecast** and distribution loss trajectory for each year of the Control Period. The power procurement plan should also include energy efficiency and demand side management measures;*

- d) *A set of targets proposed for other controllable items such as distribution losses, collection efficiency, working capital requirement, quality of supply targets (viz., SAIFI, SAIDI and MAIFI as per the JSERC (Distribution Licensees" Standards of Performance) Regulations, 2015, and subsequent amendments), etc. The targets shall be consistent with the capital investment plan proposed by the Licensee;*
- e) **Human Resource Plan** with manpower planning including details of the estimated year wise manpower addition and retirements for the Control Period to meet the growth in demand/consumers;
- f) *Business Plan shall also contain the requisite information for the Control Period:*

*Provided that requisite information for the preceding Control Period shall include year-wise audited data on Scheme-wise capital investment, distribution loss trajectory, quality improvement measures undertaken, category-wise number of consumers, connected load and sales, source-wise power procurement quantum and cost, Employee, R&M and A&G Expenses along with detailed break up and any other information used for preparing projections of various performance parameters and other components during the Control Period. In case of a new Licensee, such information is required to be submitted for the period of operations up to the start of the Control Period."*

- 2.5.4 Hence in Order to comply with relevant provisions of Jharkhand State Electricity Regulatory Commission (Terms and Conditions for Determination of Distribution Tariff) Regulations, 2020, TSL is filing instant Business Plan along with Multi Year Tariff (MYT) Petition for Control Period FY 22 to FY 26.

### 3. PAST PERFORMANCE ANALYSIS

This section elucidates TSL's overview of power business into operational and financial performance for the previous years. A comparative analysis of the operational performance for various years in relation to sales, distribution Loss, operative indices, etc. are discussed herewith.

#### 3.1 Number of Consumers

3.1.1 Historic trends in category wise number of consumers from FY17 to FY21 is as tabulated below:

**Table 2:Category-wise Consumer Nos for the period FY 17 to FY 21**

S. N	Consumer Category	FY 17	FY 18	FY 19	FY 20	FY 21 (Prov.)
1	Domestic	36,296	37,336	35,915	35,968	37,774
2	Domestic - DSHT	136	145	131	133	142
3	Commercial	8,784	8,846	9,722	10,159	10,334
4	HTIS	111	112	132	124	144
8	Utilities/Street Light	393	393	349	428	434
9	Sale to Other Licensee	1	1	1	1	1
10	Temporary Supply	97	70	143	138	31
11	LTIS				1	1
<b>Total</b>		<b>45,818</b>	<b>46,903</b>	<b>46,393</b>	<b>46,952</b>	<b>48,861</b>

3.1.2 It can be seen that the number of consumers have increased from 45,818 in FY 17 to 48,861 in FY 21 which observes a CAGR of about 1.62%. The majority of the consumers are in the domestic category followed by the commercial category.

3.1.3 Number of domestic consumers remained almost at same level due to demolition of several staff quarters which were dismantled due to old age and their subsequent deletion from list of consumers.

3.1.4 Hon'ble JSERC in its Order dated 18th May, 2018 regarding changed application of Domestic category by shifting tariff category applicable to Schools, colleges and Government & Industrial hospitals from Domestic category to commercial category. This resulted in decrease in number of domestic (both HT and LT sub-categories) and corresponding spike in number of commercial consumers in FY 2018-19.

#### 3.2 Energy Sales

3.2.1 The category wise sales for the past 5 years is as given in the table below:



**Table 3:Category-wise sales for the period FY 17 to FY 21**

<b>Consumer Category</b>	<b>FY 17</b>	<b>FY 18</b>	<b>FY 19</b>	<b>FY 20</b>	<b>FY 21<sup>3</sup></b>
Domestic Services-LT	199.94	199.49	204.27	208.94	198.82
Domestic Services - HT	91.52	91.48	84.10	83.07	73.40
Commercial Services	65.32	66.52	72.20	83.96	81.56
High Tension Industrial Services (HTIS)	2155.35	2247.38	2,081.14	1,915.21	1,774.95
Utilities/Street Light <sup>4</sup>	84.13	81.82	87.48	81.91	35.48
Temporary Supply	1.79	1.78	2.44	1.45	0.54
Sale to Other Licensee	279.29	314.56	408.39	323.44	255.09
Sale in Exchange	0.00	0.00	0.00	27.25	30.00
LTIS			0.00	0.10	0.17
<b>Total</b>	<b>2,877</b>	<b>3,003</b>	<b>2,940</b>	<b>2,725</b>	<b>2,450</b>

3.2.2 Total sales have increased at a CAGR of 1.09% over the period FY 17 to FY 19. However, since FY20, with the economic slowdown and subsequent downturn in the automobile sector resulted in the decline in iron and steel sector market and auto ancillary industries. As a result, in spite of increase in domestic and commercial sector, the power demand from HT (industries) have declined significantly.

3.2.3 In FY21, COVID-19 outbreak and subsequent lockdowns have resulted in a heavily intermittent industrial operation and severe disturbance in the industrial production. As a result, the HT sale has witnessed a decline of about 7.32% on Y-o-Y basis. The total energy sales is expected to reduce by 10% as compared to FY 20 primarily due to lower industrial and commercial sales in Q1 FY 20-21.

### 3.3 Connected Load

3.3.1 With the growth in the economy and subsequently increasing consumer base, the connected load also increased at a CAGR of 2.91% over the last control period. While there have been a significant increase in the connected load under domestic category, the HT category witnessed a gradual decline from 462,769 kVA to 3,90,381 kVA, as several industrial units reduced their reducing their contract demand and one industry also shifted to other locations.

<sup>3</sup> Estimated Figure as submitted in APR

<sup>4</sup> IN H1 the category involve both street light and Utilities, however in H2 as per JSERC Order it only includes street light

**Table 4: Category-wise Connected Loads (kW/kVA) for the period FY 17 to FY 21**

S.N	Consumer Category	FY 17	FY 18	FY 19	FY 20	FY 21 (PROV.)
1	Domestic Rural and Urban	1,85,934	1,89,124	2,30,544	2,28,064	2,41,110
2	Domestic Services - HT	55,706	60,035	55,982	57,816	58,069
3	Commercial Services	43,935	46,779	67,600	73,890	74,785
4	High Tension Industrial Services (HTIS)	4,62,769	4,60,308	4,36,365	4,21,569	3,90,381
5	Utilities/Street Light	16,932	17,020	23,238	20,602	24,311
6	Sale to Other Licensee	50,000	50,000	70,000	70,000	70,000
7	Temporary Supply	214	129	152	129	152
8	LTIS				106	106
	<b>Total</b>	<b>8,15,490</b>	<b>8,23,395</b>	<b>8,83,881</b>	<b>8,75,835</b>	<b>8,58,914</b>

### 3.4 Distribution losses

3.4.1 The trajectory of actual distribution loss over the past 5 years is as presented in the table below. The distribution loss levels of TSL Licensee has remained at lowest technical limits and is among one of the best in the country.

**Table 5: Actual Distribution Loss for the period FY 17 to FY 21**

	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21 (PROV.)
Overall Distribution Losses (%)	3.52%	3.05%	2.30%	2.44%	2.09%	2.92%

3.4.2 Increase in distribution losses in FY 21 may also be attributed to the decrease in HT sales, on account of COVID-19 related lockdowns and production downturn.. Moreover, during COVID-19 induced lockdown, there was restriction on movement of people and hence anti-theft and pilferage activity couldn't be undertaken effectively. This may also have some impact on Distribution Losses.

3.4.3 TSL has already being complying with the targets set by the Hon'ble Commission in this regard. TSL has been committed towards taking the best possible measures to minimise its distribution losses by adopting pro-active approach and adopting best practices prevalent in the distribution sector in India.

### 3.5 Operating Indices

3.5.1 **SAIFI: System Average Interruption Frequency Index** is the weighted average number of times that a feeder is interrupted during a specified time period with respect to connected load. It is determined by dividing the sum-product of numbers of feeder interruption with connected load of the feeder in a time period by the total connected load. The resulting unit is "interruptions per feeder per year". As seen in the table below, the interruptions per feeder per year have followed a reducing trajectory over the last five years owing to diligent operation and maintenance practices of TSL.

- 3.5.2 **SAIDI: System Average Interruption Duration Index** measures the weighted average duration of interruptions for the average feeder with connected load. It is the ratio of the sum-product of duration of feeder interruption with connected load of the feeder in a time period by the total connected load. As seen in the below table, the duration of interruptions per feeder have been drastically reduced over the last five years from 5.5 hours/feeder/year in FY 16-17 to 1 hours 40 minutes in FY 2020-21.

**Table 6: Operating Indices of TSL**

Year	SAIFI Feeder (Nos/Fdr/Year)	SAIDI Feeder (Min/Fdr/Year)
2020-21 (Till Sep)	1.80	122.37
2019-20	1.93	267.20
2018-19	4.94	432.74
2017-18	4.99	459.15
2016-17	5.09	647.26

- 3.5.3 It is observed that the Operative indices like SAIFI, SAIDI of the license area are one of the best in class in India and Tata Steel Limited – Power Distribution strives to maintain the indices at the order and improve it to the possible extent.

### 3.6 Power Purchase

3.6.1 The following table shows the power purchase quantum and cost of TSL from different sources during last 5 years.

**Table 7: Power Purchase Expenses Source wise for the period FY 17 to FY 21**

	FY 17			FY 18			FY 19			FY 20			FY 21 (PROV.)		
Source	Energy (MU)	Power Purchase Cost (in INR Cr)	Per Unit Cost (Rs/ KWh)	Energy (MU)	Power Purchase Cost (in INR Cr)	Per Unit Cost (Rs/ KWh)	Energy (MU)	Power Purchase Cost (in INR Cr)	Per Unit Cost (Rs/ KWh)	Energy (MU)	Power Purchase Cost (in INR Cr)	Per Unit Cost (Rs/ KWh)	Energy (MU)	Power Purchase Cost (in INR Cr)	Per Unit Cost (Rs/ KWh)
<b>Tata Power Company Limited</b>	<b>1,423.92</b>	<b>522.27</b>	<b>3.67</b>	<b>1,475.76</b>	<b>603.08</b>	<b>4.09</b>	<b>1,400.95</b>	<b>738.83</b>	<b>5.27</b>	<b>1,324.55</b>	<b>643.87</b>	<b>4.86</b>	<b>1,242.34</b>	<b>534.27</b>	<b>4.30</b>
<i>Unit - II</i>	716.98	266.74	<b>3.72</b>	743.73	307.27	<b>4.13</b>	698.18	366.82	<b>5.25</b>	672.80	329.48	4.90	657.14	285.80	4.35
<i>Unit - III</i>	706.94	255.53	<b>3.61</b>	732.03	295.81	<b>4.04</b>	702.77	372.01	<b>5.29</b>	651.75	314.39	4.82	585.20	248.47	4.25
<b>Damodar Valley Corporation`</b>	<b>1,459.20</b>	<b>667.90</b>	<b>4.58</b>	<b>1,451.33</b>	<b>652.89</b>	<b>4.50</b>	<b>1,466.41</b>	<b>697.33</b>	<b>4.76</b>	<b>1391.82</b>	<b>768.65</b>	<b>5.52</b>	<b>1,251.51</b>	<b>685.26</b>	<b>5.48</b>
<i>132 kV</i>	308.09	158.26	<b>5.14</b>	404.28	197.87	<b>4.89</b>	393.07	181.86	<b>4.63</b>	312.47	175.35	5.61	263.04	130.34	4.96
<i>400 kV</i>	1,151.11	509.64	<b>4.43</b>	1,047.05	455.02	<b>4.35</b>	1,073.34	515.47	<b>4.80</b>	1,079.35	593.31	5.50	988.47	554.92	5.61
<b>Tata Steel Works</b>	76.52	27.25	3.56	17.76	6.73	3.79	19.14	8.86	4.63	4.80	2.24	4.68	29.33	12.65	4.31
<b>Short Term Sources</b>	8.15	1.79	2.20	128.73	49.86	3.87	126.97	63.33	4.99	62.31	19.74	3.17	0.50	0.14	2.78
<b>REC</b>		7.64			21.59			56.28			74.45			26.37	
<b>Total</b>	<b>2967.79</b>	<b>1226.85</b>	<b>4.13</b>	<b>3073.58</b>	<b>1334.15</b>	<b>4.34</b>	<b>3013.47</b>	<b>1564.63</b>	<b>5.19</b>	<b>2783.48</b>	<b>1508.95</b>	<b>5.42</b>	<b>2,523.68</b>	<b>1258.67</b>	<b>4.99</b>

**Table 8: Power Purchase Expenses for REC for the period FY 17 to FY 21 (in Rs. Cr)**

	FY 17	FY 18	FY 19	FY 20	FY 21 (PROV.)
REC	7.64	21.59	56.28	74.45	26.37

3.6.2 The average power purchase cost from all the sources has increased at a CAGR of around 9.26 % over last four (4) years (FY17-FY20) on account of coal price hike. In FY21 total power purchase cost is projected to come down about 12% compared to previous year, on account of the COVID-19 outbreak and subsequent lockdowns in the Q1 and Q2 of FY21.

3.6.3 Tata Steel is committed to work continuously towards optimising the power purchase cost so as to supply cheap power to its consumers while also maintaining the long term availability of power from its source.

### 3.7 Analysis of Capital Expenditure

3.7.1 The Capital Expenditure of TSL- Power Distribution function for the last 5 years is shown as below:

**Table 9: Analysis of Capital Expenditure**

Particulars	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21 (PROV.)
Opening CWIP	12.87	5.37	8.92	4.00	6.80	32.24
Add: Capex during year	8.84	8.46	13.13	9.93	34.33	7.74
<b>Total CWIP</b>	<b>21.71</b>	<b>13.83</b>	<b>22.05</b>	<b>13.93</b>	<b>41.13</b>	<b>39.98</b>
Less: Trfd to GFA	16.34	4.91	18.05	7.13	8.89	37.50
<b>Closing CWIP</b>	<b>5.37</b>	<b>8.92</b>	<b>4.00</b>	<b>6.80</b>	<b>32.24</b>	<b>2.48</b>
<b>Gross Fixed Assets (GFA)</b>						
Opening GFA	503.99	520.32	525.19	543.69	550.49	559.37
Add: Trfd from CWIP	16.34	4.87	18.05	7.13	8.88	37.50
Addition/ Removal during the period		0.00	0.45	-0.33	0.00	
<b>Closing GFA</b>	<b>520.33</b>	<b>525.19</b>	<b>543.69</b>	<b>550.49</b>	<b>559.37</b>	<b>596.88</b>

Source: JSERC Tariff orders and Audited Accounts;



## **4. DEMAND & SALES FORECAST**

### **4.1 Regulatory Provisions for Sales Forecast**

- 4.1.1 The Commission in the Regulation 6.16 of Distribution Tariff Regulations 2020 has mentioned of business plan submission based on Sales/ Demand Forecast for each consumer category, sub-category and for each tariff slab, at different voltage levels, for each year of the Control Period based on recent trends and historical growth. The relevant provisions of the Distribution Tariff Regulations 2020 are extracted for reference as under:

*"6.16 The Licensee, in its Business Plan filings, shall forecast sales for each consumer category, sub-category and for each tariff slab, at different voltage levels, for each year of the Control Period based on recent trends and historical growth for the Commission's review and approval along with the requisite details of category-wise and voltage-wise sales, contracted load, number of consumers, etc.*

*6.17 The Commission shall examine the forecasts for reasonableness and consistency on the basis of expected growth in the number of consumers, changes in pattern of consumption, seasonal variations, target distribution losses, demand for electricity in previous years and anticipated growth in the next year, and any other factor considered relevant by the Commission, and accordingly approve sales forecast with such modifications as deemed fit for each year of the Control Period.*

*6.18 Sales of electricity, if any, to electricity traders or another Licensee shall be separately indicated.*

*6.19 The Licensee shall also indicate category-wise open access consumers along with open access sales. The energy wheeled for them shall be shown separately for:*

- a) Supply within its area of supply; and*
- b) Supply outside its area of supply."*

### **4.2 Broad Methodology**

- 4.2.1 Demand and Sales forecast is one of the key element of power distribution licensee business plan. In this business plan demand estimation has been done for each category of consumer's separately and then it has been added to arrive at the total demand/sales.
- 4.2.2 For retail consumers assessment has been done based on the CAGR of past years adjusted with specific information available to TSL. For bulk & HT consumers demand & sales assessment has been mostly done based on consumer specific information available to TSL about the upcoming facilities/plants etc. Approach taken for each category is explained separately for clarity in individual section.

- 4.2.3 COVID-19 Outbreak in FY21:** Since FY21 figures are heavily impacted by COVID-19 outbreak, the unprecedented decline in the economy and the subsequent loss of production days due to the COVID-lockdown, the FY21 data has been treated as outlier data, as far as Energy Sales is considered. Hence for all the CAGR and growth trend estimation, last 5 year's data has been taken from FY16 to FY20. Most of the economists and analysts expects that the economy will bounce back to the pre-COVID scenario from FY22.

### 4.3 Sales and Demand Projections

#### Domestic Consumers– LT

- 4.3.1** Energy sales to Domestic consumers in next Control Period has been forecasted based on historic growth in consumption and additional sales on account of addition of new consumers. For projecting Energy Sales to domestic LT category, trend in specific consumption has been taken into consideration. The specific consumption increase has been accounted on a CAGR approach for last 5 years (from FY 16 to FY 20, as FY 21 specific consumption is heavily impacted by COVID-19 pandemic outbreak).
- 4.3.2** Trend in Specific consumption of Domestic-LT consumers in previous Control Period is given below:

**Table 10: Specific Consumption of Existing Domestic Consumers**

Domestic - LT	Units	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21 (PROV.)	CAGR
Consumption	MUs	190.53	199.94	199.49	204.27	208.94	198.82	2.33%
No of Consumers	Nos	36,673	36,296	37,336	35,915	35,968	37,774	-0.48%
Specific Consumption	kWh	5,195	5,509	5,343	5,688	5,809	5,263	2.83%

- 4.3.3** Number of domestic consumers during the past 5 year i.e FY 16 to FY 20, have decreased at a rate of -0.48% CAGR despite addition of new households. This was because of demolishing of certain staff quarters of Tata Steel as well as some vacant houses and consequently their deletion from list of consumers. However, consumers are expected to increase in next Control Period due to network expansion and also due to provisions of provisional connections in absence of ownership document, made by Hon'ble Commission. This would result in TSL adding many new domestic consumers who were earlier unable to get electricity connection from TSL. Hence, it is expected that consumer addition in next Control Period would accelerate from the base figure of consumer addition in FY 21 with approx. 50 more consumers being added in each subsequent year as compared to previous year.

**Table 11: Addition to Existing Domestic Consumers**

Domestic - LT	Units	FY 21 (PROV.)	FY 22	FY 23	FY 24	FY 25	FY 26
Addition in No of Consumers	Nos	1,806	1,856	1,906	1,956	2,006	2,056

- 4.3.4 Based on the analysis of data of the past years i.e FY16 to FY20, it was observed that the specific consumption has increased at a 4 year CAGR of 2.83% due to increased proliferation of Heating, Ventilation and Air Conditioner equipment and other white goods in previous Control Period. TSL has considered that specific consumption would increase at same rate due to increase in living standard of population..
- 4.3.5 Many of the housing complexes and domestic residence areas are expected to adopt solar PVs in their households, hence an estimated decrease in Energy Sales would take place on account of power generated locally by rooftop solar panels. We have estimated that solar capacity addition in FY 21 to be 134 KW, which will make the total solar capacity installed for Domestic consumers to reach 159 KW. Further, we have considered average daily generation of 4 units/kW for estimating the total generation from rooftop solar for the ensuing years. We have also estimated that any capacity coming in a particular FY would only be available for six months for generation in that particular FY. The estimated solar capacity addition and the generation from the ongoing and planned capacities are as follows:

**Table 12: Projections for Solar Generation**

Domestic - LT	Units	FY 22	FY 23	FY 24	FY 25	FY 26
Opening Solar Capacity	kWp	159.00	370.00	635.00	933.00	1,191.00
Addition of Solar Capacity	kWp	211.00	265.00	298.00	258.00	201.00
Closing Solar Capacity	kWp	370.00	635.00	933.00	1,191.00	1,392.00
Units to be Generated from Solar	MUs	0.4	0.7	1.1	1.6	1.9

- 4.3.6 Energy Efficiency measures, like adaptation of LED, 5-star electrical appliances, and other measures also are expected to have negative impact on the sales. Hence, 0.5% decline has been considered on account of EE measures.
- 4.3.7 We have also considered increase in Energy consumption due to Electric Vehicles, and subsequent increase in Electricity demand. In order to estimate the demand, we have taken the following assumptions from each of the vehicle category (i.e. 2-Wheeler, 3-Wheeler, 4-Wheeler Private, 4-Wheeler Commercial):

**Table 13: Assumptions for calculating additional sales to EV**

Type of EV	Km with full charge	Average running km /day	% utilization (Average Running/ Km with Full Charge)
2-Wheeler	85	30	35%
3-Wheeler	70	25	36%
4-W Private	150	45	30%
4-W Commercial	150	85	57%

4.3.8 The EV adaptation projection for Jamshedpur considered by TSL is as follows. This however may change subject to policy intervention by State/Central Government.

**Table 14: Projections for EV adaptation**

Year	FY 22	FY 23	FY 24	FY 25	FY 26
2W EV Sales (in units)	124	288	667	1544	3576
3W EV Sales (in units)	14	13	12	11	9
4W Private EV Sales (in units)	16	33	66	132	266
4W Commercial EV Sales (in units)	49	74	110	163	243

4.3.9 The utilization amount and the number of EV sales (as projected) is taken into consideration for estimating the electricity demand arising from EV- adaptation in the licensee area. The electricity demand in the licensee area due to EVs in the ensuing year are as follows:

**Table 15: Projections for EV adaptation**

	FY 22	FY 23	FY 24	FY 25	FY 26
2W EV Sales (in units)	124	288	667	1544	3576
Units consumed per full charge (kWh)	1	1	1	1	1
Total Units Consumed per full charge (kWh) in year	45260	105120	243455	563560	1305240
Average units consumed per year (in kWh) <b>(Total Units x Utilization Factor)</b>	15974	37101	85925	198904	460,673
3W EV Sales (in units)	14	13	12	11	9
Units consumed per full charge (kWh)	8	8	8	8	8
Total Units Consumed per full charge (kWh) in year	40880	37960	35040	32120	26280
Average units consumed per year (in kWh) <b>(Total Units x Utilization Factor)</b>	14,600	13,557	12,514	11,471	9,386
4W Private EV Sales (in units)	16	33	66	132	266
Units consumed per full charge (kWh)	16.83	16.83	16.83	16.83	16.83
Total Units Consumed per full charge (kWh) in year	98287	202717	405435	810869	1634025
Average units consumed per year (in kWh) <b>(Total Units x Utilization Factor)</b>	29,486	60,815	121,630	243,261	490,207
4W Commercial EV Sales (in units)	49	74	110	163	243
Units consumed per full charge (kWh)	16.83	16.83	16.83	16.83	16.83
Total Units Consumed per full charge (kWh) in year	301005	454578	675725	1001301	1492737
Average units consumed per year (in kWh) <b>(Total Units x Utilization Factor)</b>	170569	257594	382911	567404	845884

4.3.10 As calculated above, it is considered that energy consumption by Private 2 Wheelers, 3-Wheelers and 4-Wheelers would be accounted in Domestic category sales. The sales accountable to EV sales in Domestic-LT category as calculated in above table is as follows:

**Table 16: Electricity Sales due to EV**

Domestic - LT	Units	FY 22	FY 23	FY 24	FY 25	FY 26
Sale due to EV	MUs	0.06	0.12	0.23	0.45	0.91

4.3.11 TSL would like to submit that above projections may significantly vary because of policy interventions as well as technological innovations.

4.3.12 As per various factors as elucidated in above paragraphs, TSL hereby project number of Domestic-LT consumers, their connected load and Energy Sales in next Control Period as tabulated below:

**Table 17: Sales, No of Consumers and Load – Domestic LT**

Domestic - LT	Units	FY 22	FY 23	FY 24	FY 25	FY 26
Specific Consumption	kWh	5,973	6,143	6,316	6,495	6,679
Total No of Consumers at the end of the year	Nos	39,630	41,536	43,492	45,498	47,554
Addition in No of Consumers	Nos	1,856	1,906	1,956	2,006	2,056
Total no of consumers at the start of the year	Nos	37,774	39,630	41,536	43,492	45,498
Sales - Existing Consumers	MUs	225.64	243.43	262.36	282.49	303.89
Sales - New Consumers	MUs	5.54	5.85	6.18	6.51	6.87
Sale due to EV	MUs	0.06	0.12	0.23	0.45	0.91
Units to be Generated from Solar	MUs	0.4	0.7	1.1	1.6	1.9
<b>Total Sales</b>	<b>MUs</b>	<b>230.86</b>	<b>248.67</b>	<b>267.63</b>	<b>287.91</b>	<b>309.77</b>
<b>Considering 0.5% reduction in consumption due to energy efficiency Measures</b>	<b>MUs</b>	<b>229.71</b>	<b>247.43</b>	<b>266.29</b>	<b>286.47</b>	<b>308.22</b>

### Domestic Consumers (DS-HT)

4.3.13 This category consists of big apartment and housing complexes with connected load more than 100KVA. The table below shows the trend of consumption (MUs), Consumer addition (Nos), Connected load (MVA) and Connected load per consumer (KVA/Consumer) in previous Control Period.

**Table 18: MVA addition from FY 16 to FY 21**

Domestic - HT	Units	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21 (PROV.)	Avg
Consumption	MUs	90.42	91.52	91.48	84.1	83.07	73.40	
No of Consumers	Nos	130	136	145	131	133	142	4.11%
Total Connected Load	MVA	47	56	60	56	58	58	
Connect Load per Consumer	KVA	363	410	414	427	435	409	410



- 4.3.14 In its Order dated May, 2018, Hon'ble Commission re-categorized consumer category applicable for DS-HT thereby leading to a fall in number of Domestic-HT consumers from 145 to 131. Hence in Order to project increase in number of Domestic-HT consumers in next Control Period, 2 years CAGR of 4.11% from FY 19 to FY 21 has been considered. TSL has also considered connected load of new consumers equal to average connected load of the category as calculated for previous Control Period.
- 4.3.15 The petitioner feels that such consumers have installed various energy intensive equipment in their premise and there is less scope for increase in specific consumption. Hence methodology of considering CAGR increase in specific consumption (as done for DS-LT category) has not been adopted for projecting sales for Domestic-HT category. A more appropriate mechanism will be to factor consumption due to additional consumers belonging to this category expected to be added in next Control Period at average Load Factor of the category in addition to consumption by exiting consumers. For arriving at the sales due to additional consumers, the petitioner has assumed the average load factor of the last 5 years that comes to around 22% and a power factor of 0.85.
- 4.3.16 Moreover, as many of the housing complexes and domestic residence areas are already in the process of adopting solar PVs in their households, hence an estimated decrease has been considered in the sales on account of solar.
- 4.3.17 The adaptation of solar rooftops and PVs will have an impact over the energy sales. We have considered that solar capacity addition in FY 22 is estimated to be 183 kW, which will make the total solar capacity of the command area to increase from current level of 0 kW. We have considered average daily generation of 4 units/kW for estimating the total generation from rooftop solar for the ensuing years. We have also considered that any capacity coming in a particular FY would only be available for six months for generation in that particular FY. The estimated solar capacity addition and the generation from the ongoing and planned capacities are as follows:

**Table 19: Projections for Solar Generation for Domestic HT**

Domestic - HT	Units	FY 22	FY 23	FY 24	FY 25	FY 26
Opening Solar Capacity	kWp	0	183.00	387.00	672.00	872.00
Addition of Solar Capacity	kWp	183.00	204.00	285.00	200.00	178.00
Closing Solar Capacity	kWp	183.00	387.00	672.00	872.00	1,050.00
Units to be generated from Solar	MUs	0.1	0.4	0.8	1.1	1.4

4.3.18 Additionally Energy Efficiency measures, like adaptation of LED, 5-star electrical appliances, and other measures also are expected to have an impact on the sales. Hence, 0.5% decrease has been considered on account of EE measures.

4.3.19 As per methodology given above and considerations of solar penetration over energy sales, TSL hereby project number of Domestic-HT consumers, their connected load and Energy Sales as tabulated below:

**Table 20: Sales projection – DS-HT category**

Domestic - HT	Units	FY 22	FY 23	FY 24	FY 25	FY 26
Total No of Consumers at the end of the year		147	153	159	165	171
Addition: No of Consumers	Nos	6	6	6	6	6
MVA Addition every year from New Consumers	MVA	2.46	2.46	2.46	2.46	2.46
Sales addition every year ,average Load factor 0.22, Power Factor 0.85	MUs	3.94	3.94	3.94	3.94	3.94
Units to be generated from Solar	MUs	0.1	0.4	0.8	1.1	1.4
Total Sales	MUs	86.88	90.41	93.58	96.40	98.94
<b>Considering 0.5% reduction in consumption due to energy efficiency Measures</b>	<b>MUs</b>	<b>86.44</b>	<b>89.95</b>	<b>93.11</b>	<b>95.91</b>	<b>98.44</b>

### Commercial Consumer

4.3.20 The sales/demand forecast of commercial LT consumers has also been done considering the energy consumption growth of existing consumers and additional sales due to addition of new consumers.

4.3.21 As mentioned above, there was restructuring of commercial category with addition of educational institutes and hospitals in commercial category by Hon'ble Commission in Order dated May, 2018, hence TSL ha considered trend in specific consumption between FY 2015-16 to FY 2017-18 for projecting the value in next Control Period. It may be seen that specific consumption trend was almost flat for the period, indicating saturation in commercial demand.

**Table 21: Specific Consumption of Existing Commercial Consumers**

Domestic - LT	Units	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21 (PROV.)	CAGR
Consumption	MUs	64.11	65.32	66.52	72.2	83.96	81.56	
No of Consumers	Nos	8629	8784	8846	9722	10159	10334	1.25% <sup>5</sup>
Specific Consumption	kWh	7,430	7,436	7,520	7,426	8,264	7,892	0.61% <sup>6</sup>

<sup>5</sup> For FY 15-16 to FY 17-18 Period

<sup>6</sup> For FY 15-16 to FY 17-18 Period

4.3.22 TSL also submits that most of the commercial areas in Jamshedpur town has already been taken and there is little scope for increase in commercial consumers and hence it has considered past period CAGR of 1.25% for projecting consumer addition in commercial category in next Control Period.

4.3.23 As calculated in Table 15 above, TSL has accounted energy consumption by 4-wheeler commercial vehicles in Commercial Category. The year-wise consumption by EV as accounted in commercial category is tabulated below :

**Table 22: EV Related Sales to Commercial Consumers**

Commercial	Units	FY 22	FY 23	FY 24	FY 25	FY 26
Sale due to EV	MUs	0.19	0.36	0.62	1.00	1.57

4.3.24 The adaptation of solar rooftops and PVs will have an impact over the energy sales. We have considered that solar capacity addition in FY 21 is estimated to be 90 KW, which will make the total solar capacity in the license area to reach 343 KW. We have considered average daily generation of 4 units/kW for estimating the total generation from rooftop solar for the ensuing years. We have also estimated that any capacity coming in a particular FY would only be available for six months for generation in that particular FY. The estimated solar capacity addition and the generation from the ongoing and planned capacities are as follows

**Table 23: Projections for impact of Solar Adaptation**

Domestic - LT	Units	FY 22	FY 23	FY 24	FY 25	FY 26
Opening Solar Capacity	kWp	343	475	631	807	939
Addition of Solar Capacity	kWp	132	156	176	132	118
Closing Solar Capacity	kWp	475	631	807	939	1057
Units to be Generated from Solar	MUs	0.6	0.8	1.0	1.3	1.5

4.3.25 Furthermore it is expected that commercial consumers would be more inclined to adopt energy efficient measures such as star rated equipment and hence there would be 2% reduction in energy consumption due to such measures. The energy saving potential in commercial category would be more than domestic category because of cos related constraint in case of domestic category.

4.3.26 As per methodology and calculations done above, TSL projects number of consumers and sales for next Control Period as per below table:

**Table 24: Sales projection – Commercial category**

Commercial	Units	FY 22	FY 23	FY 24	FY 25	FY 26
Specific Consumption	kWh	8,314	8,365	8,415	8,466	8,517
Total No of Consumers at the end of the year	Nos	10463	10593	10725	10859	10994
Addition in No of Consumers	Nos	129	130	132	134	135
Total no of consumers at the start of the year	Nos	10,334	10,463	10,593	10,725	10,859
Sales - Existing Consumers	MUs	85.92	87.52	89.14	90.80	92.49
Sales - New Consumers	MUs	0.54	0.54	0.56	0.57	0.57
Sale due to EV	MUs	0.19	0.36	0.62	1.00	1.57
Units to be Generated from Solar	MUs	0.6	0.8	1.0	1.3	1.5
<b>Total Sales</b>	<b>MUs</b>	<b>86.05</b>	<b>87.62</b>	<b>89.27</b>	<b>91.10</b>	<b>93.18</b>
<b>Considering 2% reduction in consumption due to energy efficiency Measures</b>	<b>MUs</b>	<b>84.33</b>	<b>85.87</b>	<b>87.48</b>	<b>89.27</b>	<b>91.32</b>

4.3.27 As per Hon'ble Commission Order dated 29th Sep 2020, commercial consumers below 5 kW would be billed at domestic tariff. TSL has considered actual ratio as on H1 FY 2021 for bifurcation of commercial consumers in above and below 5 kW sub-categories for next Control Period. The ratios are tabulated here-under:

**Table 25: Ratio for sub-Categorization of Commercial Consumers on load basis**

Sub-category on load basis	Consumer Numbers	Connected Load	Energy sales
Commercial Below 5 kW	76.49%	25.69%	35.42%
Commercial Above 5 kW	23.51%	74.31%	64.58%

### Sales to other categories

4.3.28 The historical trend in sale to other miscellaneous categories like Street Light, Temporary supply, LTIS and Sales to other utilities (TSUISL) in previous Control period is as follows:-

**Table 26: Sales to other categories for the past 5 years**

Other Categories	Units	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21 (PROV.)
Utilities/Street Light	MUs	87.78	84.13	81.82	87.48	81.91	35.48
Street Light							4.10
Utilities	MUs						31.38
Temporary Supply	MUs	3.05	1.79	1.78	2.44	1.45	0.54
Sale to Distribution Utility	MUs	339.55	279.29	314.56	408.39	323.44	255.09

4.3.29 It is to noted that earlier category 'Utilities/ Street Light' has been re-categorised by Hon'ble Commission and the new category only comprises of Street Light consumers after October, 2020. Hence consumption of Utilities is accounted for six months only. Annual power consumption of Utilities has therefore been estimated at 61.20 Mus. Since some consumers under Utilities segment are

supplied power at HT voltage they have been considered under HT-IS category for next Control Period. Street Light comprises of only ~9-10% of the energy sales under “Utilities and Street Light”. Hence, after utilities sale being separated out from this category, it only has Street Light figures. That is why a remarkable decline in the sales to other categories in FY 21 can be seen in above Table.

- 4.3.30 LED street lights have been installed in FY 20 and hence no additional efficiency gain for street light is expected from LED installation. In case of any further installations of any energy efficiency measures in future, TSL will communicate that to honourable commission and will incorporate the same in the True-Up petition for the respective year. However, it is expected that due to new street light connections in next Control Period, Energy sales to street light consumer would increase at CAGR of 2.0%. Number of consumers and connected load has been increased at same CAGR for FY 22-FY 26 period.
- 4.3.31 TSL has also considered no increase in number of consumers and connected load for erstwhile ‘Utilities’ category from 71 nos. and 19,952 kVA respectively as on H1 FY 21. However, TSL oversees that due to energy efficiency measures there would be 2.5% reduction in Energy consumption by ‘Utilities’ category in next Control Period. The sales under Utilities sub-category has been further added in HT-IS category.
- 4.3.32 For Temporary supply, a reduction in Energy Sales has been considered for each year of the control period in line with trend in present Control Period, because of the steadily declining nature of such requirement. Further number of temporary connections and their connected load would remain constant in next Control Period.
- 4.3.33 TSL has only one LTIS consumer and its Energy sale and connected load is expected to remain constant in next Control Period. No new LT consumers and connected load is expected to be added in next Control Period.
- 4.3.34 For other licensee (TSUISL), the sales has been projected based on specific input from TSUISL as per their Business Plan.
- 4.3.35 Considering above paragraphs, Energy Sales to Other Categories have been projected as hereunder:

**Table 27: Sales Projection for Other categories**

Other Categories	Units	FY 22	FY 23	FY 24	FY 25	FY 26
Street Light	MUs	4.18	4.27	4.35	4.44	4.53
Utilities	MUs	59.67	59.67	59.67	59.67	59.67
Temporary Supply	MUs	1.21	1.00	0.83	0.69	0.57
Sale to Other Licensee	MUs	400.00	400.00	400.00	400.00	400.00
LTIS	MUs	0.10	0.10	0.10	0.10	0.10

## High Tension Industrial Service

- 4.3.36 The HT consumers in TSL command area are mostly steel and auto-ancillary sector players. Due to the stagnation and downturn in the automobile sector from FY19 to FY20, the production of end products from these units took a downward turn. As a result, the power consumption by these units also decreased FY 20 onwards. In FY21, the power requirement and sales in the HT-IS is projected to decline further due to COVID-19 related lockdowns and ensuing slowdown in the economy.
- 4.3.37 It is also submitted that energy consumption of many large HT consumers is not dependent on ant historic trend but is mainly impacted by their scheduled production, brownfield expansion and plan for closure (if any). Hence forecasting has been done based on the planned electricity requirement of the major HT consumers, while for the relatively smaller consumers, the consumption has been taken constant due to the COVID-19 impact and slowdown in the economy.
- 4.3.38 Due to unprecedented event of COVID-19 pandemic and subsequent destabilisation in the economic situation in FY21, we have assumed FY20 as the base year for projection of the sales to HT-IS consumers for ensuing years.

**Table 28: Consumption Parameters of Existing High Tension Consumers**

Particular	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21 (PROV.)	Average/ CAGR
Consumption (MUs)	2,111.49	2,155.35	2,247.38	2,081.14	1,915.21	1,774.95	
No of Consumers	115	111	112	132	124	144	1.90%
Total Connected Load (MVA)	478.765	462.769	460.308	436.365	421.569	390.381	
Load Factor	39.36%	42%	44.16%	64.05%	61.01%	42.32%	50%

- 4.3.39 TSL has considered 4 years CAGR (FY 16-FY 20) of 1.90% for projecting addition of new consumers in next Control Period. Further TSL has considered that average connected load of consumers being added would be 1.5 MVA/consumer. The average load factor of previous 5 years (50%) and power factor of 0.85 has been considered for projecting Energy Sales in the next Control Period. However, as already mentioned, for projecting the energy sales, the power procurement plan of the major HT consumers have been taken into account for projection, while the consumption forecast for other relatively smaller HT consumers have been considered to be the same over the ensuing Control Period.
- 4.3.40 It is submitted that one of the large HTIS consumer is planning for a captive power plant, which will eventually reduce the energy sales in this segment. Oxygen supply agreement with one of the leading oxygen supplier is coming to an end by FY23 and hence the sales to the given consumer is considered to be zero from FY23 onwards and accordingly the consumer and its connected load would also



be deleted from TSL system. TSL has therefore made required deduction in number of consumers and connected load in view of the same.

4.3.41 Rooftop Solar installed by HT-IS consumers by end of FY 21 has been estimated at 5.27 MW. In order to project energy generated by roof-top solar plants, we have also considered average daily generation of 4 units/kW. We have also estimated that any capacity coming in a particular FY would only be available for six months for generation in that particular FY. The estimated solar capacity addition and the generation from the ongoing and planned capacities are as follows:

**Table 29: Projections for Solar Generation for Domestic HT**

HT-IS	Units	FY 22	FY 23	FY 24	FY 25	FY 26
Opening Solar Capacity	kWp	5,266.84	5,428.84	5,617.84	5,822.84	5,981.84
Addition of Solar Capacity	kWp	162.00	189.00	205.00	159.00	145.00
Closing Solar Capacity	kWp	5,428.84	5,617.84	5,822.84	5,981.84	6,126.84
Units to be generated from Solar	MUs	7.8	8.1	8.4	8.6	8.8

4.3.42 Energy Efficiency measures, like adaptation of 5-star electrical appliances, super-efficient technologies and other measures also are expected to have an impact on the sales. Hence, 0.5% decrease has been considered on account of these measures.

4.3.43 The sales projection for HT-IS category is as presented in the table below:-

**Table 30: Sales Projections of HT-IS Consumers**

HT-IS	Units	FY 22	FY 23	FY 24	FY 25	FY 26
Total No of Consumers at the end of the year		146	148	149	151	153
<b>Addition: No. of Consumers</b>	<b>Nos</b>	2	2	2	2	2
<b>Consumers leaving TSL network</b>	<b>Nos</b>	-	-	1	-	-
MVA Addition every year	MVA	8	8	8	8	8
MVA Reduction due to consumers leaving	MVA	0	16	3.85	0	0
Sales addition every year by new consumers	MUs	11.18	11.18	5.59	11.18	11.18
Units to be generated from Solar	MUs	7.8	8.1	8.4	8.6	8.8
Sales to existing HT-IS consumers	MUs	1,903.78	1,808.78	1,705.78	1,746.78	1,758.78
<b>Total Sales</b>	<b>MUs</b>	1,907.15	1,811.89	1,703.02	1,749.34	1,761.12
<b>Considering 0.5% reduction in consumption due to energy efficiency Measures</b>	<b>MUs</b>	1,897.61	1,802.83	1,694.50	1,740.59	1,752.31

4.3.44 Further due to re-categorization of street light and Utilities category, consumers, connected load and Energy sales of erstwhile Utilities category has also been added in HT-IS category for next Control Period as per below table:

**Table 31: Total Projected Sales (MUs) – FY 22 to FY 26**

Parameter	Units	FY 22	FY 23	FY 24	FY 25	FY 26
Number of consumers	No.	71	71	71	71	71
Connected Load	kVA	19,952	19,952	19,952	19,952	19,952
Sales	MUs	59.67	59.67	59.67	59.67	59.67

**Summary of Sales**

4.3.45 The category wise details of number of consumers, connected load and Energy Sales in next Control Period as discussed in above paragraphs are as presented in the tables below:

**Table 32: Total Projected Sales (MUs) – FY 22 to FY 26**

Categories	FY 22	FY 23	FY 24	FY 25	FY 26
Domestic	229.71	247.43	266.29	286.47	308.22
Domestic - DSHT	86.44	89.95	93.11	95.91	98.44
Commercial	84.33	85.87	87.48	89.27	91.32
HT-IS	1,957.28	1,862.50	1,754.17	1,800.26	1,811.98
Street Light	4.18	4.27	4.35	4.44	4.53
Temporary Supply	1.21	1.00	0.83	0.69	0.57
Sale to Other Licensee	400.00	400.00	400.00	400.00	400.00
LTIS	0.10	0.10	0.10	0.10	0.10
<b>Total</b>	<b>2,763.25</b>	<b>2,691.12</b>	<b>2,606.33</b>	<b>2,677.14</b>	<b>2,715.16</b>

**Table 33: Projected Category-wise Consumers – FY 22 to FY 26**

Consumer Category	FY 22	FY 23	FY 24	FY 25	FY 26
Domestic	39,630	41,536	43,492	45,498	47,554
Domestic - DSHT	147	153	159	165	171
Commercial	10,463	10,593	10,725	10,859	10,994
HT-IS	217	219	220	222	224
Street Light	370	377	384	391	398
Temporary Supply	38	38	38	38	38
Sale to Other Licensee	1	1	1	1	1
LTIS	1	1	1	1	1
<b>Total</b>	<b>50,867</b>	<b>52,918</b>	<b>55,020</b>	<b>57,175</b>	<b>59,381</b>

**Table 34: Total Connected Load – FY 22 to FY 26**

	FY 22	FY 23	FY 24	FY 25	FY 26
Domestic	251,676	262,652	274,217	286,756	301,170
Domestic - DSHT	60,527	62,985	65,444	67,902	70,360
Commercial	75,576	76,388	77,239	78,135	79,088
HT-IS	413,333	400,333	397,983	400,983	403,983
Street Light	4,446	4,534	4,624	4,716	4,810
Temporary Supply	152	152	152	152	152
Sale to Other Licensee	70,000	70,000	70,000	70,000	70,000
LTIS	106	106	106	106	106
<b>Total</b>	<b>875,816</b>	<b>877,151</b>	<b>889,765</b>	<b>908,750</b>	<b>929,669</b>

#### 4.4 Voltage wise Sales for Control period

4.4.1 As per Regulation 6.16 of the JSERC Distribution Tariff Regulations 2020, the petitioner has projected the sales at different voltage levels. The consumption pattern of the category wise sales at different voltage level for FY 20 is provided in the table below:

**Table 35: Voltage-wise Consumption Pattern**

	LT	6.6 kV	33 kV	132 kV	400 kV
<i>Domestic Rural and Urban</i>	100%	0%	0%	0%	0%
<i>Domestic Services - HT</i>	0%	100%	0%	0%	0%
<i>Commercial Services</i>	100%	0%	0%	0%	0%
<i>HTIS (Including erstwhile 'Utilities')</i>	0%	10.1%	81%	8.9%	0%
<i>Street Light</i>	100%	0%	0%	0%	0%
<i>Temporary Supply</i>	100%	0%	0%	0%	0%
<i>Sale to Other Licensee</i>	0%	0%	0%	100%	0%
<i>Sale in Exchange</i>	0%	0%	0%	0%	100%
<i>LTIS</i>	100%	0%	0%	0%	0%

#### 4.5 Demand Projections/ Energy Requirement and Energy Balance

4.5.1 Energy requirement has been arrived by adding up distribution loss to the projected sales. For the purpose of Business plan projection, the petitioner has considered uniform loss of 3.86% on overall sales. Slightly higher loss levels are projected due to decrease in HT sales, change in consumption pattern of Consumers due to adoption of Solar rooftop plants, relatively higher sales in LT levels and increase in provisional connections in Congested fringe areas. As can also be seen from Table 32: Total Projected Sales (MUs) – FY 22 to FY 26, sales to LT consumers as percentage of overall sales is increasing throughout the Control Period. TSL will take all efforts to keep the T&D loss levels to one of the best in the country, for which it has also included plans to increase actions related to removal of unauthorised connections and other administrative and technical measures during the control period.

**Table 36: Energy Balance for Control Period**

Sr No	Particulars Particulars	Control Period				
		FY 22	FY 23	FY 24	FY 25	FY 26
<b>A</b>	<b>ENERGY REQUIREMENT</b>					
1	Sales to Other Licensees	400.00	400.00	400.00	400.00	400.00
2	Distribution Losses on Sales to Other Licensees (%)	0.00%	0.00%	0.00%	0.00%	0.00%
3	Unit Lost on Sales to Other Licensees					
4	<b>Energy Requirement for Sales to Other Licensees</b>	<b>400.00</b>	<b>400.00</b>	<b>400.00</b>	<b>400.00</b>	<b>400.00</b>
5	Sales to HT - IV Category	176.32	176.32	176.32	176.32	176.32
6	Distribution Losses to HT - IV (%)	0.00%	0.00%	0.00%	0.00%	0.00%
7	Unit lost on Sales to HT - IV	-	-	-	-	-
8	<b>Energy Requirement for HT - IV Category</b>	<b>176.32</b>	<b>176.32</b>	<b>176.32</b>	<b>176.32</b>	<b>176.32</b>
9	Sale of Daily Surplus balance to Exchange (MU)	30.00	30.00	30.00	30.00	30.00
10	Sales to LT Consumers (Dom+Comm+Street light+temp)	319.53	338.66	359.05	380.97	404.74
11	Sales to HT Consumers (other than HT-IV) (DSHT + HT-1 + HT-2+ HT-3)	1,867.40	1,776.14	1,670.96	1,719.85	1,734.10
12	<b>Total Sales to Other Consumers</b>	<b>2,216.93</b>	<b>2,144.80</b>	<b>2,060.01</b>	<b>2,130.82</b>	<b>2,168.84</b>
13	Distribution Losses on Sales to Other Consumers (%)	4.82%	4.85%	4.89%	4.85%	4.84%
14	Unit Lost on Sales to Other Consumers	112.15	109.25	105.85	108.69	110.22
15	<b>Energy Requirement for Sales to Other Consumers</b>	<b>2,329.08</b>	<b>2,254.05</b>	<b>2,165.86</b>	<b>2,239.52</b>	<b>2,279.06</b>
16	Overall Sales (4+8+9+12)	2,793.25	2,721.12	2,636.33	2,707.14	2,745.16
17	Overall Distribution Losses (%)	3.86%	3.86%	3.86%	3.86%	3.86%
18	Overall Distribution Losses	112.15	109.25	105.85	108.69	110.22
19	<b>Total Energy Requirement (Mus)</b>	<b>2905.40</b>	<b>2830.37</b>	<b>2742.18</b>	<b>2815.84</b>	<b>2855.38</b>

4.5.2 The power procurement plan for meeting above Energy Requirement in next Control Period is discussed in the next chapter.

## 5. POWER PURCHASE PLAN

### 5.1 Power Purchase Plan

5.1.1 The power requirement for the control period would be met from the following sources:

- Tata Power – Unit II & Unit III
- DVC, 132 kV
- DVC, 400 kV
- Tata Steel Works
- Open Access & Power Exchange

5.1.2 The power purchase quantum from above sources in next Control Period has been projected based on average of the ratio of total energy requirement met by individual sources in period FY 16-FY 20. The given ratios have been calculated as per below table:

**Table 37: Power Procurement during current Control Period**

	ENERGY AVAILABILITY (Mus)	FY 16	FY 17	FY 18	FY 19	FY 20	Ratio of Energy Requirement
1	<b>Tata Power Company Limited</b>	<b>1,489.22</b>	<b>1,423.92</b>	<b>1,475.76</b>	<b>1,400.95</b>	<b>1,324.55</b>	<b>47.97%</b>
a	<b>Unit - II</b>	770.91	716.98	743.73	698.18	672.80	24.29%
b	<b>Unit - III</b>	718.31	706.94	732.03	702.77	651.75	23.68%
2	<b>Damodar Valley Corporation`</b>	<b>1,484.92</b>	<b>1,459.20</b>	<b>1,451.33</b>	<b>1,466.41</b>	<b>1,391.82</b>	<b>48.91%</b>
a	<b>132 kV</b>	297.86	308.09	404.28	393.07	312.47	11.57%
b	<b>400 kV</b>	1,187.06	1,151.11	1,047.05	1,073.34	1,079.35	37.34%
i	<i>DSTPS</i>		528.28	530.48	572.37	575.57	18.94%
ii	<i>MTPS</i>		622.83	516.57	500.97	503.78	18.40%
3	<b>Tata Steel Works</b>	<b>17.17</b>	<b>76.52</b>	<b>17.76</b>	<b>19.14</b>	4.80	0.91%
4	<b>Short Term Sources</b>	0.87	8.15	128.73	126.97	62.31	2.21%
5	<b>Total Pooled Energy Availability (Mus)</b>	<b>2992.18</b>	<b>2967.79</b>	<b>3073.58</b>	<b>3013.47</b>	<b>2783.48</b>	<b>100.00%</b>

5.1.3 TSL has considered year-wise total energy requirement as calculated in Table 36 and applied ratio as calculated in above Table to arrive at year-wise procurement from each source. While projecting energy purchase from these sources, TSL has also ensured that energy procured from each of these sources is well within limit

of maximum energy which can be despatched by these source at its installed capacity/contract capacity. The power procurement plan for next control period from above mentioned sources as per methodology explained in above paragraphs is tabulated below:

**Table 38: Power Procurement Plan for Control Period**

	ENERGY AVAILABILITY (Mus)	FY 22	FY 23	FY 24	FY 25	FY 26
1	<b>Tata Power Company Limited</b>	1393.76	1357.77	1315.46	1350.80	1369.77
a	<b>Unit - II</b>	705.77	687.55	666.13	684.02	693.62
b	<b>Unit - III</b>	687.99	670.22	649.34	666.78	676.14
2	<b>Damodar Valley Corporation`</b>	1421.05	1384.35	1341.22	1377.24	1396.58
a	<b>132 kV</b>	336.13	327.45	317.25	325.77	330.34
b	<b>400 kV</b>					
i	<i>DSTPS</i>	550.26	536.05	519.34	533.29	540.78
ii	<i>MTPS</i>	534.66	520.85	504.62	518.18	525.45
3	<b>Tata Steel Works</b>	26.52	25.84	25.03	25.71	26.07
4	<b>Short Term Sources</b>	64.07	62.41	60.47	62.09	62.97
5	<b>Total Pooled Energy Availability (Mus)</b>	<b>2905.40</b>	<b>2830.37</b>	<b>2742.18</b>	<b>2815.84</b>	<b>2855.38</b>

5.1.4 Currently retail tariff of TSL is greater than gross metering rate of Rooftop Solar PV, therefore generally consumers would not prefer Gross metered Solar PV Plant over drawing power from Petitioner, hence consumers haven't installed gross metered roof top solar. Therefore, currently generation from such plant has not been considered. However in future if situation changes and gross metering tariff of Rooftop Solar PV becomes greater than average tariff, consumers may prefer installation of rooftop solar in Gross Metering mode and then TSL would consider its impact

5.1.5 The explanation/ assumptions considered for projecting power purchase cost from each of the sources are discussed hereunder.

## 5.2 Tata Power – Unit II & Unit III

5.2.1 TSL purchase power from TPCL's Coal-fired Jojobera Plant Unit II and Unit III, both having a capacity of 120 MW each, having respective CODs of 01.02.2001 01.02.2002. The industrial development, township development and growth in electricity demand of Steel Works and Jamshedpur Township required Tata Power to expand the generating capacity at Jojobera. Hence, Jojobera Unit II and III were developed only to meet demand of TSL and TSUISL (erstwhile JUSCO). The total 240 MW capacity is already being used by TSL and JUSCO for meeting their energy



demand. The plants are approximately 20 years, old and hence are considered to be mid-aged and with ageing, the generation and availability will face a number of challenges due to increased downtime, R&M etc.

5.2.2 The Projection of the Power Purchase Cost from TPCL Units II & III has been done on following basis –

- **Fixed Cost:** Base value of fixed cost is taken from Hon'ble JSERC Order dated 09<sup>th</sup> September 2020 regarding APR order for FY 20 for TPCL where-in Hon'ble Commission approved INR 104.55 Crore and INR 94.23 Crore as fixed cost for Unit II and Unit III respectively. Fixed cost of TPCL power plant has been estimated based on annual escalation factor of 2% p.a.
- **Energy Charge:** The base value of variable cost is considered as per Hon'ble JSERC Order dated 09<sup>th</sup> September 2020 regarding APR order for FY 20 for TPCL at INR 3.239/ KWh and INR 3.251/ KWh for Unit II and Unit III respectively. TSL has also projected Energy Charge or ECR by considering same escalation factor at 2% p.a.
- We have also considered the impact of SHAKTI scheme stage II and stage III. The impact is considered for estimating the energy charge for TPCL, which is marked by a one-time reduction in variable cost by INR 0.30/ KWh and INR 0.25/KWh in FY22 and FY23 respectively.

5.2.3 The total power procurement cost for TPCL for Unit-2 and Unit-3 for the control period has been calculated as shown in Tables below:

**Table 39: Tata Power Unit-2 and Unit-3 Variable Charge Computation Basis for Control Period**

Source	Base Value	FY 22	FY 23	FY 24	FY 25	FY 26
Effect of Shakti Stage II (Rs/kwh)		-0.30				
Effect of Shakti Stage III (Rs/kwh)			-0.25			
Escalation Rate		2.0%	2.0%	2.0%	2.0%	2.0%
Unit - II ((Rs/kwh)	3.239	3.070	2.884	2.942	3.001	3.061
Unit - III(Rs/kwh)	3.251	3.082	2.897	2.955	3.014	3.074

**Table 40: Tata Power Unit-2 and Unit-3 Fixed Charge Computation Basis for Control Period**

Source	Base Value	FY 22	FY 23	FY 24	FY 25	FY 26
Escalation		2.0%	2.0%	2.0%	2.0%	2.0%
Unit - II FC (Rs crore)	104.55	108.77	110.95	113.17	115.43	117.74
Unit - III FC (Rs crore)	94.23	98.04	100.00	102.00	104.04	106.12

**Table 41: Tata Power Unit-2 and Unit-3 Power purchase details for Control Period**

	Units	Items	FY 22	FY 23	FY 24	FY 25	FY 26
a	Unit - II	Energy (MU)	705.77	687.55	666.13	684.02	693.62
		Power Purchase Cost (Rs. Cr)	325.44	309.26	309.14	320.69	330.04
		Fixed Cost (Rs. Crore) (including FGD impact)	108.77	110.95	113.17	115.43	117.74
		Energy Charge (Rs/kwh)	3.07	2.88	2.94	3.00	3.06
b	Unit - III	Energy (MU)	687.99	670.22	649.34	666.78	676.14
		Power Purchase Cost (Rs. Cr)	310.10	294.16	293.87	305.01	313.98
		Fixed Cost (Rs. Crore) (including FGD impact)	98.04	100.00	102.00	104.04	106.12
		Energy Charge (Rs/kwh)	3.08	2.90	2.95	3.01	3.07

5.2.4 The petitioner requests Hon'ble Commission to kindly approve the Power Purchase Quantum and Cost for TPCL Unit-2 and Unit-3 for the control period.

### 5.3 DVC Power Purchase 132 kV

5.3.1 For projections of the Power Purchase Cost (Rs Crs) from DVC-132 kV, TSL has considered a growth rate of 2.0% in both variable charges as well as demand charges for the control period. The base value is taken tariff for FY21 of DVC as already approved by Hon'ble JSERC. The energy charge and fixed charge for the base year is taken from HT Institutional Services Tariff from JSERC Tariff Order for FY 21, which comes to INR 3.40/ KVAh and INR 350/KVAh/ Month respectively.

5.3.2 Since DVC HT Tariff Order is conventionally determined by the honourable JSERC on Rs/ KVAh basis, we have converted it to Rs/KWh with assumption of the power factor to remain 0.95 throughout the control period and the voltage rebate of 5% for HT- Institutional-132 kV and prompt online rebate of 2%, based on Hon'ble JSERC's latest approved Tariff order for DVC for FY 21.

**Table 42: DVC Power Purchase cost – 132 kV for Control Period**

Particulars	Units	FY 22	FY 23	FY 24	FY 25	FY 26
<b>Power Quantum</b>	<i>MU</i>	336.13	327.45	317.25	325.77	330.34
<b>Energy Charge</b>						
<i>DVC HT (institutional) Tariff</i>	<i>Rs/kVAh</i>	3.47	3.54	3.61	3.68	3.75
<i>Power Factor</i>		0.95	0.95	0.95	0.95	0.95
<i>Voltage Rebate</i>		5%	5%	5%	5%	5%

Particulars	Units	FY 22	FY 23	FY 24	FY 25	FY 26
Prompt Payment Rebate		2%	2%	2%	2%	2%
DVC HT (institutional) Tariff	Rs/kWh	3.40	3.47	3.54	3.61	3.68
<b>Fixed Cost</b>						
JSERC FC Tariff	Rs/kVA/ Month	357.00	364.14	371.42	378.85	386.43
Connected Load	kVA	103000.00	103000.00	103000.00	103000.00	103000.00
Voltage Rebate		5%	5%	5%	5%	5%
Prompt Payment Rebate		2%	2%	2%	2%	2%
Total FC	Rs crore	34.92	35.62	36.33	37.06	37.80
<b>Power Purchase Cost</b>	Rs. Crore	149.16	149.13	148.51	154.55	159.32

5.3.3 The Petitioner requests Hon'ble Commission to approve the purchase power quantum and cost from DVC-132 kV at the proposed rates for the control period.

#### 5.4 DVC Power Purchase 400 kV

5.4.1 Power from DVC at 400 kV are procured from two different plants, namely MTPS and DSTPS. We have pro-rated the procurement from the last 5 years' average procurement from these two plants. The Fixed charge and ECR of these two plants also considered based on the actual power procurement data for FY 20.

5.4.2 For projecting of the Power Purchase Cost (Rs. Crs) from DVC-400kV, TSL has considered annual growth rate of 2.0% in both capacity charge as well as energy charges over the actual price of FY 20.

5.4.3 The quantum and cost of such power purchase for the control period is provided in the table below:

**Table 43: DVC Power Purchase cost – 400 kV for Control Period**

Particulars	Unit	FY 22	FY 23	FY 24	FY 25	FY 26
<b>Energy Procurement (Total)</b>	<b>MU</b>	1393.76	1357.77	1315.46	1350.80	1369.77
DSTPS	MU	705.77	687.55	666.13	684.02	693.62
MTPS	MU	687.99	670.22	649.34	666.78	676.14
<b>Energy Charge</b>						
DSTPS	INR/ KWh	2.98	3.04	3.10	3.16	3.22
MTPS	INR/ KWh	3.00	3.06	3.12	3.19	3.25
<b>Fixed Charge</b>	<b>INR Cr.</b>					
DSTPS	INR Cr.	114.88	117.17	119.52	121.91	124.35

Particulars	Unit	FY 22	FY 23	FY 24	FY 25	FY 26
MTPS	INR Cr.	93.99	95.87	97.79	99.74	101.74
<b>Total Power Purchase Cost</b>	<b>INR Cr.</b>	<b>533.25</b>	<b>535.37</b>	<b>535.83</b>	<b>555.28</b>	<b>571.16</b>
DSTPS	INR Cr.	278.72	279.98	280.41	290.42	298.64
MTPS	INR Cr.	254.53	255.39	255.43	264.86	272.52

5.4.4 The Petitioner requests Hon'ble Commission to approve the purchase power from DVC-400 kV at the proposed rates for the control period.

## 5.5 Tata Steel Works (TSW)

5.5.1 TSL has been purchasing power from Tata Steel Works based on the availability of power from its other long term sources. TSL primarily purchases power from TSW in case of outage of the long term sources of power of TSL. Based on TSL procurement for previous years and pro-rated procurement, the same share has been considered for procurement from Tata Steel Works, based on future energy requirement projection in the ensuing years of the control period. In the past Hon'ble commission has approved the rate of power purchase from this source, the same as the weighted average cost of power from TPCL Jojobera Unit II & III. Accordingly weighted average cost of power for from TPCL Jojobera Unit II & III has been considered as the unit rate of power purchase from this source.

5.5.2 TSL submits that there has been large variation in energy procurement from TSW in present Control Period. There was also a spike in FY 17 when the procured power from TSW plant was 76.52 MU. Further in FY 20 energy procurement from TSW has reduced to a level of 4.80 MU from 19.14 MUs in FY 19. The petitioner would like to humbly submit the clarification for the large variation in energy availability from TSW. It is to be noted that TSW plant is captive plant. Hence, their ex-bus supply depends heavily on their own consumption at steel plant and availability of gas. During periods when Tata Steel increases its captive energy consumption and there is less scope for energy export. Hence for projections in subsequent Control Period average energy availability from TSW in present Control Period has been considered (as ratio of total energy requirement).

**Table 44: Power Purchase – Tata Steel Works**

Source	Unit	FY 22	FY 23	FY 24	FY 25	FY 26
<b>Power Purchase Cost</b>	<i>Rs/kWh</i>	4.56	4.44	4.58	4.63	4.70
<b>Quantum</b>	<i>MU</i>	26.52	25.84	25.03	25.71	26.07
<b>Total Cost</b>	<i>Rs. Crore</i>	12.09	11.48	11.48	11.91	12.26

5.5.3 The Petitioner requests Hon'ble Commission to approve the power purchase from Tata Steel Works as discussed above to meet contingencies, if any during the control period.

## 5.6 Short Term Power

5.6.1 As the DVC and TPCL plants are almost reaching their capacity and constraint in the power-pooling infrastructure from other nearby plants, there is expected to be a shortfall in the power availability during certain time intervals over the control period. For the purpose of Business plan projections, to meet anticipated shortfall in the energy requirement, the petitioner has assumed power procurement from Short Term sources at Rs. 4/kWh during the control period, without any escalation in the rate. It is expected that TSL would procure short-term power in same proportion of its energy requirement as done in previous 5 years . The power procurement plan from short term sources has been considered as follows:

**Table 45: Projections for Short Term Power**

Source	Base Value	FY 22	FY 23	FY 24	FY 25	FY 26
Power Purchase Rate	Rs/kWh	4.00	4.00	4.00	4.00	4.00
Power Procurement Quantum	MU	64.07	62.41	60.47	62.09	62.97
Total Power Purchase Cost	Rs. Crore	25.63	24.97	24.19	24.84	25.19

## 5.7 Renewable Power Purchase Obligation

5.7.1 As per JSERC (Renewable Energy Purchase Obligation and its Compliance) Regulations, 2020, the petitioner needs to purchase specified quantum of power from Renewable Energy Sources. The RPO is specified only specified till FY 24. The targets are specified as follows:

**Table 46: RPO Obligation till FY24 as per JSERC draft Regulations**

Year	Minimum Percentage of RE purchase		
	Solar	Non-Solar	Total
FY21	8.75%	10.25%	19.00%
FY22	10.50%	10.50%	21.00%
FY23	11.50%	11.50%	23.00%
FY24	12.50%	12.50%	25.00%

5.7.2 The petitioner in the past has faced various difficulties in procuring renewable energy due to lack of availability of renewable energy generation in the State of Jharkhand. The petitioner had to rely on purchase of Renewable Energy Certificates (RECs) which is the alternate mechanism available to meet RPO. The

regulation 6.1 of the RPO Regulations 2016 provides for purchase of RECs as under:

*“Subject to the terms and conditions contained in these Regulations the Certificates issued under the Central Electricity Regulatory Commission (Terms and Conditions for recognition and issuance of Renewable Energy Certificate for Renewable Energy Generation) Regulations, 2010 shall be the valid instruments for the discharge of the mandatory obligations set out in these Regulations for the Obligated entities to purchase electricity from renewable energy sources.*

*Provided that in the event of the Obligated entity fulfilling the renewable purchase obligation by purchase of Certificates, the obligation to purchase electricity from generation based on solar as renewable energy source can be fulfilled by purchase of solar certificates only, and the obligation to purchase electricity from generation based on renewable energy other than solar can be fulfilled by purchase of non-solar certificates only.”*

- 5.7.3 The petitioner submits that it would make all efforts to procure power from renewable energy source as and when it is available. However, the petitioner wants to gladly submit that, the petitioner have requested DVC for granting Open Access in their network for trading of Renewable Energy from National Exchanges. For the purpose of Business plan projection the petitioner has considered purchase of REC. However, the petitioner would like to gladly submit to the honourable commission, that TSL has already initiated the commissioning process of a 60 MW Solar PV plant near Jamshedpur. The plant is still at feasibility stage and hence is not considered for present petition. TSL requests Hon'ble Commission to allow the Petitioner to file Petition as soon as it is cleared for construction for consideration of its impact.
- 5.7.4 Additionally, as observed by honourable JSERC in the TSL - True-up for FY 2018-19, APR for FY 2019-20 and ARR & Tariff for FY 2020-21 order, regarding the purchase of power from DVC in 132 kV distribution network, the RPO compliance liability lies completely with DVC. The honourable commission observed that “in case TSL buys power from DVC then the onus to comply with RPO will be with DVC only”.
- 5.7.5 The prices of both Solar and Non Solar REC's in the Indian Energy Exchange for the period Jan-2020 to June- 2020 is as presented below:-

**REC Data at Indian Energy Exchange (IEX)**

Year   Month   Type			Buy Bids (REC)	Sell Bids (REC)	Cleared Volume (REC)	Cleared Price(Rs/REC)	No. Of Participants
2020	January	Solar	10,52,954	39,413	39,413	2,400	425
		Non-Solar	7,73,557	3,59,639	3,23,647	2,200	487



	February	Non-Solar*	-	3	-	-	1
		Solar	10,94,700	10,14,459	9,84,157	2,400	503
		Non-Solar	6,61,976	27,79,466	5,07,153	1,800	503
	March	Non-Solar*	-	3	-	-	1
		Solar	2,13,710	39,299	39,299	2,400	381
		Non-Solar	4,80,379	26,44,937	4,80,379	1,000	449
	April	Non-Solar*	-	-	-	-	-
		Solar	38,176	15,991	15,991	2,400	185
		Non-Solar	1,72,488	4,39,233	1,72,488	1,000	252
	May	Non-Solar*	0	0	0	0	0
		Solar	41,415	93,298	35,793	2,000	256
		Non-Solar	2,42,714	30,17,326	2,42,714	1,000	303
	June	Non-Solar*	0	0	0	0	0
		Solar	66,815	1,35,169	66,815	1,000	233
		Non-Solar	1,62,873	7,13,238	1,62,873	1,000	317
		Non-Solar*	0	0	0	0	0

5.7.6 Thus in 2020, as per latest data, Solar and Non-solar RECs are trading at Rs 1.00 per unit. Together with Trader fees and applicable GST price of 1 REC (1000 kWh) comes to be Rs. 1,140 or in other words, Rs. 1.14/kWh. For the purpose of projections in the Control period TSL has considered these rates for REC purchase. Moreover, since RE availability and connectivity is a major challenge, the petitioner have taken a more realistic approach and started the solar REC at 6.55% and Non-solar REC at 5.00% in FY22 (same as FY 21) and has escalated both components of RPO by 50 percentage points every year till FY24, and thereafter by 100 percentage points each year till FY 26.

5.7.7 The quantum of renewable energy proposed to be met by way of purchase of Renewable Energy Certificates for the control period is provided in the table below:

**Table 47: Purchase of REC for the Control Period**

Rates	Units	FY22	FY23	FY24	FY25	FY26
REC	Rs/kWh	1.14	1.14	1.14	1.14	1.14
Percentage						
Solar	%age	6.55%	7.05%	7.55%	8.55%	9.55%
Non-Solar	%age	5.00%	5.50%	6.00%	7.00%	8.00%
Total Purchase						
Total Energy Purchase	MUs	2905.40	2830.37	2742.18	2815.84	2855.38
Power from DVC (RPO Complied)	MUs	336.13	327.45	317.25	325.77	330.34
Total Power considered for RPO	Mus	2569.27	2502.92	2424.93	2490.07	2525.03
Solar	MUs	168.29	176.46	183.08	212.90	241.14

Rates	Units	FY22	FY23	FY24	FY25	FY26
RTS Generation	MUs	8.92	10.02	11.32	12.57	13.59
Net Solar RPO	MUs	159.36	166.43	171.76	200.33	227.56
Non-Solar	MUs	128.46	137.66	145.50	174.30	202.00
<b>Total RPO Cost</b>	<b>Rs crore</b>	<b>32.81</b>	<b>34.67</b>	<b>36.17</b>	<b>42.71</b>	<b>48.97</b>

5.7.8 The Petitioner requests Hon'ble Commission to approve the purchase of RECs as discussed above for the purpose of meeting the RPO for the control period.

## 5.8 Transmission and Scheduling Cost

5.8.1 TSL has considered actual Transmission Cost for FY 2019-20 and escalated it by 2% CAGR to project Transmission and Scheduling Cost for next Control Period.

## 5.9 Sale of Excess Power

5.9.1 TSL has projected that in next Control Period it would do sell excess 30 MUs extra power each year in order to recover total variable of backed down power and additionally also a part of fixed cost. It is expected that average price of such power sales to be realised for TSL would be Rs. 3.50/kWh.

## 5.10 Total Power Purchase Cost

5.10.1 As discussed in preceding paragraphs, the projected total power purchase cost in next Control Period is as presented in the table below: -

**Table 48: Power Purchase Cost for Control Period**

Source	Units	FY 22	FY 23	FY 24	FY 25	FY 26
<b>Tata Power Company Limited</b>						
Unit - II	Rs. Crore	325.44	309.26	309.14	320.69	330.04
Unit - III	Rs. Crore	310.10	294.16	293.87	305.01	313.98
<b>Damodar Valley Corporation (132 kV as HT Consumer)</b>						
132 kV	Rs. Crore	149.16	149.13	148.51	154.55	159.32
<b>DVC Power Plants at 400 kV</b>						
DSTPS	Rs. Crore	278.72	279.98	280.41	290.42	298.64
MTPS	Rs. Crore	254.53	255.39	255.43	264.86	272.52
<b>Tata Steel Works</b>	Rs. Crore	12.09	11.48	11.48	11.91	12.26
<b>Short Term Sources</b>	Rs. Crore	25.63	24.97	24.19	24.84	25.19
REC	Rs. Crore	32.81	34.67	36.17	42.71	48.97
PGCIL	Rs. Crore	80.93	82.55	84.20	85.89	87.60
ERLDC	Rs. Crore	0.68	0.69	0.71	0.72	0.74
<b>Sale of Excess Power</b>	Rs. Crore	10.50	10.50	10.50	10.50	10.50
<b>Total</b>	<b>Rs. Crore</b>	<b>1459.59</b>	<b>1442.28</b>	<b>1444.09</b>	<b>1501.59</b>	<b>1549.27</b>

5.10.2 The petitioner requests the Hon'ble Commission to approve the total power purchase cost for the control period.

5.10.3 The Petitioner further submits that in Order to provide reliable power to its consumers it has contracted more power from suppliers due to which its fixed cost is higher and hence its average power purchase cost is on a higher side. Jamshedpur being an industrial town, impact of any supply disruption would have huge economic implication and hence it is prudent to arrange for extra power for maintaining reliability at reasonable additional cost.

5.10.4 Additionally, TSL has made efforts to comply with RPO through purchase of REC, which may not be done by other distribution Licensees of Jharkhand. Details of TSL Power Purchase Cost with and without Transmission Charges and without REC cost is tabulated below:

**Table 49: Power Purchase Rate for Control Period (Rs/kWh)**

Source	FY 22	FY 23	FY 24	FY 25	FY 26
Total Power Purchase Cost	5.02	5.10	5.27	5.33	5.43
Power Purchase Cost without Transmission Cost	4.74	4.80	4.96	5.03	5.12
Power Purchase Cost without Transmission Cost and REC	4.63	4.68	4.82	4.87	4.94

TSL request Hon'ble Commission to account these factors while approving power Purchase Cost of TSL so that the Petitioner is able to supply reliable power to its consumers.

## 6. CAPITAL INVESTMENT PLAN

The present distribution network comprises of distribution network cables, distribution transformers, switch houses, customer sub-stations meters, metering equipment and all associated control, monitoring, communication and protection equipment. The current voltage level in distribution network of Tata Steel Limited are 132 kV, 33 kV, 6.6 kV and LT Level.

Tata Steel continuously evaluates its distribution network to ensure providing quality power supply to existing and new consumers. It also undertakes systematic evaluation of its current network and processes, to work out network strengthening and additional requirements to meet the above said objective.

A significant part of distribution network of TSL is old. TSL has been continuously upgrading and strengthening its network to cater quality and reliable power supply to its increasing consumer base. Though sales in industrial segment is decreasing, sales in retail domestic and commercial segment is increasing during the control period and therefore there is a need for strengthening the network and substation that feeds to retail domestic and commercial segment. There are few substations which are fed from single source and doesn't have full capacity ties and therefore there is a need to provide another source. IN some of the substations existing capacity is already fully utilised and therefore there is a need to strengthen the capacity.

Capital expenditure in next Control Expenditure is proposed to meet the above requirement along with some projects for upgrading technology, improving reliability and quality of supply and to comply with regulatory directives.

In order to support the heavily industrialized consumer base in its command area, Tata Steel focuses on uninterrupted power supply to its consumers, as even a short power outage costs heavily on the outputs of the industries.

Based on the above new Capital schemes, for the control period FY 22 to FY 26 has been worked out, which is given below. Details of these schemes are given in **Annexure 1** to this plan.

### 6.1 Capital Expenditure Schemes

The petitioner proposes to undertake Capital Expenditure under 8 schemes in next Control Period at total capital expenditure of INR 94.42 crore, out of which the entire amount is expected to be capitalised during the control period only.

Moreover 4 schemes to be undertaken in next Control Period are roll-over from the present Control Period. They are listed as below:

- Upgradation of Tinplate Area Sub-Station
- Augmentation- 132 kV Line 6 for Bara / Sonari Sub-Station
- 6.6 kV Network Extension for power supply in fringe Areas

- Strengthening of Testing facilities

These schemes could not be completed in the last control period due to various reasons including overall priority. These schemes have already been included in the next year capital expenditure plan of TSL. Details of the schemes is included in the Annexure-1.

In case of upgradation of Tinplate area sub-station only one essential part was completed, and rest part was deferred to next control period. Resultantly the project has been short-closed in present Control Period and 33kV Sub-Station and civil building construction would be considered under new scheme in next Control Period.

Moreover, due to difference in capital expenditure and capitalisation schedule, TSL has also factored in IDC component on normative debt in addition to capex amount and considered the same for calculating final capitalisation:

## 6.2 New Capital Expenditure Schemes:

The new projects to be taken up are given in the Table 50. The new projects are taken up in line with the era of digital transformation of the Discoms and to enhance the customer experience by providing uninterrupted power supply. Keeping in mind of the customer portfolio of TSL, and the heavily industrialized demography, we are taking up projects to alleviate the network congestion and to enhance the capacity to pull power from various source. We are also working to improve the aged distribution network which will help our initiative to improve the quality of supply to our growing network, especially in the rural areas. Some of the worth-mentioning projects are cited below along-with the detailed background and purpose:

1. **Upgradation of Network Monitoring & Control Centre:** Currently 350 power distribution Substations/Switch houses, HT Consumers are integrated with existing SCADA supplied by ABB. It was installed and commissioned in year 2014 in order to reduce overall power breakdown restoration time and monitoring of Town network from central location (NMCC). Now in order to manage energy distribution system we need to upgrade to latest version with add on features, like Outage Management, Crew and resource management, Geographic Information Systems, Customer Information Systems, Access of information over WAN, Load Shedding. Now, in order to execute the scheme and integrating with the existing system, Licensee proposes requirement of manpower as submitted in HR plan

2. **New 6.6kV AIS indoor substation in eastern south area:** The Petitioner understands that there is need to develop infrastructure to cater unserved area in Eastern South Part of the Town. Hence, the scheme is proposed to establish a new 6.6 kV substation with incoming power supply from 33/6.6 kV BPRS Substation. This substation will cater app. 4 to 5 MVA power supply in Ghorabandha, Mills and Godown area, Jemco Gurudwara Bustee, Chuna Bhatta near Prem Nagar, Chota Govindpur, Ramadhin Bagan along with existing load of Eastern Zone Feeder, Ramadhin Bagan Water project. This project will assist TSL in catering to growth in load, Network Augmentation and Customer Satisfaction.. The details of the same alongwith the funding plan and implementation roadmap is provided in Annexure 1.
3. **New 2x16/20 MVA, 33/6.6 kV Substation in eastern part of Town:** There is need to set-up a new 33/6.6kV substation to meet (1) New load requirement of new construction of Manipal Medical College / Women College (2) Cater unserved area of Bagun Nagar, Birsa Nagar, Baridih Basti, Bagun Hatu, Moharda Bastee etc. (3) Load enhancement of Vijaya Garden and other existing customers and (4) Tie to existing three nos. switch house (Kadani Road, Baridih Market and Sidgora Market HT Switchroom etc) to increase power reliability i.e.to feed power supply in case of failure of existing source.  
The scheme is proposed to set-up 2 nos. 16/20 MVA, 33/6.6 kV indoor substation to meet load growth in that area during and beyond the control periodThe details are provided in Annexure 1.
4. **6.6 kV Network Extension for power supply in Fringe Area:** There are pockets in peripheral area of Jamshedpur (Bagan / Bustee area), where TSL network is not present and therefore power supply is mostly being provided by JBVNL. Due to difference in quality and reliability of power supply, there had been continuous demand from various groups to provide power supply from TSL network. This scheme covers network extension in some of these areas from where demand for power connection is coming up and it is possible to extend TSL own distribution network. It is proposed and planned to install eight numbers of Compact Substation (CPSS) and extend LT network to provide power connections. The extension is planned in the area which is in close vicinity of our existing electricity distribution network with maximum distance of 500 meters from area which is already served by TSL. This project will create additional infrastructure for next 3000 prospective consumers in those area and hence the provisioning will pave the way to integrate more consumers from this region. The detailed plan and the concept note is provided in Annexure 1.



5. **Strengthening of Testing Facilities:** Following equipment are required to be procured for Strengthening of Testing Facilities:
- **Cable Testing Mobile Van:** Presently cable fault locator of Telemetrics make is 12 Years old, and is frequently out of service, It is not working properly since Oct'18. Hence automated Cable Test Van with advanced digital / diagnostic features is required to locate fault in cable
  - **Meter Testing Set:** As per JSERC and CEA regulations Meters are to be tested once in 5 years / 3 years. Energy meter test Bench is not available for testing of Energy meters (incoming, periodic & disputed). Hence TSL is planning to procure Automated Energy meters test Bench which can test 8- 10 meters at a time.
  - **Partial Discharge Machine:** Existing instrument is 7 years old and has limited range ~10 mtrs. It is also not suitable for condition monitoring of tower line insulator . Hence TSL is planning to procure Ultra probe UP15000TS with waveform concentrator with range upto~ 60 Mtrs.
  - **Three phase power quality (PQ) analyser:** PQ analyser is required for monitoring and planning required actions on few parameters (Harmonics) of PQ as required by JSERC regulations.
  - **Line Thermography Machine**
6. **Up-gradation of Tinplate Area Substation** with new 2 X 16/20 MVA, 33/6.6 kV power Transformer: 33/6.6kV Tinplate Area substation at Golmuri is the main substation for distribution of power in eastern part of the town. It has two 33 kV incoming feeders namely L-5 and L-6 from 132/33 kV substation near Tubes Division. This project is taken up to cater to existing and upcoming load in next 3-4 years. Moreover, any outage (including breakdown), may lead to long duration power outage which may further lead to public unrest in addition to loss of revenue & customer dissatisfaction. The planned installations are as follows:
- a. Supply, installation and commissioning of 2/leg, 3Cx300sqmm, 33kV XLPE, AL underground Cable from TSL Golmuri S/s to Tinplate S/s (App. Route length: 3 kM)
  - b. Supply, installation and commissioning 2 nos. 16/20 MVA, 33/ 6.6 kV Transformer along with NIFPS system
  - c. Supply, installation and commissioning new 33kV double bus GIS in Tinplate S/s
  - d. Supply, installation and commissioning miscellaneous electrics e.g. battery charger, ACDB, LT Cables etc.
  - e. Construction of new control building .
  - f. Civil work for Transformer foundation and oil pit
- The details are given in Annexure-1.

The summarized capital expenditure plan along with the capitalization schedule is provided below:

**Table 50: Scheme-wise phasing of Capital Expenditure during the Control Period**

S, No	Scheme Name	Remarks	Total Project Cost (in Crs.)	Provisional Project cost and final Capital Expenditure schedule				
				FY 22	FY 23	FY 24	FY25	FY26
1	Upgradation of Network Monitoring & Control Centre	New	7.5		4	3.5		
2	New 6.6kV AIS indoor substation for network extension in Ramadhin Bagan, Manifit and nearby area (Eastern South)	New	3.00	0.50	2.50			
3	New 2x16/20MVA, 33kV / 6.6 kV S/Stn with incoming feeder cable from Bara S/stn at Baridih Area for Eastern North Area(Unserved Area)	New	25.00		3.00	19.00	3.00	
4	6.6 kV Network Extension for power supply in fringe areas	From Last Control Period	8.00	1	1	2	2	2
5	Strengthening of Testing facilities	From Last Control Period	2.00	2.00				
6	132kV power line connectivity form MPDS-4 to Sonari/Bara	From Last Control Period.	20.00		20			
7	Augmentation of Tinplate ,Golmuri & BPRS for feeding town loads	New	17.40	2.00	15.4			
8	Supply and Installation of Power Quality Meter	New	1.52	1.52				
9	Other assets to provide consumer connection from consumers (self financing scheme)	New	10	2.00	2.00	2.00	2.00	2.00
	<b>Total Capital Expenditure</b>		<b>94.42</b>	<b>9.02</b>	<b>47.90</b>	<b>26.50</b>	<b>7.00</b>	<b>4.00</b>

Out of above schemes, there is difference in schedule of capital expenditure and capitalisation as per Regulation 10.8 of JSERC Distribution Tariff Regulations, 2020 for following schemes. TSL has considered that interest would be capitalised corresponding to uncapitalized portion of Capex for following three schemes:

- New 6.6kV AIS indoor substation in eastern south area near Telco Area) (Unserved Area)
- New 2x16/20MVA, 33kV / 6.6 kV S/Stn with incoming feeder cable from Bara S/stn at Baridih Area for Eastern North Area(Unserved Area)
- Augmentation of Tinplate ,Golmuri & BPRS for feeding town loads

The detailed calculation of expected IDC on such schemes is shown in Table below:

**Table 51: Scheme-wise phasing of Debt Component for schemes during Control Period**

Scheme Name	Normative debt corresponding to Capex incurred				
	FY 22	FY 23	FY 24	FY 25	FY 26
New 6.6kV AIS indoor substation in eastern south area near Telco Area) (Unserved Area)	0.4	1.8	0.0	0.0	0.0
New 2x16/20MVA, 33kV / 6.6 kV S/Stn with incoming feeder cable from Bara S/stn at Baridih Area for Eastern North Area(Unserved Area)	0.0	2.1	13.3	2.1	0.0
Augmentation of Tinplate ,Golmuri & BPRS for feeding town loads	1.4	10.8	0.0	0.0	0.0
<b>Total Debt Taken for IDC</b>	<b>1.75</b>	<b>14.63</b>	<b>13.30</b>	<b>2.10</b>	<b>0.00</b>

Interest incurred on un-capitalisation of debt has been considered at 10% for next Control Period as per Regulation 10.26 of JSERC Distribution Tariff Regulations, 2020.

The detailed capital expenditure phasing due to IDC is given below:

**Table 52: Scheme-wise IDC incurred for ongoing projects during the Control Period**

Scheme Name	Normative IDC on uncapitalized portion of Debt				
	FY 22	FY 23	FY 24	FY 25	FY 26
New 6.6kV AIS indoor substation in eastern south area near Telco Area) (Unserved Area)	0.018	0.019			
New 2x16/20MVA, 33kV / 6.6 kV S/Stn with incoming feeder cable from Bara S/stn at Baridih Area for Eastern North Area(Unserved Area)	0.000	0.105	0.116	0.022	0.0
Augmentation of Tinplate ,Golmuri & BPRS for feeding town loads	0.070	0.077			
<b>Total Debt Taken for IDC</b>	<b>0.09</b>	<b>0.20</b>	<b>0.12</b>	<b>0.02</b>	<b>0.00</b>

Considering both capex and IDC incurred on Capitalised schemes, scheme-wise capitalisation in next Control Period is tabulated below:

**Table 53: Scheme-wise phasing of Capitalisation during the Control Period**

S.No	Scheme Name	Total Project Cost (in Crs.)	Total Capitalisation				
			FY 22	FY 23	FY 24	FY25	FY26
1	Upgradation of Network Monitoring & Control Centre (SCADA)	7.5		4.00	3.50		
2	New 6.6kV AIS indoor substation for network extension in Ramadhin Bagan, Manifit and nearby area (Eastern South)	3.04		3.04			
3	New 2x16/20MVA, 33kV / 6.6 kV S/Stn with incoming feeder cable from Bara S/stn at Baridih Area for Eastern North Area(Unserved Area)	25.24		0.00	22.22	3.02	
4	6.6 kV Network Extension for power supply in fringe areas	8.00	1.00	1.00	2.00	2.00	2.00
5	Strengthening of Testing facilities	2.00	2.00				
6	132kV power line connectivity form MPDS-4 to Sonari/Bara	20.00		20.00			
7	Augmentation of Tinsplate ,Golmuri & BPRS for feeding town loads	17.55		17.55			
8	Supply and Installation of Power Quality Meter	1.52	1.52				
9	Other assets to provide consumer connection from consumers (self financing scheme)	10	2.00	2.00	2.00	2.00	2.00
	<b>Total Capitalisation</b>	<b>94.85</b>	<b>6.52</b>	<b>47.58</b>	<b>29.72</b>	<b>7.02</b>	<b>4.00</b>

### 6.3 Funding of Capital Expenditure

Schemes as listed above are to be funded by debt and equity to be availed by TSL (except for schemes undertaken in self-financing scheme). The relevant extract of funding of schemes as per JSERC Distribution Tariff Regulations, 2020 is presented below:

#### ***Debt-Equity Ratio***

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

*10.17 New Schemes – For capital expenditure schemes capitalised after April 01, 2021:*

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

Such funding principles were adopted by petitioner in the past and have been approved by Hon'ble Commission.

As per the methodology given in Tariff Regulations, any GFA addition in next Control Period after deducting consumer contribution, if any shall be considered to be funded by TSL in a Debt:Equity ratio of 70:30. In case of self funded schemes, consumer contribution are expected to be at 100% of total project scheme

## 7. HUMAN RESOURCE PLAN

### 7.1 Introduction

- 7.1.1 As per Sub-Clause (e) of Regulation 6.11 of JSERC Distribution Tariff Regulations, 2020 TSL is required to HR Plan as part of its Business Plan. The Regulation is reproduced here-under:

*“6.11 The Business Plan shall be for the entire Control Period and shall inter-alia contain:*

*.....*

*(e) Human Resource Plan with manpower planning including details of the estimated year wise manpower addition and retirements for the Control Period to meet the growth in demand/consumers;”*

- 7.1.2 Accordingly, TSL hereby is providing details of addition in Employees in next Control Period and rationale there-off in subsequent paragraphs.

### 7.2 Employees Addition Details

- 7.2.1 The Petitioner has prepared its HR Plan on the basis of overall operation and maintenance requirement as assessed by it for next Control Period and also to maintain service levels and operational parameters as per relevant Regulations notified by Hon'ble Commission.
- 7.2.2 Employees are the most critical resource required to deliver the services, and maintain the operational efficiency as electricity business is runs continuously 24x7 and therefore needs continuous attention and interventions. As the distribution network of the petitioner is spread across different locations of Jamshedpur, it is prone to damage and disruption due to residents of the city, vehicles and also environmental factors such as adverse weather conditions etc.
- 7.2.3 TSL employees of various level and functions are working over the years to provide best services to its consumer despite the uncontrollable factors. During the upcoming control period FY22 to FY26; approx. 30 nos. of such employees will be superannuating. These will be regular requirement of manpower to fill up the vacancy. However, workforce would be recruited prior to their retirement as they need to be onboarded (trained on multiple skill and knowledge on electricity distribution before allowing them to work independently). The below table provides detail of hiring to be done to replace retiring workforce:

**Table 54: Manpower Required to replace superannuating employees**

Level	FY22	FY23	FY24	FY25	FY26	Total
Managerial & Officers	2	5	2	2	3	14
Supervisory & Workmen	1	5	3	6	1	16
<b>Total Manpower Replaced</b>	<b>3</b>	<b>10</b>	<b>5</b>	<b>8</b>	<b>4</b>	<b>30</b>



7.2.4 Post enactment of Electricity Act'2003; electricity sector had seen several reforms in several areas including functioning of Distribution Companies w.r.t. tariff, customer service, safety, reliability & quality of power supply. Hon'ble JSERC vide its various orders and regulations brought about several improvement, norms in the functioning of the Distribution Companies. JSERC (Distribution Licensees' Standard of Performance) Regulations 2015, further prescribed several requirements to be followed by distribution Licensee for overall improvement of the distribution sector and customer service. Similarly JSERC (guidelines for establishment of forum for redressal of grievances of the consumers and electricity ombudsman) Regulations have also mandated Discoms to employ people to resolve complaints of consumers.

7.2.5 While the petitioner had tried to comply to the requirement by deploying existing workforce or prioritising/shifting some of the activity/work, there are some functional requirement for which petitioner could not add suitable manpower in previous Control, Period and therefore finds it difficult to fully comply to those requirements. Petitioner has evaluated additional workforce required to meet the such additional functional requirement. There is an additional requirement of approx. 31 manpower on this account during the 5-year control period as provided in below Table.

**Table 55: Manpower Required for additional function requirement in existing operational area**

Activity Details						Total	Remarks
	FY22	FY23	FY24	FY25	FY26		
Safety inspection and enhancement of safety measures in Market area, at HT consumers & LT bulk consumers and in bustee and fringe areas	4	0	0	0	0	4	1 Engineer with Safety Background each for Market area, Inspection at HT Consumers & LT Bulk consumers, Bustee & fringe area East, Bustee & Fringe Area West.
Enhancement of electricity disconnection activity due to payment default.	11	1	0	0	0	12	4 groups with 3 persons in each group including admin & security .
Vigilance and Inspection of Unauthorised tapping from distribution network	5	1	0	0	0	6	2 groups of 3persons in each group including admin and security.
Power Quality Monitoring, reporting and improvement actions	3	0	0	0	0	3	One engineer, one diploma, one ITI

Periodic testing of installed Energy meter at consumer premises	5	1	0	0	0	6	Two Engineer and 4 Diploma for forming 4 groups to supervise the same at site.
<b>Total Manpower Added</b>	<b>28</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>31</b>	

7.2.6 Petitioner would also like to add that there is a requirement for adding appropriate manpower to execute the proposed capital expenditure plan. With recent amendments in the policy for providing new connections, petitioner has seen a rise in connection application from bustee and fringe area which has created a scope of providing power supply to those area. However due to non-existence of TSL network in such areas, the Petitioner needs to develop suitable power distribution infrastructure. Hence different schemes have been undertaken to develop infrastructure in these areas. TSL plans to hire additional manpower required for building the infrastructure. Manpower recruited for this purpose would later be transferred for operation and maintenance of TSL distribution network in the same area. Such plan ensures that there is a continuity of key workforce including managerial staff and there a certainty in the job prospects for the person deployed for capital execution/ network development. There will be an additional requirement of approx. 23 manpower to execute the capital projects and subsequent Operations and maintenance, during the 5-year control period as tabulated below:

**Table 56: Manpower Required for construction and O&M of upcoming Infra**

Activity Details						Total	Remarks
	FY22	FY23	FY24	FY25	FY26		
Upgradation of Network Monitoring & Control Centre (SCADA)	0	2	0	0	0	2	One IT/ SCADA engineer and one Dip/ITI to support field activity.
New 6.6kV AIS indoor substation for network extension in Ramadhin Bagan, Manifit and nearby area (Eastern South)	2	0	0	0	0	2	One diploma engineer and one ITI for regular O&M and to also look after the downstream distribution.
New 2x16/20MVA, 33kV / 6.6 kV S/Stn with incoming feeder in Baridih Area (Eastern North) for network extension to meet load growth in nearby area	0	6	1		0	7	For Shift manning of power substation and O&M of downstream distribution network.
6.6 kV Network Extension for power supply in fringe areas	1	0	2	0	0	3	3 Diploma engineers for regular O&M

Strengthening of Testing facilities	0	2	0	0	0	2	1 Engineer and 1 diploma engineer for additional tests on existing equipment and also testing of the equipment installed in Capex.
Upgradation of Tinplate area substation for Golmuri (33kV Substation) and line	3	2	2	0	0	7	For Shift manning of power substation and O&M of downstream distribution network.
<b>Total Manpower Added</b>	<b>6</b>	<b>12</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>23</b>	

7.2.7 Total Additional annual Expenditure by TSL in next Control Period on additional employees is tabulated below

**Table 57: Annual Cost to Company for Employees being added**

Level	FY22	FY23	FY24	FY25	FY26	Total
Managerial (B.Tech/MBA)	4	4		0		8
Officer ( BE, Diploma)	12	0	0			12
Supervisory, Junior Engineer (Diploma)	8	5	5	0	0	18
Lineman, Electrician, Junior Field Attendant (ITI)	10	6				16
<b>Total</b>	<b>34</b>	<b>15</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>54</b>
Cumulative total manpower requirement	34	49	54	54	54	54
<b>Additional manpower Cost@CTC (Rs Lakhs)</b>	<b>240</b>	<b>370</b>	<b>422</b>	<b>443</b>	<b>465</b>	

**MULTI YEAR TARIFF PETITION**  
**FOR**  
**CONTROL PERIOD FY 2021-22 To FY 2025-26**  
**AND**  
**TARIFF DETERMINATION FOR FY 2021-22**



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**List of Abbreviations**

<b>Sr. No</b>	<b>Abbreviations</b>	<b>Descriptions</b>
<b>1.</b>	ABT	Availability Based Tariff
<b>2.</b>	ALDC	Area Load Dispatch Centre
<b>3.</b>	A&G	Administrative and General
<b>4.</b>	AMR	Automatic Meter Reading
<b>5.</b>	ARR	Aggregate Revenue Requirement
<b>6.</b>	AS	Accounting Standard
<b>7.</b>	CAGR	Compound Annual Growth Rate
<b>8.</b>	CDM	Clean Development Mechanism
<b>9.</b>	CERC	Central Electricity Regulatory Commission
<b>10.</b>	CESC	Calcutta Electric Supply Company
<b>11.</b>	CFL	Compact Fluorescent Lamp
<b>12.</b>	CGS	Central Generating Station
<b>13.</b>	CoS	Cost of Supply/ Service
<b>14.</b>	CPPs	Captive Power Plants
<b>15.</b>	CWIP	Capital Work in Progress
<b>16.</b>	DF	Distribution Franchisee
<b>17.</b>	Discom	Distribution Companies
<b>18.</b>	DPS	Delayed Payment Surcharge
<b>19.</b>	DS	Domestic Service
<b>20.</b>	DSHT	Domestic Service High Tension
<b>21.</b>	DSM	Demand Side Management
<b>22.</b>	DTC	Distribution Transformer
<b>23.</b>	DVC	Damodar Valley Corporation
<b>24.</b>	EA/The Act	The Electricity Act 2003

Sr. No	Abbreviations	Descriptions
25.	F&A	Finance & Accounts
26.	FAS	Finance Accounting System
27.	FOR	Forum of Regulators
28.	FY	Financial Year
29.	GFA	Gross Fixed Assets
30.	GoI	Government of India
31.	HP	Horse Power
32.	HR	Human Resource
33.	HT	High Tension
34.	IPP	Independent Power Producers
35.	JSERC	Jharkhand State Electricity Regulatory Commission
36.	JTS	Jamshedpur Town Services
37.	JUSCO	Jamshedpur Utilities & Services Company Limited
38.	KV	Kilo Volt
39.	kVA	Kilo Volt Ampere
40.	kVAh	Kilo Volt Ampere Hour
41.	kW	Kilo Watt
42.	kWh	Kilo Watt Hour
43.	LF	Load Factor
44.	LT	Low Tension
45.	MD	Maximum Demand
46.	MOD	Merit Order Despatch
47.	MoP	Ministry of Power
48.	MOU	Memorandum of Understanding
49.	MU	Million Units (Million kWh)

<b>Sr. No</b>	<b>Abbreviations</b>	<b>Descriptions</b>
50.	MVA	Mega Volt Ampere
51.	MW	Mega Watt
52.	MYT	Multi Year Tariff
53.	NAPCC	National Action Plan of Climate Change
54.	NEP	National Electricity Policy
55.	NTP	National Tariff Policy
56.	NTPC	National Thermal Power Corporation
57.	O&M	Operation & Maintenance
58.	PF	Provident Fund
59.	PLR	Prime Lending Rate
60.	PPA	Power Purchase Agreement
61.	PSD	Power Service Division
62.	REC	Renewable Energy Certificate
63.	R&M	Repair and Maintenance
64.	RMU	Ring Main Unit
65.	ROE	Return on Equity
66.	RPO	Renewable Purchase Obligation
67.	Rs	Rupees
68.	SAP	System Application and Procedure
69.	SBI	State Bank of India
70.	SLM	Straight Line Method
71.	SLDC	State Load Dispatch Centre
72.	SWOT	Strength, Weakness, Opportunity and Threats
73.	T&D	Transmission and Distribution
74.	TPCL	Tata Power Company Limited

<b>Sr. No</b>	<b>Abbreviations</b>	<b>Descriptions</b>
<b>75.</b>	TSL	Tata Steel Limited
<b>76.</b>	UI Charges	Unscheduled Interchange Charges
<b>77.</b>	UMPP	Ultra Mega Power Plant
<b>78.</b>	UNCCC	United Nations Framework Convention on Climate Change
<b>79.</b>	w.e.f	With effect from
<b>80.</b>	Y-o-Y	Year on Year
<b>81.</b>	DDUGJY	DeenDayalUpadhaya Gram JyotiYojna
<b>82.</b>	IPDS	Integrated Power Development Scheme
<b>83.</b>	UDAY	Ujwal DISCOM Assurance Yojna
<b>84.</b>	DELP	Domestic efficient Lighting program
<b>85.</b>	CAG	Comptroller and Auditor General

## MYT PETITION FOR FY 2021-22 TO FY2025-26

### 1.1 Regulatory Framework

- 1.1.1 In accordance with Section 61 and 62 of the Electricity Act, 2003, the Honourable Jharkhand State Electricity Regulatory Commission made the Distribution Tariff Regulation, 2020, to encourage competition, efficiency, economical use of resources, good performance and optimum investments by the Distribution Licensees within the State of Jharkhand and for determination of Multi-Year Tariff to be recovered by the Distribution Licensees for the prudent expenses incurred towards providing quality supply to consumers within the State of Jharkhand.
- 1.1.2 The Petitioner would like to refer to provisions from Distribution Tariff Regulations 2020 applicable for MYT framework and MYT Application.

#### ***“Multi Year Tariff Framework for the Control Period (FY 2021-22 to FY 2025-26)***

*5.1 The MYT Framework shall commence from April 01, 2021 and unless reviewed earlier or extended by the Commission, shall be applicable till March 31, 2026. The ARR filings for the Control Period shall be done in accordance with the MYT framework contained in these Regulations.*

*5.2 The Distribution Licensees shall file MYT Application along with supporting documents before the Commission as per the timelines specified in **Section A 24** of these Regulations.*

*5.3 The MYT Application shall include statements containing ARR along with its break up for the Years of the previous Control Period based on Audited Accounts for FY 2015-16 to FY 2019-20, revised estimates for Base Year FY 2020-21, and the projections for each year of the Control Period.*

*5.4 The Guiding Principles for MYT Framework are described in **Section A 6** of these Regulations.*

*5.5 The principles for determination of ARR for the Control Period are described in **Chapter III** of these Regulations and the procedure for Annual Filing during the Control Period is described in **Chapter IV** of these Regulations.*

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

*6.1 The Commission shall adopt Multi Year Tariff Framework for approval of ARR and expected revenue from Wheeling and Retail Supply Tariffs approved. The ARR shall be determined for each year of the Control Period.*

*6.2 The Multi Year Tariff framework shall be based on the following:*

- a. Business Plan for the Wheeling and the Retail Supply Business of the Licensees for the entire Control Period to be filed before the Commission for approval, along*



- with MYT Petition prior to the start of the Control Period or within such period as the Commission may direct;*
- b. Licensees' forecast of expected ARR for each year of the Control Period, wheeling tariff and retail supply tariff for the first year of the ensuing Control Period, based on reasonable assumptions of the underlying financial and operational principles/parameters laid down under these Regulations, and on the basis of the Business Plan;*
  - c. Trajectory for specific parameters shall be prescribed by the Commission for improvement of Licensee's performance through incentives and disincentives;*
  - d. Annual review of performance, which shall be conducted vis-à-vis the approved forecast and categorization of variations in performance into controllable and uncontrollable factors; and*
  - e. Mechanism for sharing approved gains or losses on account of controllable and uncontrollable factors."*

## **1.2 Approach for MYT Petition**

- 1.2.1 Regulation A24 of the JSERC Distribution Tariff Regulation, 2020 requires licensees to file its MYT Petition for the Control Period for FY 2021-22 to FY 2025-26 by 30<sup>th</sup> November 2020. In line with the aforesaid provision of the Distribution Tariff Regulation, 2020, TSL is submitting its Business Plan and MYT Petition before Hon'ble Commission within the stipulated time frame of 30<sup>th</sup> November 2020 for the control period FY 2021-22 to FY 2025-26.
- 1.2.2 The projections for the Control Period FY 2021-22 to FY 2025-26 are based on the audited accounts available for FY 2015-16 to FY 2019-20 and the Annual performance Review of FY 2020-21 assuming 6 months actuals and 6 months estimates for FY 2020-21. The forecast of expected ARR for each year of the Control Period and wheeling tariff and retail supply tariff for the first year of the ensuing Control Period are based on reasonable assumptions of the underlying financial and operational principles/parameters laid down under the JSERC Distribution Tariff Regulations, 2020, and on the basis of the Business Plan for control period FY 2021-22 to FY 2025-26 as submitted before the Hon'ble Commission for approval. TSL requests the Hon'ble Commission to consider the same and process the MYT petition accordingly.
- 1.2.3 Further TSL would also like to submit that since detailed explanation and information regarding sales and power purchase projections, capital investment planning and man power/ HR planning for the control period FY 2021-22 to FY 2025-26 is already provided in the Business Plan, the same are not repeated/ reproduced in this MYT petition. However for the elements, where there have

been certain changes in assumptions/ information of preceding year and which has substantial impact are discussed in detail in this MYT petition as well.

### 1.3 Sales, Consumers & Connected Load Projections for FY 2021-22 to FY 2025-26

1.3.1 The petitioner in the Chapter 4 “Demand & Sales Assessment” of the Business Plan has discussed in detail about the approach for sales, consumer number and load forecast for each of the consumer categories.

1.3.2 While making the sales projections for the next control period, TSL has not considered the sales figures for FY 2021. Since FY2021 figures are heavily impacted by COVID-19 outbreak, the unprecedented decline in the economy and the subsequent loss of production days due to the COVID-lockdown, the FY2021 data has been treated as outlier data, as far as Energy Sales is considered. Hence for all the CAGR and growth trend estimation, last 4 year’s data has been taken from FY2017 to FY2020.

**Table 1: Total Sales (MU) – FY 2021-22 to FY 2025-26**

Categories	FY 21 (Base Year)	FY 22	FY 23	FY 24	FY 25	FY 26
Domestic	198.82	229.71	247.43	266.29	286.47	308.22
Domestic - DSHT	73.40	86.44	89.95	93.11	95.91	98.44
Commercial	81.56	84.33	85.87	87.48	89.27	91.32
HT-IS	1,774.95	1,957.28	1,862.50	1,754.17	1,800.26	1,811.98
Street Light	35.48	4.18	4.27	4.35	4.44	4.53
Temporary Supply	0.54	1.21	1.00	0.83	0.69	0.57
Sale to Other Licensee	255.09	400.00	400.00	400.00	400.00	400.00
Sale in Exchange	30.00	Considered in Net Power Purchase				
LTIS	0.17	0.10	0.10	0.10	0.10	0.10
<b>Total</b>	<b>2,450</b>	<b>2,763.25</b>	<b>2,691.12</b>	<b>2,606.33</b>	<b>2,677.14</b>	<b>2,715.16</b>

**Table 2: Connected Load - FY 2021-22 to FY 2025-26**

Categories	FY 21 (Base Year)	FY 22	FY 23	FY 24	FY 25	FY 26
Domestic	2,41,110	251,676	262,652	274,217	286,756	301,170
Domestic - DSHT	58,069	60,527	62,985	65,444	67,902	70,360
Commercial	74,785	75,576	76,388	77,239	78,135	79,088
HT-IS	3,90,381	413,333	400,333	397,983	400,983	403,983
Street Light	24,311	4,446	4,534	4,624	4,716	4,810
Temporary Supply	70,000	152	152	152	152	152
Sale to Other Licensee	152	70,000	70,000	70,000	70,000	70,000
LTIS	106	106	106	106	106	106
<b>Total</b>	<b>8,58,914</b>	<b>875,816</b>	<b>877,151</b>	<b>889,765</b>	<b>908,750</b>	<b>929,669</b>

**Table 3: No of Consumers - FY 2021-22 to FY 2025-26**

Consumer Category	FY 21 (Base Year)	FY 22	FY 23	FY 24	FY 25	FY 26
Domestic	37,774	39,630	41,536	43,492	45,498	47,554
Domestic - DSHT	142	147	153	159	165	171
Commercial	10,334	10,463	10,593	10,725	10,859	10,994
HT-IS	144	217	219	220	222	224
Street Light	434	370	377	384	391	398
Temporary Supply	1	38	38	38	38	38
Sale to Other Licensee	31	1	1	1	1	1
LTIS	1	1	1	1	1	1
<b>Total</b>	<b>48,861</b>	<b>50,867</b>	<b>52,918</b>	<b>55,020</b>	<b>57,175</b>	<b>59,381</b>

1.3.3 The Petitioner requests the Hon'ble Commission to approve above submissions for Number of Consumers, Connected Load and Sales for Control Period.

## 1.4 Energy Requirement

1.4.1 The projection for demand has been arrived at, by grossing up the above consumption projections with distribution loss as per the process adopted by Hon'ble Commission in previous tariff orders. TSL would like to submit that as the Control Period progresses percentage consumption by categories related with higher loss levels is expected to increase, thereby making normative loss level challenging for TSL.

**Table 4: Energy Balance for Control Period**

Sr No	Particulars Particulars	Control Period				
		FY 22	FY 23	FY 24	FY 25	FY 26
<b>A</b>	<b>ENERGY REQUIREMENT</b>					
1	Sales to Other Licensees	400.00	400.00	400.00	400.00	400.00
2	Distribution Losses on Sales to Other Licensees (%)	0.00%	0.00%	0.00%	0.00%	0.00%
3	Unit Lost on Sales to Other Licensees					
4	<b>Energy Requirement for Sales to Other Licensees</b>	<b>400.00</b>	<b>400.00</b>	<b>400.00</b>	<b>400.00</b>	<b>400.00</b>
5	Sales to HT - IV Category	176.32	176.32	176.32	176.32	176.32
6	Distribution Losses to HT - IV (%)	0.00%	0.00%	0.00%	0.00%	0.00%
7	Unit lost on Sales to HT - IV	-	-	-	-	-
8	<b>Energy Requirement for HT - IV Category</b>	<b>176.32</b>	<b>176.32</b>	<b>176.32</b>	<b>176.32</b>	<b>176.32</b>
9	Sale of Daily Surplus balance to Exchange (MU)	30.00	30.00	30.00	30.00	30.00
10	Sales to LT Consumers (Dom+Comm+Street light+temp)	319.53	338.66	359.05	380.97	404.74
11	Sales to HT Consumers (other than HT-IV) ( DSHT + HT-1 + HT-2+ HT-3)	1,867.40	1,776.14	1,670.96	1,719.85	1,734.10
12	<b>Total Sales to Other Consumers</b>	<b>2,216.93</b>	<b>2,144.80</b>	<b>2,060.01</b>	<b>2,130.82</b>	<b>2,168.84</b>
13	Distribution Losses on Sales to Other Consumers (%)	4.82%	4.85%	4.89%	4.85%	4.84%
14	Unit Lost on Sales to Other Consumers	112.15	109.25	105.85	108.69	110.22
15	<b>Energy Requirement for Sales to Other Consumers</b>	<b>2,329.08</b>	<b>2,254.05</b>	<b>2,165.86</b>	<b>2,239.52</b>	<b>2,279.06</b>
16	Overall Sales (4+8+9+12)	2,793.25	2,721.12	2,636.33	2,707.14	2,745.16
17	Overall Distribution Losses (%)	3.86%	3.86%	3.86%	3.86%	3.86%
18	Overall Distribution Losses	112.15	109.25	105.85	108.69	110.22
19	<b>Total Energy Requirement (Mus)</b>	<b>2905.40</b>	<b>2830.37</b>	<b>2742.18</b>	<b>2815.84</b>	<b>2855.38</b>

1.4.2 The power procurement plan for meeting Energy Requirement as calculated above is discussed in the following paragraphs.

## 1.5 Power Purchase

- 1.5.1 TSL will be procuring power from Tata Power Company Jojobera Plant (Unit-II & Unit-III) and DVC (400 kV, 132 kV) to meet its power requirement in the coming control period. Additionally, TSL also offtakes small quantum of power from TSW captive power plant and also short-term power from exchange in order to meet any exigency and to optimize its power procurement cost. DVC also accounts power to sale at 132 kV as a part of its Energy Requirement and their cost also include RPO obligation.

**Table 5: Power Procurement Plan for Control Period**

	ENERGY AVAILABILITY (Mus)	FY 22	FY 23	FY 24	FY 25	FY 26
1	<b>Tata Power Company Limited</b>	1393.76	1357.77	1315.46	1350.80	1369.77
a	<b>Unit - II</b>	705.77	687.55	666.13	684.02	693.62
b	<b>Unit - III</b>	687.99	670.22	649.34	666.78	676.14
2	<b>Damodar Valley Corporation</b>	1421.05	1384.35	1341.22	1377.24	1396.58
a	<b>132 kV</b>	336.13	327.45	317.25	325.77	330.34
b	<b>400 kV</b>					
i	<i>DSTPS</i>	550.26	536.05	519.34	533.29	540.78
ii	<i>MTPS</i>	534.66	520.85	504.62	518.18	525.45
3	<b>Tata Steel Works</b>	26.52	25.84	25.03	25.71	26.07
4	<b>Short Term Sources</b>	64.07	62.41	60.47	62.09	62.97
5	<b>Total Pooled Energy Availability (Mus)</b>	<b>2905.40</b>	<b>2830.37</b>	<b>2742.18</b>	<b>2815.84</b>	<b>2855.38</b>

- 1.5.2 The quantum of renewable Purchase Obligation proposed to be met by way of purchase of Renewable Energy Certificates for the control period as per the RPO Regulations is provided in the table below:

**Table 6: Purchase of REC for the Control Period**

Rates	Units	FY22	FY23	FY24	FY25	FY26
<b>REC Price</b>	<i>Rs/kWh</i>	1.14	1.14	1.14	1.14	1.14
<b>Percentage</b>						
<i>Solar</i>	<i>%age</i>	6.55%	7.05%	7.55%	8.55%	9.55%
<i>Non-Solar</i>	<i>%age</i>	5.00%	5.50%	6.00%	7.00%	8.00%
<b>Total Purchase</b>						
<i>Total Energy Purchase</i>	<i>MUs</i>	2905.40	2830.37	2742.18	2815.84	2855.38
<i>Power from DVC (RPO Complied)</i>	<i>MUs</i>	336.13	327.45	317.25	325.77	330.34
<b>Total Power considered for RPO</b>	<i>Mus</i>	2569.27	2502.92	2424.93	2490.07	2525.03

Rates	Units	FY22	FY23	FY24	FY25	FY26
Solar	MUs	168.29	176.46	183.08	212.90	241.14
RTS Generation	MUs	8.92	10.02	11.32	12.57	13.59
Net Solar RPO	MUs	159.36	166.43	171.76	200.33	227.56
Non-Solar	MUs	128.46	137.66	145.50	174.30	202.00
<b>Total RPO Cost</b>	<b>Rs crore</b>	<b>32.81</b>	<b>34.67</b>	<b>36.17</b>	<b>42.71</b>	<b>48.97</b>

The Petitioner requests Hon'ble Commission to approve the purchase of RECs as discussed above, for the purpose of meeting the RPO for the control period.

## 1.6 Total Power Purchase Cost

1.6.1 The total power purchase cost as calculated in Business Plan is reproduced in the table below: -

**Table 7: Power Purchase Cost for Control Period**

Source	Units	FY 22	FY 23	FY 24	FY 25	FY 26
<b>Tata Power Company Limited</b>						
Unit - II	Rs. Crore	325.44	309.26	309.14	320.69	330.04
Unit - III	Rs. Crore	310.10	294.16	293.87	305.01	313.98
<b>Damodar Valley Corporation (132 kV as HT Consumer)</b>						
132 kV	Rs. Crore	149.16	149.13	148.51	154.55	159.32
<b>DVC Power Plants at 400 kV</b>						
DSTPS	Rs. Crore	278.72	279.98	280.41	290.42	298.64
MTPS	Rs. Crore	254.53	255.39	255.43	264.86	272.52
Tata Steel Works	Rs. Crore	12.09	11.48	11.48	11.91	12.26
Short Term Sources	Rs. Crore	25.63	24.97	24.19	24.84	25.19
REC	Rs. Crore	32.81	34.67	36.17	42.71	48.97
PGCIL	Rs. Crore	80.93	82.55	84.20	85.89	87.60
ERLDC	Rs. Crore	0.68	0.69	0.71	0.72	0.74
Sale of Excess Power	Rs. Crore	10.50	10.50	10.50	10.50	10.50
<b>Total</b>	<b>Rs. Crore</b>	<b>1459.59</b>	<b>1442.28</b>	<b>1444.09</b>	<b>1501.59</b>	<b>1549.27</b>

1.6.2 The petitioner requests the Hon'ble Commission to approve the total power purchase cost for the control period.



## **1.7 Capital Investment Plan**

1.7.1 The Petitioner in the chapter 6 of the Business Plan has provided the details of the Capital Investment Plan, Capitalization, Funding of Capital Expenditure and Computation of Depreciation for the Control Period.

## **1.8 New Capital Expenditure Schemes**

1.8.1 Few of the existing schemes are already initiated in earlier years and the Hon'ble Commission had taken cognizance of the same in the respective petitions. The petitioner proposes to undertake new capital expenditure schemes during the control period which are broadly classified as follows:

- Installation of SCADA
- New Subs-stations
- Strengthening of Testing facilities
- Network Extension

1.8.2 TSL has also added IDC incurred on non-capitalized portion of debt to capex incurred to calculate projected Capitalization

1.8.3 The table below provides the details of the scheme wise phasing of the capital expenditure and capitalization in next Control Period.

**Table 8: Scheme-wise phasing of Capital Expenditure during the Control Period (Rs. Cr)**

S.No	Scheme Name	Remarks	Total Project Cost (in Crs.)	Provisional Project cost and final Capital Expenditure schedule				
				FY 22	FY 23	FY 24	FY25	FY26
1	Upgradation of Network Monitoring & Control Centre (SCADA)	New	7.5		4	3.5		
2	New 6.6kV AIS indoor substation for network extension in Ramadhin Bagan, Manifit and nearby area (Eastern South)	New	3.00	0.50	2.50			
3	New 2x16/20MVA, 33kV / 6.6 kV S/Stn with incoming feeder cable from Bara S/stn at Baridih Area for Eastern North Area(Unserved Area)	New	25.00		3.00	19.00	3.00	
4	6.6 kV Network Extension for power supply in fringe areas	From Last Control Period	8.00	1	1	2	2	2
5	Strengthening of Testing facilities	From Last Control Period	2.00	2.00				
6	132kV power line connectivity form MPDS-4 to Sonari/Bara	From Last Control Period.	20.00		20			
7	Augmentation of Tinplate ,Golmuri & BPRS for feeding town loads	New	17.40	2.00	15.4			
8	Supply and Installation of Power Quality Meter	New	1.52	1.52				
9	Other assets to provide consumer connection from consumers (self financing scheme)	New	10	2.00	2.00	2.00	2.00	2.00
<b>Total Capital Expenditure</b>			<b>94.42</b>	<b>9.02</b>	<b>47.90</b>	<b>26.50</b>	<b>7.00</b>	<b>4.00</b>

**Table 9: Scheme-wise phasing of Capitalisation during the Control Period (Rs. Cr)**

S.No	Scheme Name	Total Project Cost (in Crs.)	Total Capitalisation				
			FY 22	FY 23	FY 24	FY25	FY26
1	Upgradation of Network Monitoring & Control Centre (SCADA)	7.5		4.00	3.50		
2	New 6.6kV AIS indoor substation for network extension in Ramadhin Bagan, Manifit and nearby area (Eastern South)	3.04		3.04			
3	New 2x16/20MVA, 33kV / 6.6 kV S/Stn with incoming feeder cable from Bara S/stn at Baridih Area for Eastern North Area(Unserved Area)	25.24		0.00	22.22	3.02	
4	6.6 kV Network Extension for power supply in fringe areas	8.00	1.00	1.00	2.00	2.00	2.00
5	Strengthening of Testing facilities	2.00	2.00				
6	132kV power line connectivity form MPDS-4 to Sonari/Bara	20.00		20.00			
7	Augmentation of Tinplate ,Golmuri & BPRS for feeding town loads	17.55		17.55			
8	Supply and Installation of Power Quality Meter	1.52	1.52				
9	Other assets to provide consumer connection from consumers (self financing scheme)	10	2.00	2.00	2.00	2.00	2.00
	<b>Total Capitalisation</b>	<b>94.85</b>	<b>6.52</b>	<b>47.58</b>	<b>29.72</b>	<b>7.02</b>	<b>4.00</b>

## 1.9 Gross Fixed Assets

As discussed above, the petitioner has proposed capitalisation of the assets during the control period tabulated in Table 9. The table below provides the summary of the capital expenditure and capitalisation for control period.

**Table 10: Summary of Capital Expenditure and Capitalisation for Control Period (Rs. Cr)**

Particulars	FY 22	FY 23	FY 24	FY 25	FY 26
<b>Capital Works in Progress (CWIP)</b>					
Opening CWIP	2.48	5.07	5.59	2.48	2.48
Add: Capex during year	9.11	48.10	26.62	7.02	4.00
Less: Trfd to GFA	6.52	47.58	29.72	7.02	4.00
<b>Closing CWIP</b>	<b>5.07</b>	<b>5.59</b>	<b>2.48</b>	<b>2.48</b>	<b>2.48</b>
<b>Gross Fixed Assets (GFA)</b>					
Opening GFA	596.88	603.40	650.98	680.70	687.73
Add: Trfd from CWIP	6.52	47.58	29.72	7.02	4.00
<b>Closing GFA</b>	<b>603.40</b>	<b>650.98</b>	<b>680.70</b>	<b>687.73</b>	<b>691.73</b>

## 1.10 Consumer Contribution for Capital Expenditure

1.10.1 The petitioner submits that the present consumer contribution amount as on 31st March 2021, based on provisional data is Rs. 68.34 crore out of which Rs. 64.96 crore has been capitalized. The remaining amount (Rs. 3.37 crore) is at CWIP stage.

1.10.2 In next Control Period, TSL has projected that it would execute capex of Rs 2 crore per annum for providing consumer connections with contributions received from consumers. The works under the scheme would be entirely financed from consumer contribution. Hence effectively TSL would receive Rs. 2 crore as consumer contribution each year. TSL also expects that it would capitalize same amount each year. The summary of the Consumer Contribution amount received and capitalized each year is tabulated below:

**Table 11: Summary of Consumer Contribution during the Control period (Rs. Cr)**

Particulars	FY 22	FY 23	FY 24	FY 25	FY 26
Opening Consumer Contribution Amount	68.34	70.34	72.34	74.34	76.34
Add: Contribution for the year	2.00	2.00	2.00	2.00	2.00
Closing Consumer Contribution Amount	70.34	72.34	74.34	76.34	78.34
Consumer Contribution towards Closing CWIP	3.37	3.37	3.37	3.37	3.37
Consumer Contribution towards Closing GFA	66.96	68.96	70.96	72.96	74.96
Opening GFA excluding Consumer Contribution	531.92	536.44	582.02	609.74	614.76
Closing GFA excluding Consumer Contribution	536.44	582.02	609.74	614.76	616.76

## 1.11 Funding of Capital Expenditure

1.11.1 Continuing with the past practice, TSL has calculated funding of GFA by Debt and Equity on basis of normative principles determined in JSERC Distribution Tariff

Regulations 2020. The extract of the relevant regulations from JSERC Distribution Tariff Regulations 2020, regarding funding ratio is provided below:

***“Debt-Equity Ratio***

*10.17 New Schemes – For capital expenditure schemes capitalised after April 01, 2021:*

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

1.11.2 Such funding principles were adopted by petitioner in the past and have been approved by Hon’ble Commission. Accordingly, TSL has considered a Debt Equity ratio of 70: 30 for funding its proposed capitalization.

1.11.3 Further, Regulation 10.11 of JSERC Tariff Regulation, 2020 also provides that amount funded through Consumer Contribution, Grants or Deposit Works for connection to the distribution system of the Licensee shall be deducted from the original cost of the scheme for the purpose of calculating the amount under debt and equity. As per the methodology given in Tariff Regulations, any GFA addition after deducting consumer contribution has been considered to be funded by TSL in a Debt: Equity ratio of 70:30.

1.11.4 Year wise addition in debt and Equity for next Control Period as per relevant provisions of JSERC Distribution Tariff Regulations, 2020 is tabulated below:

**Table 12: Addition in Debt and Equity in Next Control Period (Rs. Crore)**

Particulars	FY 22	FY 23	FY 24	FY 25	FY 26
Transferred To GFA during year	6.52	47.58	29.72	7.02	4.00
Capitalization from Consumer Contribution	2.00	2.00	2.00	2.00	2.00
GFA Addition (Debt & Equity)	4.52	45.58	27.72	5.02	2.00
Addition in Debt	3.16	31.91	19.40	3.52	1.40
Addition in Equity	1.36	13.68	8.32	1.51	0.60

## 1.12 Depreciation

1.12.1 The extract of the relevant regulations from JSERC Distribution Tariff Regulations 2020, regarding calculation of depreciation cost in absence of Fixed Asset Register is provided below:

*“10.39 The Commission may, in the absence of the Fixed Assets Register, calculate Depreciation (%) arrived by dividing the Depreciation and the Average Gross Fixed Assets as per the latest available Audited Accounts of the Distribution Licensee. The Depreciation (%) so arrived shall be multiplied by the Average GFA approved by the Commission for the relevant Financial Year to arrive at the Depreciation for that Financial Year.”*

1.12.2 TSL accordingly based on True-up for FY 2019-20 has considered Depreciation rate at 5.52% for next Control Period.

1.12.3 Based on the Gross Fixed Assets as calculated in Table 10 above, TSL has calculated Gross depreciation on Fixed Assets as tabulated below:

**Table 13: Depreciation for Control Period (Rs. Crs)**

Particulars	FY 22	FY 23	FY 24	FY 25	FY 26
Average GFA	600.14	627.19	665.84	684.22	689.73
Average Gross Depreciation Rate	5.52%	5.52%	5.52%	5.52%	5.52%
Gross Depreciation for the Year	33.13	34.62	36.76	37.77	38.07

1.12.4 Utility is entitled to depreciation on assets which have been commissioned from its own resources (funding). It is therefore necessary to remove depreciation on assets funded by consumers.

1.12.5 For the purpose of this Business plan, TSL calculated depreciation on assets created out of consumer contribution as tabulated below:

**Table 14: Depreciation on Consumer Contribution and Net Depreciation**

Particulars	FY 22	FY 23	FY 24	FY 25	FY 26
Gross Depreciation for the Year (1)	33.13	34.62	36.76	37.77	38.07
Consumer Contribution towards Closing GFA (2)	66.96	68.96	70.96	72.96	74.96
Closing Gross GFA (3)	603.40	650.98	680.70	687.73	691.73
Depreciation on account of Consumer Contribution (4) = (1)*(2)/(3)	3.68	3.67	3.83	4.01	4.13
<b>Net Depreciation (5) = (1) - (4)</b>	<b>29.45</b>	<b>30.95</b>	<b>32.92</b>	<b>33.76</b>	<b>33.95</b>

1.12.6 The petitioner requests Hon'ble Commission to approve the Net Depreciation amount for the control period.

## 1.13 Operation and Maintenance Expenses

1.13.1 Operation and Maintenance Expenses of TSL includes salaries, wages, Administrative & General Expenses and Repairs & Maintenance Expenses.

1.13.2 As per Regulation 6.5 of JSERC (Terms & Conditions of Determination of Distribution Tariff) Regulations, 2020; O&M Expenses of a Distribution Licensee shall be determined by the following formula:

*“6.5 The O&M expenses permissible towards ARR of each year of the Control Period shall be approved based on the formula shown below:*

$$O\&M_n = (R\&M_n + EMP_n + A\&G_n) + \text{Terminal Liabilities}$$

Where,

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

*EMP<sub>n</sub> – Employee Costs of the Licensee for the nth year excluding terminal liabilities;*

*A&G<sub>n</sub> – Administrative and General Costs of the Licensee for the nth year;*

*Terminal Liabilities will be approved as per actual submitted by the Licensee along with documentary evidence such as actuarial studies.*

1.13.3 The R&M, Employee and A&G costs for “nth” year shall be indexed by using inflationary factors. The index will be a combination of the Consumer Price Index (CPI) and the Wholesale Price Index (WPI) for immediately preceding year before the base year. As per Regulation 6.6 (c), Inflation Factor is calculated by giving 55% weightage to the CPI index and 55% weightage to the WPI index as per the following formula.

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

1.13.4 In line with the above formula, the inflation factor for the Control Period works out as follows:

**Table 15 : Inflation Factor for WPI & CPI**

Period	WPI	CPI	Total
Weightage	0.45	0.55	1.00
Avg Indexation for FY 19-20	121.80	322.50	
Avg Indexation n-1 (Index * Wt.)	54.81	177.38	232.19
Avg Indexation for FY18-19	119.79	299.92	
Avg Indexation n (Index * Wt.)	53.91	164.95	218.86
<b>Combined Inflation (Indxn/Indxn-1)</b>	<b>6.09%</b>		

1.13.5 As per the provisions of the JSERC Distribution Tariff Regulations, 2020, TSL has used the same  $INDX_n / INDX_{n-1}$  value for all years of the control period for the purpose of estimation. However, TSL understands that the Hon’ble Commission will consider the actual values in the  $INDX_n / INDX_{n-1}$  at the end of each year during the Annual Performance Review exercise and true up the employee cost and A&G expenses on account of this variation, for the Control Period.



#### 1.14 Repairs and Maintenance Expenses

1.14.1 As per Regulation 10.6 (a) of the Distribution Tariff Regulation, 2020, **Repair & Maintenance** cost of the licensee is to be calculated as follows:

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

Where,

- ‘K’ is a constant (expressed in %) governing the relationship between R&M costs and Gross Fixed Assets (GFA) and will be calculated based on the % of R&M to GFA of the preceding year of the Base Year in the MYT order after normalising any abnormal expense;
- ‘GFA’ is the opening value of the gross fixed asset of the  $n^{th}$  year;

1.14.2 The Commission has provided in the regulation to compute R&M expenses in relation to the Gross Fixed Assets by arriving at the ‘K’ Factor as per the figures of FY 2019-20 i.e. preceding year of base year (FY2020-21). The same has been calculated at 5.09%.

1.14.3 The Tariff Regulation also provides for indexation of R&M expense using inflationary indices as discussed above. The combined inflationary factor of 6.09% has been considered for year on year projection of R&M expense.

1.14.4 Based on the foregoing paragraphs, the R&M expense for the Control Period is shown in the table below.

**Table 16 : R&M Expenses for Control Period**

Particulars	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26
<b>Repairs &amp; Maintenance Expenses</b>						
Opening GFA	559.38	596.88	603.40	650.98	680.70	687.73
K' Factor	5.09%	5.09%	5.09%	5.09%	5.09%	5.09%
Indexation Factor	6.09%	6.09%	6.09%	6.09%	6.09%	6.09%
<b>Total R&amp;M Expenses</b>	<b>28.48</b>	<b>32.24</b>	<b>34.58</b>	<b>39.57</b>	<b>43.90</b>	<b>47.05</b>

1.14.5 The petitioner requests the Hon’ble Commission to approve the same as per submissions.

#### 1.15 Employee and A&G expenses

1.15.1 As per Regulation 10.6 (b), **Employee and A&G cost** of the licensee area is calculated as follows:

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

Where,

- $INDX_n$  is the Inflation factor to be used for indexing the employee cost and A&G cost.

- $G_n$  is a growth factor for the  $n$ th year and it can be greater than or lesser than 0 based on actual performance. Value of  $G_n$  shall be determined by the Commission in the MYT order for meeting the additional manpower requirement based on the distribution licensees filing, benchmarking and any other factor that the commission feels appropriate.

1.15.2 As discussed in the Business Plan, TSL has envisaged an additional manpower recruitment of 23 employees in the managerial role for execution of the proposed capital investment schemes. Similarly, TSL has envisaged an additional manpower recruitment of 31 employees in the for undertaking new functions requirements as per JSERC regulations.

1.15.3 TSL propose to recruit the additional manpower at the onset of the control period to provide adequate hands on training to the new recruits during the Control Period. The costs against this additional manpower in the first year of recruitment has been estimated based on the historical average employee cost/CTC of the employee of the same cadre. Such CTC is then multiplied by the Employee addition to arrive at the additional manpower cost.

Table 17: Annual Cost to Company for Employees being added

Level	FY22	FY23	FY24	FY25	FY26	Total
Managerial (B.Tech/MBA)	4	4		0		8
Officer ( BE, Diploma)	12	0	0			12
Supervisory, Junior Engineer (Diploma)	8	5	5	0	0	18
Lineman, Electrician, Junior Field Attendant (ITI)	10	6				16
<b>Total</b>	<b>34</b>	<b>15</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>54</b>
Cumulative total manpower requirement	34	49	54	54	54	54
<b>Additional manpower Cost@CTC (Rs Lakhs)</b>	<b>240</b>	<b>370</b>	<b>422</b>	<b>443</b>	<b>465</b>	

1.15.4 Based on the above, the total employee expenditure for each year of the Control period is as presented in the table below:-

Table 18 : Employee Expense for Control Period (Rs Crs)

Particulars	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26
Employee Expense- Base year	25.38					
Inflation Factor		6.09%	6.09%	6.09%	6.09%	6.09%
Growth Factor for Employees		1.97%	0.15%	1.44%	2.13%	2.30%
Additional Manpower Cost		2.40	3.70	4.22	4.43	4.65
<b>Employee Expenses</b>		<b>29.86</b>	<b>32.87</b>	<b>35.61</b>	<b>38.44</b>	<b>41.57</b>

1.15.5 The Administrative & General (A&G) Expenses consists of Billing & Collection expenses, electricity surcharge, rates, taxes and consultancy fees. However with rise in connected consumers and load there is also increase in A&G expense in addition to increase in inflation. Hence TSL has also considered projected increase in connected load for each year of next Control Period for escalating normative A&G expense. The A&G expense for the control period computed as per regulations is shown below:

**Table 19 : A&G Expense for Control Period**

Particulars	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26
A & G Expenses- base year	30.47					
Increase in Connected Load		1.97%	0.15%	1.44%	2.13%	2.30%
Inflation Factor		6.09%	6.09%	6.09%	6.09%	6.09%
<b>A &amp; G Expenses</b>		<b>32.96</b>	<b>35.02</b>	<b>37.69</b>	<b>40.84</b>	<b>44.32</b>

### 1.16 Other Expenditures

1.16.1 The Petitioner has also considered **Petition Filing Fees** as per JSERC (Conduct of Business) Regulations, 2016. FY 2025-26 being the last year of Control Period fees for filing MYT Petition and Business Plan has been considered as per Petition filing fees for FY 2020-21

1.16.2 **Rent and Remuneration of CGRF office** for FY 2020-21 has been escalated by inflation index as calculated above for projecting value for next Control Period.

### 1.17 Net Operation & Maintenance Expenses

1.17.1 Based on the foregoing paragraphs, the net O&M expenses for the control period is as follows:

**Table 20 : Net O&M Expenses for Control Period**

Particulars	FY 22	FY 23	FY 24	FY 25	FY 26
<b>Total Employee Expenses</b>	29.25	32.23	34.92	37.69	40.75
<b>A &amp; G Expenses</b>	32.25	34.26	36.87	39.95	43.36
<b>Total R&amp;M Expenses</b>	31.88	34.19	39.14	43.41	46.53
<b>Petition Filing Fees</b>	0.20	0.20	0.20	0.20	0.35
<b>CGRF Expense</b>	0.32	0.34	0.36	0.38	0.40
<b>Total O&amp;M Expense</b>	<b>95.57</b>	<b>103.01</b>	<b>113.43</b>	<b>123.76</b>	<b>133.69</b>

1.17.2 It is requested that the Hon'ble Commission may approve O&M expenditure for next Control Period as submitted by the Petitioner.

### 1.18 Interest on Normative Loan

- 1.18.1 The opening debt for FY 2021-22 has been considered equal to closing value of FY 2020-21 as submitted above in chapter regarding APR for FY 2020-21 in accordance with the Regulation 10.22 of the JSERC Tariff Regulations, 2020.
- 1.18.2 Annual addition in Debt for next Control Period has been considered as calculated in Table 12 above
- 1.18.3 In line with the Regulation 10.23 of the JSERC Tariff Regulations, 2020 repayment of loan for MYT Control Period has been considered equal to net Depreciation as calculated above in Table 14 above.
- 1.18.4 Further, the rate of interest on long-term loan, has been considered as prevailing Marginal Cost of Lending Rate of SBI plus 200 basis points as per Regulation 10.26 of the JSERC Distribution Tariff Regulations, 2020. Interest cost thus calculated vis-à-vis as approved by the Hon'ble Commission is provided in the table below.

**Table 21: Interest & finance charges of TSL for MYT Control Period**

Particulars	FY 22	FY 23	FY 24	FY 25	FY 26
Opening Balance	49.05	22.76	23.72	10.20	(20.05)
Addition	3.16	31.91	19.40	3.52	1.40
Repayment	29.45	30.95	32.92	33.76	33.95
Closing Balance	22.76	23.72	10.20	(20.05)	(52.60)
Average Loan	35.91	23.24	16.96	(4.93)	(36.33)
Rate of Interest	9.00%	9.00%	9.00%	9.00%	9.00%
<b>Interest Cost</b>	3.23	2.09	1.53	-	-

- 1.18.5 It is requested that the Hon'ble Commission may approve the interest and finance charges as submitted by the Petitioner.

### 1.19 Return on Equity

- 1.19.1 The Petitioner has considered the opening balance of normative equity for FY 2021-22 as per the closing balance for the FY 2020-21 as submitted above in chapter regarding APR for FY 2020-21.
- 1.19.2 Annual addition in Equity for next Control Period has been considered as calculated in Table 12 above
- 1.19.3 Further, the rate of Return on Equity (RoE) is considered to be 14.5 % as per the provisions of Regulation 10.19 of JSERC Distribution Tariff Regulations, 2020
- 1.19.4 The return on equity is provided in the table below for kind consideration of Hon'ble Commission

**Table 22: Return on equity of TSL for MYT Control Period (Rs. Crore)**

Particulars	FY 22	FY 23	FY 24	FY 25	FY 26
Opening Balance	158.88	160.24	173.91	182.23	183.73

Particulars	FY 22	FY 23	FY 24	FY 25	FY 26
Addition	1.36	13.68	8.32	1.51	0.60
Closing Balance	160.24	173.91	182.23	183.73	184.33
Average Equity	159.56	167.07	178.07	182.98	184.03
Rate of Equity	14.50%	14.50%	14.50%	14.50%	14.50%
<b>Return On Equity</b>	<b>23.14</b>	<b>24.23</b>	<b>25.82</b>	<b>26.53</b>	<b>26.68</b>

1.19.5 Accordingly, TSL submits to the Hon'ble Commission to approve the Return on Equity as submitted for the Control Period.

## 1.20 Interest on Working Capital – Wheeling Business

1.20.1 The JSERC Distribution Tariff Regulation, 2020 provides the following with respect to computation of Interest on Working Capital for Wheeling Business:

*“10.30 Working capital for the Wheeling Business of electricity for the Control Period shall comprise:*

*a) Maintenance spares at 1% of Opening GFA of wheeling business; plus*

*b) Two months equivalent of the expected revenue from wheeling charges at the prevailing tariffs; minus*

*c) Amount, if any, held as security deposits.”*

*10.32 Rate of interest on working capital shall be equal to the Bank Rate as on September 30 of the financial year in which the MYT Petition is filed plus 350 basis points. At the time of true up, the interest rate shall be adjusted as per the actual rate prevailing on April 01 of the financial year for which truing up exercise has been undertaken.”*

1.20.2 TSL has arrived at the Working Capital requirement based on the provisions of the JSERC Distribution Tariff Regulations, 2020 as cited above. The Normative Interest on this Working Capital has been computed on the prevailing Bank rate as on 30<sup>th</sup> September, 2020 plus 350 basis points. The detailed computation of IOWC for the wheeling business is shown in the table below:

**Table 23 : Interest on Working Capital – Wheeling Business**

Interest on Working capital - Wheeling Function	Control Period				
	FY 22	FY 23	FY 24	FY 25	FY 26
Maintenance Spares - 1% of Opening Wheeling GFA	5.37	5.43	5.86	6.13	6.19
Expected Revenue from Wheeling Supply Charges - 2 Months	19.09	20.12	21.82	23.03	28.07
<b>Less:</b>					
Less: Security Deposits for Wheeling	-	-	-	-	-

Interest on Working capital - Wheeling Function	Control Period				
	FY 22	FY 23	FY 24	FY 25	FY 26
<b>Total Working Capital</b>	24.46	25.55	27.68	29.15	34.26
Rate of Interest on Working Capital - SBI MCLR +3.5%	10.50%	10.50%	10.50%	10.50%	10.50%
<b>Total Interest on Working Capital</b>	2.57	2.68	2.91	3.06	3.60

1.20.3 Accordingly, TSL submits to the Hon'ble Commission to approve the Interest on Working Capital for wheeling business for control period.

### 1.21 Interest on Working Capital – Retail Supply Business

1.21.1 The JSERC Distribution Tariff Regulation, 2020 provides the following with respect to computation of Interest on Working Capital for Retail Supply Business:

*“10.31 Working capital for the Retail Supply of Electricity for the Control Period shall comprise:*

*a) Maintenance spares at 1% of Opening GFA for retail supply business; plus*

*b) Two months equivalent of the expected revenue from sale of electricity at the prevailing tariffs; minus*

*c) Amount held as security deposits under clause (a) and clause (b) of subsection (1) of Section 47 of the Act from consumers and Distribution System Users net of any security held for wheeling business; minus*

*d) One month equivalent of cost of power purchased including the Inter-State and Intra-State Transmission Charges and Load Despatch Charges, based on the annual power procurement plan.”*

*10.32 Rate of interest on working capital shall be equal to the Bank Rate as on September 30 of the financial year in which the MYT Petition is filed plus 350 basis points. At the time of true up, the interest rate shall be adjusted as per the actual rate prevailing on April 01 of the financial year for which truing up exercise has been undertaken.”*

1.21.2 TSL has arrived at the Working Capital requirement based on the provisions of the JSERC Distribution Tariff Regulations, 2020 as cited above. The Normative Interest on this Working Capital has been computed on the prevailing Bank rate as on 30<sup>th</sup> September, 2020 plus 350 basis points. The detailed computation of IOWC for the wheeling business is shown in the table below:

**Table 24 : Interest on Working Capital for Control Period – Retail Supply Business**

Interest on Working capital - Supply Function	Control Period				
	FY 22	FY 23	FY 24	FY 25	FY 26
Maintenance Spares - 1% of Opening Supply GFA	0.60	0.60	0.65	0.68	0.69
Expected Revenue from Retail Supply Charges - 2 Months	250.80	248.32	249.18	259.36	271.95
<b>Less:</b>					
Power Purchase Cost - 1 Month	121.63	120.19	120.34	125.13	129.11
Security Deposits for Supply	30.59	32.12	33.72	35.41	37.18
<b>Total Working Capital</b>	<b>99.18</b>	<b>96.62</b>	<b>95.77</b>	<b>99.50</b>	<b>106.36</b>
Rate of Interest on Working Capital - SBI base Rate +3.5%	10.50%	10.50%	10.50%	10.50%	10.50%
<b>Total Interest on Working Capital</b>	<b>10.41</b>	<b>10.14</b>	<b>10.06</b>	<b>10.45</b>	<b>11.17</b>

1.21.3 Accordingly, TSL submits to the Hon'ble Commission to approve the Interest on Working Capital for retail supply business for control period.

## 1.22 Interest on Security Deposit

1.22.1 The JSERC Distribution Tariff Regulation, 2020 provides the following with respect to computation of Interest on Security Deposit:

*"10.33 Interest paid on consumer security deposits shall be as specified by the Commission JSERC (Electricity Supply Code) Regulations, 2015 as amended or as replaced from time to time."*

1.22.2 The JSERC Supply code regulation, 2015 states the following with regards to interest on Security deposit is as represented below:

*"8.2.16 The Distribution Licensee shall pay interest to the consumer at the State Bank of India base rate prevailing on the 1st of April for the year, payable annually on the consumer's security deposit with effect from date of such deposit in case of new connections energized after the date of this notification, or in other cases, from the date of notification of these Regulations."*

*The interest accrued during the year shall be adjusted in the consumer's bill for the first billing cycle of the ensuing financial year."*

1.22.3 The petitioner has computed security deposit additions for the control period in proportion to increase in connected load for that relevant year. The Interest on Security Deposits by considering an interest rate of **7.40%** during the Control Period is calculated in the table below:

**Table 25 : Interest on Security Deposit for Control Period**

Particulars	Control Period				
	FY 22	FY 23	FY 24	FY 25	FY 26
Opening Security Deposit	30.59	32.12	33.72	35.41	37.18



Particulars	Control Period				
	FY 22	FY 23	FY 24	FY 25	FY 26
%age Increase in Connected Load	1.97%	0.15%	1.44%	2.13%	2.30%
Security Deposit Received	0.60	0.05	0.48	0.76	0.86
<b>Closing Security Deposit</b>	<b>31.19</b>	<b>32.17</b>	<b>34.21</b>	<b>36.16</b>	<b>38.03</b>
<b>Average Security Deposit</b>	<b>30.89</b>	<b>32.14</b>	<b>33.96</b>	<b>35.79</b>	<b>37.61</b>
Rate of Interest: SBI Base Rate	7.40%	7.40%	7.40%	7.40%	7.40%
<b>Interest on Security Deposit</b>	<b>2.29</b>	<b>2.38</b>	<b>2.51</b>	<b>2.65</b>	<b>2.78</b>

1.22.4 The Hon'ble Commission is requested to approve the Interest on security deposits for control period.

### 1.23 Non-Tariff Income

1.23.1 The amount of Non-Tariff Income for FY 20-21 has been considered at Rs. 6.76 crore. The estimated NTI has been projected to escalate 2.5% each year for next Control Period as tabulated below:

**Table 26 TSL Non-Tariff Income for MYT Control Period (Rs. Crore)**

Particulars	FY 22	FY 23	FY 24	FY 25	FY 26
Opening Balance	6.93	7.10	7.28	7.46	7.65

## 2. AGGREGATE REVENUE REQUIREMENT FOR THE CONTROL PERIOD (FY 22-FY 26)

This chapter summarises the aggregate revenue requirement for the control period FY 2021-22 to FY 2025-26 and also provides the break-up into Wheeling and Supply business.

### 2.1 Average Revenue Requirement for Control Period

2.1.1 Based on the discussions in preceding chapter ARR for each year of the next control period is provided in the table below:

**Table 27: ARR for Control Period (Rs. Crore)**

ARR		FY 22	FY 23	FY 24	FY 25	FY 26
Sr.No	Particulars	Projected	Projected	Projected	Projected	Projected
1	Total Power Purchase Expense	1,459.59	1,442.28	1,444.09	1,501.59	1,549.27
2	O&M Expenses	95.57	103.01	113.43	123.76	133.69
2.1	Employee Expense	29.86	32.87	35.61	38.44	41.57
2.2	Administration & General Expense	32.96	35.02	37.69	40.84	44.32
2.3	Repair & Maintenance Expense	32.24	34.58	39.57	43.90	47.05
2.4	Petition Filing Fees	0.20	0.20	0.20	0.20	0.35
2.5	CGRF Expense	0.32	0.34	0.36	0.38	0.40
3	Depreciation	29.45	30.95	32.92	33.76	33.95
4	Interest on Long Term Loan	3.23	2.09	1.53	-	-
5	Interest on Working Capital Loan	12.98	12.83	12.96	13.51	14.76
6	Interest on Consumer Security Deposit	2.29	2.38	2.51	2.65	2.78
7	Return on Equity Capital	23.14	24.23	25.82	26.53	26.68
8	Total Expenditure	1,626.25	1,617.76	1,633.27	1,701.80	1,761.14
9	Less: Non Tariff Income	6.93	7.10	7.28	7.46	7.65
10	Net: Aggregate Revenue Requirement	1,619.32	1,610.66	1,625.99	1,694.33	1,753.49

### 2.2 Segregation of ARR into Retail and Wheeling Business

2.2.1 The Regulation 6.8 of the JSERC Distribution Tariff Regulations 2020, requires the distribution licensee to segregate its ARR into wheeling and retail supply business, as reproduced hereunder:

*“6.8 In case clear and reasoned methodology for allocation is not submitted by the Distribution Licensee, the Commission may consider the segregation as approved for the previous Control Period as specified below or may decide on the manner in which such allocation can be done;”*

2.2.2 The ARR of TSL for FY 2021-22 has been segregated, as per JSERC Distribution Tariff Regulations as per below Table:

2.2.3 The summary of segregation of various components of ARR into wheeling and retail supply business is provided in the table below.

**Table 28: ARR Components into Wheeling and retail business**

Particulars (Rs. Cr.)	Share of Retail Supply	Share of Wheeling Business
	%age	%age
O&M Cost		
<i>Employee cost</i>	40%	60%
<i>A&amp;G Expense</i>	50%	50%
<i>R&amp;M Cost</i>	10%	90%
Power purchase (Inc. PGCIL)	100%	0%
Interest Cost	10%	90%
Interest on working capital	90%	10%
Depreciation	10%	90%
Return on Equity	10%	90%
Provision for bad debts	100%	0%
Less: Other income	90%	10%

2.2.4 Considering the general principles of segregation of above heads into wheeling and retail supply business as provided in JSERC Distribution Tariff Regulations, 2020 TSL has considered different ratio to Wheeling Business and retail supply business based on the nature of heads. Based on above, the segregated ARR of Retail supply business and wheeling business for FY 2021-22 has been provided below:

**Table 29: ARR Components for Retail business for FY 2021-22**

Particulars	FY 2021-22 (Rs. Cr.)
Power purchase (Inc. PGCIL & RLDC)	1,459.59
O&M Cost	31.91
<i>Employee cost</i>	11.94
<i>A&amp;G Expense</i>	16.74
<i>R&amp;M Cost</i>	3.22
Depreciation	2.95
Interest on Long Term Loan	0.32
Interest on Working Capital Loan	11.68
Interest on Consumer Security Deposit	2.29
Return on Equity Capital	2.31
Less: NTI	6.24
<b>Total ARR required</b>	<b>1,504.81</b>

**Table 30: ARR Components into Wheeling business for FY 2021-22**

Particulars	FY 2021-22 (Rs. Cr.)
Power purchase (Inc. PGCIL & RLDC)	-
O&M Cost	6367
<i>Employee cost</i>	17.91
<i>A&amp;G Expense</i>	16.74
<i>R&amp;M Cost</i>	29.02
Depreciation	26.51
Interest on Long Term Loan	2.91
Interest on Working Capital Loan	1.30
Interest on Consumer Security Deposit	-
Return on Equity Capital	20.82
Less: NTI	0.69
<b>Total ARR required</b>	<b>114.51</b>

### 3. REVENUE GAP TILL FY 2021-22

#### 3.1 Cumulative Gap / (Surplus) till FY 2020-21

- 3.1.1 Hon'ble Commission in its Order dated 29<sup>th</sup> September 2020 had trued-up the revenue gap of Rs 788.14 Cr till FY2018-19. This however does not include the carrying cost for the year FY2016-17 and FY2017-18 for which petitioner has made an appeal.

**Table 31 Cumulative Gap approved in TO dated 29 Sep'2020 till FY 2019-20 in (Rs. Crore)**

Particulars	FY 2018-19 (Trued up)
Opening Gap/(Surplus)	814.31
Gap/(Surplus) during FY	(118.30)
Rate of Carrying Cost (%)	12.20%
Carrying Cost on Opening Gap/(Surplus)	99.35
Carrying Cost on Gap/(Surplus) during FY	(7.22)
<b>Closing Gap/(Surplus)</b>	<b>788.14</b>

The expected revenue Gap at the end FY2020-21 as per the petition filed for true-up of FY2019-20 and APR of FY2020-21 was Rs 803.11 Cr.

Cumulative Revenue Gap/ (Surplus) till FY 2021-22					
Particulars (All figures in Rs. Cr.)	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21 (@ET)
	Trued up			As filed in True-up petition	
Opening Revenue Gap/(Surplus) as on 1 April of FY	1,269.38	1,156.22	814.31	788.14	763.93
Revenue Gap/ (Surplus) created during the year	(106.35)	(321.65)	(118.30)	(115.85)	(47.08)
Rate of Interest	12.80%	12.60%	12.20%	12.55%	11.65%
Carrying Cost on Opening Gap/(Surplus)	-	-	99.35	98.91	89.00
Carrying cost on Gap/(Surplus) during the FY	(6.81)	(20.26)	(7.22)	(7.27)	(2.74)
<b>Total Gap/(Surplus) including carrying cost</b>	<b>1,156.22</b>	<b>814.31</b>	<b>788.14</b>	<b>763.93</b>	<b>803.11</b>
* ET is Existing tariff					

#### 3.2 Standalone and Cumulative Gap till FY 2021-22

- 3.2.1 As part of calculating stand-alone revenue gap of FY 2021-22, TSL has calculated revenue which is expected to be billed at existing tariff (approved vide T.O dated 29<sup>th</sup> Sep'2020) and at projected Energy Sales, Connected Load and number of consumers as projected in Business Plan for FY 2021-22. Rebate and Surcharges are considered in line with load factor rebate, power factor and voltage rebate and prompt online rebate which is dependent upon their consumption and payment pattern. Accordingly, the proposed tariff in previous petition is being computed below for FY 2021-22.

**Table 32 Revenue from Existing Tariff from FY 2021-22**

Consumer Category	No. of Consumers	Connected Load- KVA	Sales (MUs)	Con Factor	Sales (MkVAh)	Demand Charges	Demand Charge Unit	Variable Charge (Rs/kWh)	Fixed Charges (Rs.Crs)	Energy Charges (Rs.Crs)	Penalty/ Rebate (Rs.Crs)	Total Revenue (Rs.Crs)
<b>Domestic Rural &amp; Urban</b>	<b>39,630</b>	<b>251676</b>	<b>229.71</b>						<b>1.24</b>	<b>90.57</b>	<b>-10.25</b>	<b>81.56</b>
01-100 Units	31,704	78342	71.50			20.00	Rs/Conn/mth	2.60	0.76	18.59		19.35
Above 100 Units	7,926	173334	158.20			50.00	Rs/Conn/mth	4.55	0.48	71.98		72.46
<b>DS-HT</b>	<b>147</b>	<b>60527</b>	<b>86.44</b>	<b>1.11</b>	<b>95.95</b>	<b>60.00</b>	<b>Rs./kVA/month</b>	<b>4.20</b>	<b>3.70</b>	<b>40.30</b>	<b>0.07</b>	<b>44.08</b>
<b>Commercial Services</b>	<b>10,463</b>	<b>75576</b>	<b>84.33</b>						<b>6.21</b>	<b>40.31</b>	<b>-10.08</b>	<b>36.44</b>
<b>Below 5 kW</b>	<b>8,002</b>	<b>19,418</b>	<b>29.87</b>			<b>50.00</b>	<b>Rs/Conn/mth</b>	<b>3.92 #</b>	<b>0.48</b>	<b>11.72</b>		<b>12.20</b>
<b>Above 5 kW</b>	<b>2,461</b>	<b>56,159</b>	<b>54.46</b>			<b>100.00</b>	<b>Rs./kW/month</b>	<b>5.25</b>	<b>5.73</b>	<b>28.59</b>		<b>34.32</b>
<b>LTIS</b>	<b>1</b>	<b>106</b>	<b>0.10</b>	<b>1.11</b>	<b>0.11</b>	<b>130.00</b>	<b>Rs./kVA/month</b>	<b>5.00</b>	<b>0.01</b>	<b>0.06</b>	<b>-0.00</b>	<b>0.07</b>
<b>Temporary Connections</b>	<b>38</b>	<b>152</b>	<b>1.21</b>			<b>150.00</b>	<b>Rs./kW/month</b>	<b>7.88</b>	<b>0.02</b>	<b>0.95</b>	<b>0.02</b>	<b>0.99</b>
<b>HT -IS</b>	<b>217</b>	<b>413333</b>	<b>1,957.28</b>	<b>1.05</b>	<b>2,055.15</b>	<b>350.00</b>	<b>Rs./kVA/month</b>	<b>5.85</b>	<b>147.56</b>	<b>1,202.26</b>	<b>-202.02</b>	<b>1,147.80</b>
<b>Street Light</b>	<b>370</b>	<b>4446</b>	<b>4.18</b>			<b>100.00</b>	<b>Rs./kW/month</b>	<b>5.50</b>	<b>0.45</b>	<b>2.30</b>	<b>-</b>	<b>2.75</b>
<b>Sale to Licensee (JUSCO)</b>	<b>1</b>	<b>70000</b>	<b>400.00</b>				<b>Rs./kW/month</b>	<b>5.02</b>		<b>200.95</b>	<b>-</b>	<b>205.22</b>
<b>Total</b>	<b>50,867.00</b>	<b>875,816</b>	<b>2,763.25</b>						<b>159.20</b>	<b>1,577.70</b>	<b>-222.26</b>	<b>1,514.64</b>

\*(In Rs/kVAh term) (# Weighted average tariff for first 100 units @ Rs. 2.6/unit and remaining units thereafter @ 4.95/kWh)

3.2.2 Considering revenue at existing tariff for FY 2021-22 as calculated above and projected ARR for FY 2021-22 in Table 27: ARR for Control Period , standalone and cumulative revenue gap for FY 2021-22 at existing tariff is tabulated below:

**Table 33 Cumulative Revenue Gap till FY 2021-22 at Existing Tariff (Rs. Crore)**

Particulars	FY 2021-22
ARR for FY 2021-22	1,619.32
Revenue from Sales at Approved Tariff	1,514.64
Standalone Gap/(Surplus) for FY 2021-22	104.68

### 3.2.3 Cumulative Revenue Gap till FY2021-22 at existing Tariff

3.2.4 The cumulative Revenue Gap at the end of FY2021-22 is as given below-

Cumulative Revenue Gap/ (Surplus) till FY 2021-22						
Particulars (All figures in Rs. Cr.)	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21 (@ET)	FY 2021-22 (@ ET)
	Trued up			As filed in True-up petition this petition		
Opening Revenue Gap/(Surplus) as on 1 April of FY	1,269.38	1,156.22	814.31	788.14	763.93	803.11
Revenue Gap/ (Surplus) created during the year	(106.35)	(321.65)	(118.30)	(115.85)	(47.08)	104.68
Rate of Interest	12.80%	12.60%	12.20%	12.55%	11.65%	11.65%
Carrying Cost on Opening Gap/(Surplus)	-	-	99.35	98.91	89.00	93.56
Carrying cost on Gap/(Surplus) during the FY	(6.81)	(20.26)	(7.22)	(7.27)	(2.74)	6.10
<b>Total Gap/(Surplus) including carrying cost</b>	<b>1,156.22</b>	<b>814.31</b>	<b>788.14</b>	<b>763.93</b>	<b>803.11</b>	<b>1,007.45</b>

\* ET is Existing tariff

The last effective tariff increase to TSL was given in 28.02.2017.

In the subsequent 3 orders ( May'2018, May'2020, Sep'2020) ; Hon'ble Commission has focussed mostly on tariff simplification and desired increase in the tariff was continuously deferred to next order. Such deferment of appropriate tariff increase has led to further accumulation of revenue Gap for the petitioner and needs urgent attention of the Hon'ble Commission. Accumulation of revenue Gap not only puts up financial stress on the petitioner; but also puts additional burden of carrying cost on the consumers.

In its tariff order on Petition on tariff of FY2019-20; Hon'ble Commission in its order dated 26th May'2020 said that

*"The Commission is of the view that since the petitioner has filed separate petition seeking True-up for FY2018-19 and APR for FY2019-20, there is not rationale to carry out APR for FY2018-19 and determining tariff for FY2019-20. ....".*

The Tariff for the year FY2020-21 was to be decided by March'20, but got delayed due to COVID outbreak. The same was ordered by Hon'ble Commission w.e.f. 1<sup>st</sup> Oct'2020. However, Hon'ble Commission in the said Order didn't allowed any increase in Tariff to cover the revenue gap, stating the following:

*"The Commission is of the view that the existing tariff is not only adequate to recover the ARR for FY 2020-21 but also leaves Surplus to adjust the past Gap and*



*as considerable amount of Gap can be adjusted with the prevailing tariff and considering the prevailing pandemic of COVID-19, the Commission is of the view that any additional adjustment of Gap by increasing tariff will not be appropriate. Hence, the Commission in line with the Petitioner's proposal is of the view that the balance Gap can be recovered in a phased manner in the coming financial years."*

3.2.5 In the new tariff again Hon'ble Commission mostly focussed on the tariff rationalisation and simplifications process for all licensee in the state, but missed the attention to reasonably increase the tariff of the petitioner. The new tariff effective from Oct'2020 had several changes in the tariff structure which has effectively reduced the average realisation from tariff; **there by effective reduction in tariff by approx. 10%**. Following changes in the tariff order effective 1<sup>st</sup> Oct'2020; have led to such adverse revenue impact/tariff reduction--

- Provision of Load factor rebate on full units instead of incremental units:
- Provision of total 2% rebate for online and prompt payment together instead of earlier 1% + Rs 250 maximum for online rebate.
- Applicability of domestic tariff on Commercial Consumers below 5 kW.

Petitioner submits that major benefits of load factor rebate had only gone to those select units which were already running on 3 shifts operations; while majority would be paying for that in long run. Further Commercial consumers charges the input cost (including electricity) of their products and service to price of the end product and therefore applying subsidised tariff to such category is against the generally accepted principles. This need to be corrected. Petitioner has prayed for necessary correction in Load Factor rebate and tariff for commercial consumers below 5kW to improve the situation.

Due to non-consideration of appropriate tariff increase in the past, and above changes in recent tariff order, the revenue Gap at the end of FY2021-22 is expected to reach 1007.45 Cr. Considering the expected revenue (at existing tariff) for FY2021-22 at 1514.64 Cr; this becomes almost 66% of the petitioner's annual revenue.

To liquidate the same in next 4 years, approx. 30% tariff increase would be required. However, if load factor rebate is corrected to be given on incremental units only (as was being given in the past); then approx. tariff increases of 20% would be enough to liquidate this gap in next 4 years.

Petitioner has proposed the tariff keeping these considerations while ensuring that tariff moves towards the cost of supply for each category consumers progressively.

#### **4. TARIFF PHILOSOPHY**

##### **4.1 Increase in Tariff**

- 4.1.1 Cumulative Revenue Gap till FY 2021-22 if existing tariff is retained for FY 2021-22 would reach Rs 1007.45 crore.
- 4.1.2 For liquidation of such Gap in next 4 years a tariff increase of around 30% would be needed. However if load factor rebate is corrected to be given only on incremental units, then a tariff increase of 20% would be needed to liquidate this gap in next 4 years.
- 4.1.3 Considering the above and in order to also avoid tariff shock to its consumers in the license area, petitioner has requested for an increase of 10.68% increase in Tariff. Moreover, the Petitioner is requesting Hon'ble Commission to reduce enhanced load factor rebate given to consumers in TO dated 29<sup>th</sup> Sep'2020.
- 4.1.4 As domestic category is highly cross subsidised, in line with national tariff policy, the same is also proposed to be brought to the Cost of Supply. Tariff for domestic segment has been proposed accordingly.

##### **4.2 Tariff Rationalisation: The proposed tariff is based on the following tariff rationalisation.**

- 4.2.1 **Increase in domestic category:** Existing average tariffs for domestic category is highly cross-subsidized and much lower than the average cost of supply. The current Tariff in Domestic category is also ineffective in bringing out efficient use of electricity, hence the Petitioner proposes to make tariff for domestic category closer to Average cost of Supply.
- 4.2.2 The Petitioner submits that although, there is no consumer in the Irrigation and Agriculture Services category, the Tariff in that category is proposed to be brought closer to the average cost of supply of the Petitioner.
- 4.2.3 The petitioner suggests that for the purpose of tariff alignment, in line with National Tariff Policy, the fixed part of tariff needs to be revised upward to make it more realistic & closer to Average Cost of supply.
- 4.2.4 Further, TSL submits that since Domestic Tariff is subsidised, it should not be used for commercial purposes. Unlike domestic consumer, commercial consumers have option to charge the input cost (including cost of electricity) to their end products and therefore providing subsidised tariff to commercial consumers is against the reasonably accepted principles. Hon'ble Commission in its previous Tariff Order has made Domestic Tariff applicable on commercial and industrial consumers having connected load below '5 kW'. Providing subsidised electricity for commercial use also promotes inefficient use of electricity. Hence TSL proposes to de-classify commercial and industrial consumers having connected load below 5 kW from domestic category to category specified as per applicability clause of respective consumer category.

- 4.2.5 Accordingly, tariff increase/ rationalisation has been proposed for different consumer categories.
- 4.2.6 As per the existing supply code regulation in the State all new consumer connections are to be provided with appropriate meter (Ref. Clause 5.4.3(e) of JSERC Electricity Supply Code, Regulations, 2015). In view of the same no tariff is proposed under the unmetered category.
- 4.2.7 Under HT category, penalty for exceeding Contract Demand continuously for three months in a year is proposed to be levied at 200% in place of existing 150%.

### 4.3 Cumulative Tariff gap at Proposed Tariff

- 4.3.1 Thus, the tariff increase has been proposed to ensure that the cumulative revenue gap for the petitioner is further reduced by the end of FY 2021-22 Post implementation of proposed tariff, the cumulative revenue gap as on 31st March 2022 is expected to reduce to level of Rs. 705.40 crore:

**Table 34 Revenue Gap at Revised Tariff (Rs. Crore)**

Cumulative Revenue Gap/ (Surplus) till FY 2021-22						
Particulars (All figures in Rs. Cr.)	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22 (@ PT)
	Trued up			As filed in current petition		
Opening Revenue Gap/(Surplus) as on 1 April of FY	1,269.38	1,156.22	814.31	788.14	763.93	803.11
Revenue Gap/ (Surplus) created during the year	(106.35)	(321.65)	(118.30)	(115.85)	(47.08)	(180.75)
Rate of Interest	12.80%	12.60%	12.20%	12.55%	11.65%	11.65%
Carrying Cost on Opening Gap/(Surplus)	-	-	99.35	98.91	89.00	93.56
Carrying cost on Gap/(Surplus) during the FY	(6.81)	(20.26)	(7.22)	(7.27)	(2.74)	(10.53)
<b>Total Gap/(Surplus) including carrying cost</b>	<b>1,156.22</b>	<b>814.31</b>	<b>788.14</b>	<b>763.93</b>	<b>803.11</b>	<b>705.40</b>
* PT is Proposed Tariff tariff						

- 4.3.2 Further Hon'ble Commission in Previous T.O dated 29.09.2020 has increased various rebates available to consumers. A tabular comparison of various rebates applicable before and after 01<sup>st</sup> October, 2020 is provided below:

Rebate/Surcharge		Before 01 <sup>st</sup> October, 2020		After 01 <sup>st</sup> October, 2020	
Voltage Factor Rebate		Voltage rebate to the High Tension consumers will be applicable <b>on the energy charges</b> as given below:		Voltage Rebate to be applicable on <b>Demand and Energy Charge</b> as per the JSERC (Electricity Supply Code) Regulations, 2015, as amended from time to time at the rate given below	
		Consumer Category	Voltage Rebate	Consumer Category	Voltage Rebate
		HTIS-33 kV	3.00%	HTIS-33 kV	3.00%
		HTIS-132 kV	5.00%	HTIS-132 kV	5.00%
		HTSS-220 kV	5.50%	HTSS-220 kV	5.50%
		HTSS-400 kV	6.00%	HTSS-400 kV	6.00%

Load Factor Rebate	Load Factor	Load Factor Rebate	The Load factor rebate shall be allowed to all the consumers whose load factor exceeds 55%. For any „X“ % increase in the load factor over and above 55%, the rebate shall be allowed at the rate of „X“ % on the total energy charges corresponding to <b>energy consumption of the consumer</b> subject to a maximum ceiling rebate of 15%.
	40%-60%	Nil	
	60%-70%	7.50%	
	70%-100%	10.00%	
	The above Load factor rebate was given on incremental basis i.e was applicable on <b>units above cut-off consumption</b> for availing load factor rebate		
Prompt Payment Rebate	The due date for making payment of energy bills or other charges shall be as stipulated in the JSERC (Supply Code) Regulations, 2015 and its amendments which is presently minimum 15 days after issue date of bill for LT Domestic, Commercial and Agriculture category and minimum 21 days after issue date of bill for other categories. Rebate of 0.5% on the billed amount for payment of the bills within ten (10) days of issue date of bill for all the category of consumers shall be allowed		A <b>rebate of 1.00%</b> shall be allowed on the billed amount for payment within the due date of the entire billed amount made either through online or any digital mode or through cash.  Further, <b>additional 1.00% rebate</b> shall be allowed if the bills are paid in full within the due date through online web portal or any digital methods.
Prompt Online Rebate	To motivate the consumers to make online payment of the bills through online web portal or digital methods, a <b>rebate of 1%</b> of the billed amount in addition to <b>rebate @ 0.5%</b> for prompt payment, shall be allowed. However, online payment rebate shall be applicable if the consumer makes full payment of the bill within due date.		
Interest on Delayed Payment	The Delayed Payment Surcharge will be levied for all consumers at the rate of <b>1.5% per month</b> and part thereof for all consumer categories		The Delayed Payment Surcharge will be at the rate of <b>1.00%</b> per month chargeable proportionately

4.3.3 From above table it may be inferred that Hon'ble Commission vide its Order dated 29<sup>th</sup> September 2020, has greatly increased all the rebates offered to consumers while reducing late payment surcharge. This has led to lower revenue generation for TSL even when Hon'ble Commission almost kept tariff at same level.

4.3.4 Due to reduction in revenue due to higher rebates, already existing revenue gap of the Petitioner is expected to increase. Hon'ble Commission is required to give treatment to such shortfall in revenue at ARR stage only, as not considering them earlier would lead to high revenue gap during True-up stage when revenue would be Trued-up as per audited balance sheet of the Petitioner. However, delay in recognition would also lead to passing-off extra burden of carrying cost on consumers.

- 4.3.5 TSL would also like to submit that Hon'ble Commission has greatly increased load factor rebate by making it applicable on cumulative units rather than incremental units above the cut-off value. TSL is facing very high revenue loss (~Rs. 10 crore/month additional Load Factor rebate above pre-existing levels) due to the same.
- 4.3.6 Additionally, there is no marked increase in Load factor of HT consumers pursuant to increase in Load Factor Rebate. Industrial units which used to operate in 2 or 3 shifts (continuous process industries like steel etc) which were earlier also getting Load Factor Rebate are the ones who still are major recipient of the rebate. However earlier they received Load Factor Rebate on incremental units above cut-off level, but now they are getting rebate on total units consumed by them. Many such industries are availing 15% rebate on their energy charge which results in large revenue loss for TSL.
- 4.3.7 Hence TSL has proposed that Load Factor Rebate should be made applicable on incremental units consumed by consumers above cut-off level and not on cumulative units consumed.
- 4.3.8 Thus, the Tariff proposed by the Petitioner for FY 2020-21 (along with the existing Approved Tariff & Tariff proposed in previous petition) is presented in the Table below:

Consumer Category	Fixed Charges	Existing Tariff		Proposed Tariff now	
		Fixed Charges	Energy Charges	Fixed Charges	Energy Charges
	Unit	Rate	(Rs./kWh)	Rate	(Rs./kWh)
<b>DOMESTIC SERVICE</b>					
<b>DS LT</b>					
<i>0-100 units</i>	Rs./Conn/Month	20.00	2.60	25.00	3.25
<i>Above 100 units</i>	Rs./Conn/Month	50.00	4.55	55.00	6.00
<b>DS HT</b>	Rs/KVA/ Month	60.00	4.20*	65.00	5.10*
<b>IRRIGATION &amp; AGRICULTURE SERVICE (IAS)</b>	Rs./Conn/Month	20.00	4.50	50.00	6.00
<b>COMMERCIAL SERVICES (CS)</b>					
<i>All Units</i>	Rs./kW/Month	100.00	5.25	110.00	5.75
<b>INDUSTRIAL SERVICES</b>					
<i>Low Tension Industrial Service</i>	Rs./KVA/ Month	130.00	5.00*	135.00	5.25*
<i>High Tension Industrial Service*</i>	Rs./KVA/ Month	350.00	5.85*	385.00	6.45*
<b>INSTITUTIONAL SERVICES</b>					
<i>Street Light</i>	Rs./kW/ Month	100	5.50	110	5.50
<i>Railway Traction Services, Military Engineering Services and Other Distribution Licensees* (Excluding JUSCO)</i>	Rs/KVA/ Month	350	5.70*	375	6.00*

\* (in Rs/kVAh)

#### **4.4 Revenue from Sale of Power at Proposed Tariff**

- 4.4.1 Based on above philosophy & proposal, the petitioner hereby submits revenue from sale of power at proposed tariff for FY 2021-22 as given in the table below. TSL expects that new tariff would get applicable from 01<sup>st</sup> April, 2021 .

**Table 35 Revenue at Proposed Tariff for FY 2021-22**

Consumer Category	No. of Consumers	Connected Load- KVA	Sales (MUs)	Con Factor	Sales (MkVAh)	Demand Charges	Demand Charge Unit	Variable Charge (Rs/kWh)	Fixed Charges (Rs.Crs)	Energy Charges (Rs.Crs)	Penalty/ Rebate (Rs.Crs)	Total Revenue (Rs.Crs)
<b>Domestic Rural &amp; Urban</b>	<b>39,630</b>	<b>251676</b>	<b>229.71</b>						<b>1.47</b>	<b>118.16</b>	<b>-10.25</b>	<b>109.39</b>
01-100 Units	31,704	78342	71.50			25.00	Rs/Conn/mth	3.25	0.95	23.24		24.19
Above 100 Units	7,926	173334	158.20			55.00	Rs/Conn/mth	6.00	0.52	94.92		95.45
<b>DS-HT</b>	<b>147</b>	<b>60527</b>	<b>86.44</b>	<b>1.11</b>	<b>95.95</b>	<b>65.00</b>	Rs./kVA/month	<b>5.10*</b>	<b>4.01</b>	<b>48.94</b>	<b>0.07</b>	<b>53.02</b>
<b>Commercial Services</b>	<b>10,463</b>	<b>75576</b>	<b>84.33</b>			<b>110.00</b>	Rs./kW/month	<b>5.75</b>	<b>8.48</b>	<b>48.49</b>	<b>-10.08</b>	<b>46.89</b>
<b>LTIS</b>	<b>1</b>	<b>106</b>	<b>0.10</b>	<b>1.11</b>	<b>0.11</b>	<b>135.00</b>	Rs./kVA/month	<b>5.25*</b>	<b>0.01</b>	<b>0.06</b>	<b>-0.00</b>	<b>0.07</b>
<b>Temporary Connections</b>	<b>38</b>	<b>152</b>	<b>1.21</b>			<b>165.00</b>	Rs./kW/month	<b>8.63</b>	<b>0.03</b>	<b>1.04</b>	<b>0.02</b>	<b>1.09</b>
<b>HT -IS</b>	<b>217</b>	<b>413333</b>	<b>1,957.28</b>	<b>1.05</b>	<b>2,055.15</b>	<b>385.00</b>	Rs./kVA/month	<b>6.45*</b>	<b>162.32</b>	<b>1,325.57</b>	<b>-102.02</b>	<b>1,385.86</b>
<b>Street Light</b>	<b>370</b>	<b>4446</b>	<b>4.18</b>			<b>110.00</b>	Rs./kW/month	<b>5.50</b>	<b>0.50</b>	<b>2.30</b>	<b>-</b>	<b>2.80</b>
<b>Sale to Licensee (JUSCO)</b>	<b>1</b>	<b>70000</b>	<b>400.00</b>				Rs./kW/month	<b>5.02</b>		<b>200.95</b>	<b>-</b>	<b>200.95</b>
<b>Total</b>	<b>50,867.00</b>	<b>875,816</b>	<b>2,763.25</b>						<b>176.82</b>	<b>1,745.50</b>	<b>-122.26</b>	<b>1800.07</b>

\*(In Rs/kVAh) terms



## **5. TARIFF PROPOSAL**

### **5.1 Retail Tariff Proposal**

5.1.1 This chapter discusses the approach and philosophy for the proposed Tariff.

### **5.2 Tariff Philosophy and Proposed tariff Schedule**

5.2.1 The consumers classified under different categories will be charged different tariff for energy supplied to them as given below based on the nature of use of energy, supply voltage and demand of power

### **5.3 Domestic Service**

#### **5.3.1 Applicability:**

- a) Domestic Service–Rural & Urban,
- b) Domestic Service-HT
- This schedule shall apply to private residential premises for domestic use for household electric appliances such as Radios, Fans, Televisions, Desert Coolers, Air Conditioner, etc. and including Motors pumps for lifting water for domestic purposes and other household electrical appliances not covered under any other schedule.
- This rate is also applicable for supply to religious institutions such as Temples, Gurudwaras, Mosques, Church and Burial/ Crematorium grounds and other recognized charitable institutions, where no rental or fees are charged. If any fee or rentals are charged, such institution will be charged under Commercial category. Rural drinking water schemes are also included under this Category.

#### **5.3.2 Category of Services:**

Domestic Service – Rural: For rural areas (including rural drinking water schemes) not covered by area indicated under DS-Urban.

Domestic Service – Urban: For Urban areas covered by Nagar Nigam, Nagar Parishad, Nagar Panchayat.

Domestic service – HT: This Schedule shall apply for domestic connection in Housing Colonies / Housing Complex / Houses of multi storied buildings purely for residential use for single point metered supply, with power supply at 6.6 KV/ 11 KV/ 33 KV voltage level.

#### **5.3.3 Service Character:**

- (i) AC, 50 Cycles, Single Phase at 230 Volts, Three Phase at 400 Volts.
- (ii) For HT: AC, 50 Cycles, at 6.6 KV/11 KV/33 kV

#### **5.3.4 Proposed Tariff:**

Consumer Category	Existing tariff		Proposed tariff	
	Fixed Charges		Fixed Charges	Energy Charges
Domestic	Unit	Rate	Rate	Rate
0-100 units	₹/Conn/ Month	20	2.60 (₹/kWh)	25
Above 100 units	₹/Conn/ Month	50	4.55 (₹/kWh)	55
HT	₹/kVA/ Month	60	4.20 (₹/kVAh)	65

5.3.5 Delayed Payment Surcharge: In accordance with Clause IV of Terms & Conditions of Supply as provided in Paragraph 7.14 of the Present Tariff Petition.

5.3.6 Prompt Payment Rebate/ Rebate for online payment: In accordance with Clause VII and Clause VIII of Terms & Conditions of Supply as provided in Paragraph 7.14 of the Present Tariff Petition.

#### 5.4 Irrigation & Agriculture Service (IAS)

##### 5.4.1 Applicability:

- This schedule shall apply to all consumers for use of electrical energy for Agriculture purposes including tube wells and processing of the agricultural produce, confined to Chaff-Cutter, Thresher, Cane crusher and Rice-Hauler, when operated by the agriculturist in the field or farm and does not include Rice mills, Flour mills, Oil mills, Dal mills, Rice-Hauler or expellers.

##### 5.4.2 Service Character:

AC 50 Cycles, Single Phase at 230 volts / 3 Phase at 400 volts

##### 5.4.3 Proposed Tariff:

Consumer Category	Existing tariff		Proposed tariff	
	Fixed Charges		Fixed Charges	Energy Charges
	Unit	Rate	Rate	Rate
			(₹/kWh)	(₹/kWh)
All units	Rs./HP/Month	20	4.50	50
				6.00

5.4.4 Delayed Payment Surcharge: In accordance with Clause IV of Terms & Conditions of Supply as provided in Paragraph 7.14 of the Present Tariff Petition.

5.4.5 Prompt Payment Rebate/ Rebate for online payment: In accordance with Clause VII and Clause VIII of Terms & Conditions of Supply as provided in Paragraph 7.14 of the Present Tariff Petition.

## 5.5 Commercial Services (CS)

### 5.5.1 Applicability:

- This schedule shall apply to all consumers, using electrical energy for light, fan and power loads for non-domestic purposes like shops, hospitals (govt. or private), nursing homes, clinics, dispensaries, restaurants, hotels, clubs, guest houses, marriage houses, public halls, show rooms, workshops, central air-conditioning units, offices (govt. or private), commercial establishments, cinemas, X-ray plants, schools and colleges (govt. or private), boarding/ lodging houses, libraries (govt. or private), research institutes (govt. or private), railway stations, fuel – oil stations, service stations (including vehicle service stations), All India Radio / T.V. installations, printing presses, commercial trusts / societies, Museums, poultry farms, banks, theatres, common facilities in multi-storied commercial office/buildings, Dharmshalas, public Electric Vehicles Charging stations and such other installations not covered under any other tariff schedule
- This schedule shall also applicable to electricity supply availed through separate (independent) connections for the purpose of advertisements, hoardings and other conspicuous consumption such as external flood light, displays, neon signs at public places (roads, railway stations, airports etc.), departmental stores, commercial establishments, malls, multiplexes, theatres, clubs, hotels and other such entertainment/ leisure establishments.
- Hon'ble Commission in its previous Order had stated that commercial consumers below 5 kW would be charged Domestic Tariff. TSL as explained above requests Hon'ble Commission that all commercial consumers irrespective of its sanction load should be charged as per Commercial Category only.

### 5.5.2 Service Category:

- Commercial Service Rural: For Rural Areas not covered by area indicated for CS- Urban.
- Commercial Service Urban: For Urban areas covered by Nagar Nigam, Nagar Parishad, Nagar Panchayat.

### 5.5.3 Service Character:

- AC 50 Cycles, Single phase at 230 Volts or Three Phase at 400 Volts.

### 5.5.4 Proposed Tariff:

Consumer Category	Existing tariff			Proposed tariff	
	Fixed Charges		Energy Charges	Fixed Charges	Energy Charges
	Unit	Rate	Rate (₹/kWh)	Rate	Rate (₹/kWh)
All units	Rs. /kW/ Month	100	5.25	110	5.75

5.5.5 Delayed Payment Surcharge: In accordance with Clause IV of Terms & Conditions of Supply as provided in Paragraph 7.14 of the Present Tariff Petition.

5.5.6 Installation of Shunt Capacitors: In accordance with Clause II of Terms & Conditions of Supply as provided in Paragraph 7.14 of the Present Tariff Petition.

5.5.7 Prompt Payment Rebate/ Rebate for online payment: In accordance with Clause VII and Clause VIII of Terms & Conditions of Supply as provided in Paragraph 7.14 of the Present Tariff Petition.

## 5.6 Industrial Services

### 5.6.1 Applicability:

- Low Tension Industrial Service (LTIS)
- High Tension Industrial Service (HTIS)

5.6.2 **Low Tension Industrial Service (LTIS):** This schedule shall apply to all industrial units applying for a load of less than or equal to 100 kVA (or equivalent in terms of HP or kW). The equivalent HP for 100 kVA shall be 114 HP and the equivalent kW for 100 kVA shall be 85.044 kW.

5.6.3 **High Tension Industrial Service (HTIS):** The schedule shall apply for consumers having contract demand above 100 kVA.

### 5.6.4 Service Character:

Low Tension Industrial Service (LTIS): AC, 50 Cycles, Single Phase supply at 230 Volts or 3 Phase Supply at 400 volts

High Tension Industrial Service (HTIS): 50 Cycles, 3 Phase at 6.6 kV / 11 kV / 33 kV / 132 kV / 220 kV / 400 kV

### 5.6.5 Proposed Tariff:

Consumer Category	Existing tariff			Proposed tariff	
	Fixed Charges		Energy Charges	Fixed Charges	Proposed Energy Charges
	Unit	Rate	Rate (₹/kVAh)	Rate	Rate (₹/kVAh)
<b>LTIS</b>	Rs./kVA/ Month	130	5.00	135	5.25
<b>HTIS</b>	Rs./kVA/ Month	350	5.85	385	6.45

- 5.6.6 LTIS: The billing demand shall be the maximum demand recorded during the month or 75% of contract demand whichever is higher. In case actual demand is recorded at more than 100 kVA in any month, the same shall be treated as the new contract demand for the purpose of billing of future months and consumer will be billed at 1.1 times of HT rates till such times he does not convert to HT supply.
- 5.6.7 HTIS: The billing demand shall be the maximum demand recorded during the month or 75% of contract demand whichever is higher. The penalty on exceeding billing demand will be applicable in accordance with Clause I of Terms & Conditions of Supply as provided in Paragraph 7.14 of the Present Tariff Petition.
- 5.6.8 Load Factor Rebate for HTIS: In accordance with Clause IX of Terms & Conditions of Supply as provided in Paragraph 7.14 of the Present Tariff Petition.
- 5.6.9 Voltage Rebate for HTIS: In accordance with Clause VI of Terms & Conditions of Supply as provided in Paragraph 7.14 of the Present Tariff Petition.
- 5.6.10 Delayed Payment Surcharge: In accordance with Clause IV of Terms & Conditions of Supply as provided in Paragraph 7.14 of the Present Tariff Petition.
- 5.6.11 Installation of Shunt Capacitors for LTIS: In accordance with Clause II of Terms & Conditions of Supply as provided in Paragraph 7.14 of the Present Tariff Petition.
- 5.6.12 Load factor rebate and power factor rebate shall not be allowed to consumers with outstanding arrears.
- 5.6.13 **Prompt Payment Rebate/ Rebate for online payment:** In accordance with Clause VII and Clause VIII of Terms & Conditions of Supply as provided in Paragraph 7.14 of the Present Tariff Petition.

## 5.7 Institutional Services

- 5.7.1 This tariff schedule shall apply for use of Utilities/ Street Lighting system, Railway Traction, Military Engineering Services and Other Distribution Licensees.

### 5.7.2 Applicability:

- **Utilities/ Street Light Service (SS):** The schedule is applicable to all utilities and municipal services like water and waste water, sewage treatment, street lights etc.

- **Railway Traction (RTS) and Military Engineering Services (MES):** This tariff schedule shall apply for use of railway traction and Military Engineering Services (MES) for a mixed load in defense cantonment and related area.
- **Other distribution licensees:** This tariff schedule shall apply to other distribution licensees procuring power from TSL (except TSUISL formerly JUSCO; which shall continue to procure power as per the prevailing arrangement)

### 5.7.3 Service Character:

- **Street Light Service (SS):** AC, 50 cycles, Three phase at 415V or 220V or 6.6 kV
- **Railway Traction Service (RTS):** AC, 50 cycles, Single phase at 132 kV.
- **Military Engineering Services (MES):** AC, 50 cycles, three phase at 11 KV/ 33 KV/ 132 kV
- **Other Distribution Licensees:** AC, 50 cycles, three phase at 11 KV/ 33 KV/ 132 kV

### 5.7.4 Proposed Tariff:

Consumer Category	Existing tariff			Proposed tariff	
	Fixed Charges		Energy Charges	Fixed Charges	Energy Charges
	Unit	Rate	Rate	Rate	Rate
Street Light	Rs./kW / Month	100	5.50 (₹/kWh)	110	5.55 (₹/kWh)
Railway Traction Services, Military Engineering Services and Other Distribution Licensees* (Excluding JUSCO)	Rs/KVA/ Month	350	5.70 (₹/kVAh)	375	6.00 (₹/kVAh)
JUSCO	Weighted Average Power Purchase Cost for FY 2021-22				

\*Note: The billing demand shall be the maximum demand recorded during the month or 75% of contract demand whichever is higher. The penalty on exceeding billing demand will be applicable in accordance with Clause I of Terms & Conditions of Supply as provided in Paragraph 7.14 of the Present Tariff Petition.

**5.7.5 Maximum Demand for Railway Traction Services:** The demand charge shall be applied on maximum demand recorded or 75% of the contract-demand whichever is higher at any fifteen minutes time block for which the meter installed should have 15 minutes integration time.

**5.7.6 Delayed Payment Surcharge:** In accordance with Clause IV of Terms & Conditions of Supply as provided in Paragraph 7.14 of the Present Tariff Petition.

5.7.7 Load factor rebate shall not be allowed to consumers with outstanding arrears.

## 5.8 Temporary Connections

### 5.8.1 Applicability:

The Temporary tariff shall be applicable as per the following conditions:

Temporary tariff is proposed to be equivalent to 1.5 times of the applicable fixed and energy charges for temporary connections falling in each prescribed tariff category with all other terms and conditions of tariff remaining the same.

Temporary connections shall initially be provided for a period of up to 30 days which can be extended on month to month basis upto six months.

### 5.8.2 Proposed Tariff

Consumer Category	Existing tariff/ Proposed in Previous petition		Proposed tariff	
	Fixed Charges	Energy Charges	Fixed Charges	Energy Charges
		Rate(₹/kWh)		Rate(₹/kWh)
All units	1.5 times of the applicable fixed charges	1.5 times of the applicable energy charges	1.5 times of the applicable fixed charges	1.5 times of the applicable energy charges

## 5.9 Terms and Conditions of Supply

Besides the terms & conditions provided in the JSERC (Electricity Supply Code) Regulations, 2015, the Petitioner proposes the following additional terms & conditions of supply:

### 5.9.1 Clause I: Billing Demand

In case the consumer's actual recorded demand exceeds 110% of the contract demand, then demand charges shall be levied at penal rate, which will be 150% of applicable Demand charges on full exceeded demand.

In cases where contract demand is exceeded in more than 3 billing months in a financial year, penal rate will be 200% of applicable demand on months exceeding 3 months.

### 5.9.2 Clause II: Power factor Penalty/Rebate

#### Power Factor Penalty (Kwh based billing):

Power Factor Penalty will be applicable in case of maximum demand meters.

In case average power factor in a month for a consumer falls below 0.85, a penalty @ 1% for every 0.01 fall in power factor from 0.85 to 0.60; plus 2% for every 0.01 fall below 0.60 to 0.30 (up to and including 0.30) shall be levied on demand and energy charges; plus 3% for every 0.01 fall below 0.30.



Further, all consumers having aggregate inductive load greater than 3 HP (2.2 kW) and above (except domestic and street lights), shall install capacitors of required KVAR rating provided in the following table:

Rating of individual Inductive Load in HP	kVAR rating of LT capacitors
3 to 5	1
5 to 7.5	2
7.5 to 10	3
10 to 15	4
15 to 20	6
20 to 30	7
30 to 40	10
40 to 50	10 – 15
50 to 100	20 – 30

For existing consumer, the Petitioner should first serve one month's notice to all such consumers who do not have or have defective shunt capacitors. In case the consumers do not get the capacitor installed/replaced within the notice period, the consumer shall be levied a surcharge at 5% on the total billed amount charge (metered or flat), till they have installed the required capacitors.

No connection shall be released for any consumer having aggregate inductive load greater than 3 HP (2.2 kW) unless the capacitors of suitable rating are installed.

### Clause III: Jharkhand Electricity Duty

The charges in this tariff schedule do not include charges on account of Electricity Duty/ Surcharge to the consumers under the Bihar Electricity Duty Act, 1948 as adopted in Jharkhand vide S.O No. 117 dated 15.12.2000 and the rules framed there under as amended from time to time and any other Statutory levy which may take effect from time to time after making corrections for the loss in the distribution system.

### 5.9.3 Clause IV: Interest on Delayed payment

The Delayed Payment Surcharge will be levied for all consumers at the rate of 1.5% per month and part thereof for all consumer categories. The due date for making payment of energy bills or other charges shall be as stipulated in the JSERC (Supply Code) Regulations, 2015 and its amendments which is presently minimum 15 days after issue date of bill for LT Domestic, Commercial and Agriculture category and minimum 21 days after issue date of bill for other categories. The bill should be generated and delivered on monthly basis.

### 5.9.4 Clause V: Electricity Supply Code

The Jharkhand State Electricity Regulatory Commission (Electricity Supply Code) Regulation 2015 as amended from time to time will be followed wherever applicable.

### 5.9.5 Clause VI: Voltage Rebate

Voltage rebate to the High-Tension consumers will be applicable on the energy charges as given below:

Consumer Category	Voltage Rebate
HTIS - 33 kV	3.00%
HTIS - 132 kV	5.00%

The above rebate will be available only on monthly basis and consumer with arrears shall not be eligible for the above rebates. However, the applicable rebates shall be allowed to consumers with outstanding dues, wherein such dues have been stayed by the appropriate authority/Courts.

### 5.9.6 Clause VII: Rebate for prompt payment

The due date for making payment of energy bills or other charges shall be as stipulated in the JSERC (Supply Code) Regulations, 2015 and its amendments which is presently minimum 15 days after issue date of bill for LT Domestic, Commercial and Agriculture category and minimum 21 days after issue date of bill for other categories. Rebate of 0.5% on the billed amount for payment of the bills within ten (10) days of issue date of bill for all the category of consumers shall be allowed.

### 5.9.7 Clause VIII: Rebate for online payment

“To motivate the consumers to make online payment of the bills through online web portal or digital methods, a rebate of 1% of the billed amount (subject to maximum of Rs 250) shall be allowed. This rebate shall be in addition to rebate @ 0.5% for prompt payment. However, online payment rebate shall be applicable if the consumer makes full payment of the bill within due date.”

### 5.9.8 Clause IX: Load Factor Rebate

Load Factor rebate will be applicable on energy charges only as given below:

Load Factor	Load Factor Rebate *
40-60%	Nil
60-70%	7.50%
70-100%	10.00%

\*The Load Factor rebate would be applicable only on units consumed above 60% Load factor

The above rebate will be available only on monthly basis and consumer with arrears shall not be eligible for the above rebate. However, the applicable rebate shall be allowed to consumers with outstanding dues, wherein such dues have been stayed by the appropriate authority/Courts.

### 5.9.9 Clause X: Other Terms & Conditions

### Point of Supply

The Power supply shall normally be provided at a single point for the entire premises. In certain categories like coal mines power may be supplied at more than one point on request of consumer subject to technical feasibility. But in such cases metering and billing shall be done separately for each point.

### Dishonored Cheques

In the event of dishonored cheque for payment against a particular bill, the Licensee shall charge a minimum of Rs. 500 or 0.5% of the billed amount, whichever is higher. The DPS shall be levied extra as per the applicable terms and conditions of DPS for the respective category.

### Stopped/ defective meters

In case of existing consumers with previous consumption pattern, the provisional average bill shall be issued on the basis of average of previous twelve months consumption.

In case of meter being out of order from the period before which no pattern of consumption is available, the provisional average bill shall be issued on the basis of sanctioned/ contract load on following load factor applicable to respective categories, as shown below:

Category	Load Factor
Domestic Supply	0.10
Commercial Supply	0.20
Domestic Supply HT	0.15
High Tension Supply	
11 KV	0.25
33 KV	0.30
132/220/400 KV	0.50

### Sale of energy

No consumer shall be allowed to sell the electricity purchased from the Licensee to any other person/ entity.

### Release of new connections

No new connections shall be provided without appropriate meter.

### Conversion factors

The following shall be the conversion factors, as and where applicable (PF=0.85):

1 Kilowatt (KW) = 1.176 Kilovolt ampere (kVA)

1 Kilowatt (KW) = 1 / 0.746 Horse Power (HP)

1 Horse Power (1 HP) = 0.878 Kilovolt ampere (KVA)

Fuel Price & Power Purchase Adjustment (FPPPA)

Applicable as per the Regulation 6.59 to 6.65 of the Distribution Tariff Regulations, 2010 and Regulation 6.60 to 6.68 of the Distribution Tariff Regulations, 2015 and as amended by the Hon'ble Commission from time to time

#### 5.10 Schedule of General and Miscellaneous Charges – No change has been proposed in the Scheduled of Miscellaneous Charges.

No	Purpose	Scale of Charges	Proposed Charges	Manner in which payment will be realized
1	Application fee			
	LT Connection	100	No change	Payable at the time of collecting the demand note
	HT Connection	500	No change	
2	Revision of estimate when a consumer intimates changes in his requirement subsequent to the preparation of service connection estimate based on his original application			
	LT Connection	100	No change	Payable with application
	HT Connection	500	No change	
3	Testing of consumers Installation			
	LT Connection	100	No change	Payable with energy bill
	HT Connection	500	No change	
4	Meter test when accuracy disputed by consumer			
	Single phase /three phase	100	No change	If the meter is found defective within the meaning of the Indian Electricity Rules 1956, no charge shall be levied. If it is proved to be correct within the permissible limits laid down in the Rules, the amount will be charged in the next energy bill.
	Trivector/Special type meter , HT ,EHT metering equipment	1000	No change	
5	Removing/ Refixing of meter / Changing of meter or meter equipment/ Fixing of submeter on the request of Consumer/Fixing of submeter/Resealing of meter when seals are found broken			
	Single phase /three phase	200	No change	Payable with energy bill

No	Purpose	Scale of Charges	Proposed Charges	Manner in which payment will be realized
	Trivector/Special type meter , HT ,EHT metering equipment	1000	No change	
6	<b>Fuse call – Replacement</b>			
	Consumer fuse	100	No change	
7	<b>Disconnection/ Reconnection</b>			
	LT Connection	200	No Change	Payable in cash in advance along with the request by the consumer. If the same consumer is
	HT Connection	1500	No Change	Reconnected / disconnected within 12 months of the last disconnection/ reconnection, 50% will be added to the charges
8	Replacement of meter card , if lost/ damage by consumer	100	No change	
9	<b>Security Deposit</b>	<b>As per clause 8.2.8 - 8.2.20 of the JSERC (Electricity Supply code) Regulations, 2015</b>		
10	<b>Replacement of Burnt Meter</b>	Cost of Meter	<b>No Change</b>	Payable with energy Bill
11	<b>Transformer Rent</b>			
	<b>Upto 200KVA</b>	Rs 5500/Month	<b>No Change</b>	Payable with energy Bill
	<b>Upto 200KVA</b>	Rs 5500/Month	<b>No Change</b>	Payable with energy Bill

## 6. PROPOSAL FOR OPEN ACCESS CHARGES

### 6.1 Proposal for Open Access Charges

- 6.1.1 As per the provisions of Electricity Act 2003 the distribution utilities are mandated with Universal Service Obligation to consumers. Nationwide, the present tariff structure has cross subsidization mechanism whereby the tariff for some category of consumers are lower than cost of supply to them.
- 6.1.2 Open Access consumers are required to bear transmission charges, transmission losses, wheeling charges, wheeling losses, reactive charges, cross subsidy surcharge, additional surcharge, standby charges etc as may be applicable depending upon the voltage level at which open access power is availed and the charges as may be approved by Hon'ble Commission from time to time.
- 6.1.3 The Petitioner submits that Section 2 (47) of the Electricity Act 2003 defines "Open Access", while Section 42 of the said Act inter-alia mandates the Distribution Licensee to provide Open Access to eligible consumers, subject to payment of "Cross Subsidy Surcharge", "Additional Surcharge" & other applicable charges.
- 6.1.4 Section 42 (2) of the Electricity Act 2003 provides following provisions wherein the powers have been given to State Commissions for specifying cross subsidy surcharge. The relevant part of the same is reproduced as under:

*"The State Commission shall introduce open access in such phases and subject to such conditions, (including the cross subsidies, and other operational constraints) as may be specified within one year of the appointed date by it and in specifying the extent of open access in successive phases and in determining the charges for wheeling, it shall have due regard to all relevant factors including such cross subsidies, and other operational constraints:*

*Provided that such open access shall be allowed on payment of a surcharge in addition to the charges for wheeling as may be determined by the State Commission:*

*Provided further that such surcharge shall be utilised to meet the requirements of current level of cross subsidy within the area of supply of the distribution licensee:*

*Provided also that such surcharge and cross subsidies shall be progressively reduced in the manner as may be specified by the State Commission:*

*Provided also that such surcharge shall not be leviable in case open access is provided to a person who has established a captive generating plant for carrying the electricity to the destination of his own use:"*

*"to provide non-discriminatory open access to its transmission system for use by- (i) any licensee or generating company on payment of the transmission*

*charges; or (ii) any consumer as and when such open access is provided by the State Commission under sub-section (2) of section 42, on payment of the transmission charges and a surcharge thereon, as may be specified by the State Commission:*

*Provided that such surcharge shall be utilised for the purpose of meeting the requirement of current level cross-subsidy:*

*Provided further that such surcharge and cross subsidies shall be progressively reduced in the manner as may be specified by the State Commission:*

*Provided also that the manner of payment and utilisation of the surcharge shall be specified by the State Commission:"*

- 6.1.5 Section 86 deals with the functions of State Commission and its sub-section (1) (a) reads as follows:

*"86. (1) The State Commission shall discharge the following functions, namely: (a) determine the tariff for generation, supply, transmission and wheeling of electricity, wholesale, bulk or retail, as the case may be, within the State:*

*Provided that where open access has been permitted to a category of consumers under section 42, the State Commission shall determine only the wheeling charges and surcharge thereon, if any, for the said category of consumers;"*

- 6.1.6 As per Regulation 3.1 of the JSERC Distribution Tariff Regulations, 2015, the Hon'ble Commission shall determine wheeling tariff, cross-subsidy surcharge, additional surcharge and other open access related charges. The relevant extract of the regulations has been reproduced below:

*"3.1*

*...*

*Provided further that where any category of consumer has been permitted open access under Section 42 of the Act, the Commission shall determine the wheeling tariff, cross-subsidy surcharge, additional surcharge and other open access related charges in accordance with these Regulations and JSERC ( Intra-State Open Access ) Regulations, 2016 and as amended from time to time;"*

- 6.1.7 As per the JSERC (Terms and Conditions for Intra-State Open Access) Regulations, 2016, the Open Access charges include wheeling charges, wheeling losses, Cross subsidy charges and additional surcharge apportioned volt-age wise at HT/ EHT and LT levels.
- 6.1.8 In line with the directions of the Hon'ble Commission, the Petitioner hereby submit its proposal for the determination of open access charges for the FY 2021-22.



## 6.2 Wheeling charges

6.2.1 The Petitioner hereby submits that it had provided the allocation ratio for Wheeling & Retail Supply business in line with Regulation 6.8 of the JSERC Distribution Tariff Regulations 2020. Accordingly, the allocation for wire and supply business for each ARR component for FY 2021-22 is discussed in Table 29 and

6.2.2

6.2.3

6.2.4 Table 30. The wheeling ARR segregated from total ARR for FY 21-22 was Rs. 114.52 crore and the corresponding wheeling charges based on projected energy sales for FY 2021-22 works out to Rs. 0.41 /kWh. (Rs. 114.51 Crs/ 2763.25 MUs x 10 = Rs. 0.41/kWh)

## 6.3 Cross Subsidy Surcharge

6.3.1 The Petitioner has determined the Cross-Subsidy Surcharge as per the methodology outlined in National Tariff Policy 2016. The methodology keeps the interest of distribution companies as well as consumers in mind while determining a mathematical formula, thus ensuring competition in electricity through open access is not constrained.

"Surcharge formula:

$$S = T - [C / (1 - L / 100) + D + R]$$

Where

- *S is the surcharge*
- *T is the tariff payable by the relevant category of consumers, including reflecting the Renewable Purchase Obligation*
- *C is the per unit weighted average cost of power purchase by the Licensee, including meeting the Renewable Purchase Obligation*
- *D is the aggregate of transmission, distribution and wheeling charge applicable to the relevant voltage level*
- *L is the aggregate of transmission, distribution and commercial losses, expressed as a percentage applicable to the relevant voltage level - R is the per unit cost of carrying regulatory assets.*

*Provided that the surcharge shall not exceed 20% of the tariff applicable to the category of the consumers seeking open access."*

6.3.2 In line with the above formula and methodology adopted by Hon'ble Commission in previous tariff order, CSS for consumers connected to TSL is calculated as per table below based on proposed tariffs:

**Table 36 Cross Subsidy Surcharge calculation for FY 2020-21**

Consumer Categories	Voltage Level	T-Tariff Payable ABR (Rs/kWh)	C-Power Purchase Cost (Rs/kWh)	L-System losses for applicable voltage (%)	D-Wheeling Charges (Rs/kWh)	Cross Subsidy Surcharge (Rs/kWh)
Domestic	LT	4.76	5.02	11.00%	0.41	(1.30)
Commercial	LT	5.56	5.02	11.00%	0.41	(0.50)
Domestic - HT	HT	6.13	5.02	2.20%	0.41	0.58
Industrial- HTIS	6.6 KV HT	7.08	5.02	2.20%	0.41	1.53
	33 KV HT	7.08	5.02	1.95%	0.41	1.54
	130 KV HT	7.08	5.02	0.70%	0.41	1.61
Street Light	LT	6.69	5.02	11.00%	0.41	0.63
Railway Traction Services,	LT	7.08	5.02	2.20%	0.41	1.53
Military Engineering Service	6.6 KV HT	6.69	5.02	2.20%	0.41	1.14
LTIS	LT	7.08	5.02	11%	0.41	1.54

#### 6.4 Additional Surcharge:

- 6.4.1 Clause 8.5 of the National Tariff Policy 2016 provides following provision that deals with applicability of additional surcharge to be paid by open access consumers. “8.5.4 The additional surcharge for obligation to supply as per section 42(4) of the Act should become applicable only if it is conclusively demonstrated that the obligation of a licensee, in terms of existing power purchase commitments, has been and continues to be stranded, or there is an unavoidable obligation and incidence to bear fixed costs consequent to such a contract. The fixed costs related to network assets would be recovered through wheeling charges.”
- 6.4.2 The Petitioner craves for determination of additional surcharge on case to case basis and reserves its right to approach Hon’ble Commission for the same at appropriate time within the given provisions of applicable regulations.

#### 6.5 Regulatory Surcharge for Open Access Consumers

- 6.5.1 The Petitioner submits that a Regulatory Asset Surcharge ought to be levied on Open Access consumers to protect the interest of other consumers who shall continue to take power from the Licensee.
- 6.5.2 The Petitioner has proposed liquidation of meagre amount of regulatory assets. Therefore, Petitioner has not calculated the category wise regulatory asset surcharge. However, the Petitioner requests the Hon’ble Commission to allow to charge the Regulatory Asset Surcharge as approved in the Order dated 18th May 2018 in case any Open Access consumer approaches the Petitioner or as may be determined by Commission in upcoming tariff orders of Tata Steel Ltd.

\*\*\*\*\* (End of Petition) \*\*\*\*\*