

Petition to

**JHARKHAND STATE ELECTRICITY REGULATORY
COMMISSION,**

Ranchi

By

SAIL, BOKARO



**For Approval of the Business Plan
for the MYT Period FY 2016-17 to FY 2020-21**

In terms of

**JSERC (Terms and Conditions for Determination of Distribution
Tariff) Regulations, 2015**

**BEFORE THE JHARKHAND STATE ELECTRICITY REGULATORY
COMMISSION, RANCHI**

Filing No.....

Case No.....

IN THE MATTER OF:

Approval under section 86 of the Electricity Act, 2003 and JSERC (Terms & Conditions for determination of Distribution Tariff) Regulations 2015 for filing of the Business Plan for the Control period FY 2016-17 to FY 2020-21 for the Licensee.

AND

IN THE MATTER OF Steel Authority of India, Bokaro (hereinafter referred to as "SAIL-BSL" which shall mean for the purpose of this Petition, the Licensee), a company incorporated under section 617 of the Companies Act, 1956 and having its main office at Bokaro.

AFFIDAVIT VERIFYING THE PETITION

I, _____, son of SHRI _____, aged _____ years residing at _____, B S City hereby solemnly affirm and state as follows:

1. That, I am AGM (TE-Electrical), of SAIL- BSL, the Petitioner in the above matter and am duly authorised to swear this affidavit.
2. That, on behalf of SAIL- BSL, I am filing this Petition under the Electricity Act, 2003 for approval of the Business Plan for the Control period FY 2016-17 to FY 2020-21 for its Licensed Area in the State of Jharkhand.
3. That, I further state that the statements made and the financial data presented in the aforesaid Petition are as per records of the Company and based on the information received from the concerned officials and is believed to be true to the best of my knowledge and borne out of official records.
4. That, to the best of my knowledge and material borne out of official records, no information has been concealed in the aforesaid Petition.

DEPONENT

VERIFICATION

I, _____, do hereby 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 Bokaro on this _____ of July, 2017.

DEPONENT

**BEFORE THE JHARKHAND STATE ELECTRICITY REGULATORY
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IN THE MATTER OF:

Approval under section 86 of the Electricity Act, 2003 and JSERC (Terms & Conditions for determination of Distribution Tariff) Regulations 2015 for filing of the Business Plan for the Licensee.

AND

IN THE MATTER OF Steel Authority of India, Bokaro (hereinafter referred to as "SAIL-BSL" which shall mean for the purpose of this Petition the Licensee), a company incorporated under section 617 of the Companies Act, 1956 and having its main office at Bokaro

The Petitioner most respectfully submits as under: -

1. That Steel Authority of India, Bokaro is a company incorporated in the year 1964 under section 617 of the Companies Act, 1956 and is a wholly owned unit of Steel Authority of India, New Delhi. Bokaro Steel City in the district of Bokaro, Jharkhand is contiguous to Bokaro Steel City service area of SAIL-BSL.
2. That With the Electricity Act 2003 opening the sector for power distribution, as per the provisions of section 14 of Electricity Act 2003, Distribution License has

- been granted by Hon'ble Jharkhand state Electricity Regulatory Commission (hereinafter "JSERC" or "Hon'ble Commission" or "State Commission") to SAIL-BSL.
3. That the Hon'ble Commission has granted Power Distribution License (No.01 of 2005-06) to SAIL-BSL w.e.f. 28.7.2004 for the aforementioned area. Prior to date 28.07.2004, SAIL-BSL was a sanction holder under section 28 of the Electricity Act 1910, granted by the then undivided State of Bihar and accordingly it began the activity related to distribution of power in the said area.
 4. That Pursuant to the enactment of the Electricity Act, 2003, SAIL-BSL is required to submit its ARR and Tariff Petitions as per procedures outlined in section 61, 62 and 64, of Electricity Act 2003, and the governing regulations thereof.
 5. That the power for distribution at SAIL-BSL is purchased from Damodar Valley Corporation (DVC), whose generation and transmission tariffs have to be determined by the Hon'ble Central Electricity Regulatory Commission (CERC). Hon'ble CERC has determined and notified the tariff for DVC's generation and inter-state transmission activities vide different orders for the Tariff Period FY 2009-14 and FY 2014-19. The retail tariff order of DVC for the sale of power during FY 2013-14 to FY 2015-16 in Jharkhand was issued by the Hon'ble JSERC on 4.9.2014 and accordingly the tariff determined through this order is operational for SAIL-BSL taking power from DVC Generating Stations through inter-state transmission lines. SAIL-BSL is one of the many HT consumers of DVC along with West Bengal Electricity Distribution Company and Jharkhand Bijli Vitran Nigam Limited (JBVNL). DVC has filed its MYT Petition for the Control period FY 2016-17 to FY 2020-21 before the Hon'ble JSERC and the cost of power purchase claimed by DVC in its MYT Petition has been considered for the purpose of projections in case of SAIL- BSL.

6. That the present Petition is being filed before the Hon'ble Commission for approval of the Business Plan for the Multi-year Tariff period FY 2016-17 to FY 2020-21 for the Licensee as per the Electricity Act 2003.
7. That this application has been prepared in accordance with Section 86 of the Electricity Act 2003 and has taken into consideration the provisions of the JSERC (Terms and conditions for determination of Distribution Tariff) Regulation, 2015 notified by the Hon'ble Jharkhand State Electricity Regulatory Commission.
8. That SAIL-BSL is also filing a detailed tariff application along with the audited accounts for the purpose of truing up for FY 2013-14 to FY 2015-16 and determination of tariff for control period FY 2016-17 to FY 2020-21 to the Hon'ble Commission and it has made all out efforts to provide the necessary data for the same.

Prayers to the Commission:

The Petitioner SAIL- BSL respectfully prays to the Hon'ble Commission:

1. To admit the Business Plan of SAIL- BSL for the Control Period (FY 2016-17 to FY 2020-21) in accordance with Regulation 5 of the Jharkhand State Electricity Regulatory Commission (Multi Year Tariff) Regulations, 2015;
2. To Condone the delay in filing the present Petition;
3. To approve the principles and methodology proposed by SAIL- BSL for projection of ARR;
4. To approve the deviation from the norms for certain parameters prescribed in the Jharkhand State Electricity Regulatory Commission (Multi Year Tariff) Regulations, 2015, and provisions thereof, as sought in this Business Plan during the period FY 2016-17 to FY 2020-21;

5. To approve the Business Plan of SAIL- BSL for the Control Period (FY 2016-17 to FY 2020-21) in accordance with Regulation 5 of the Jharkhand State Electricity Regulatory Commission (Multi Year Tariff) Regulations, 2015;
6. To pass any other order as the Hon'ble Commission may deem fit and appropriate under the circumstances of the case and in the interest of justice;
7. To condone any error/omission and to give opportunity to rectify the same;
8. To permit SAIL- BSL to make further submissions, addition and alteration to this Business Plan as may be necessary from time to time.

Petitioner

Bokaro

Dated: /7/2017

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List of Abbreviations

Abbreviations	Description
A&G	Administrative and General
ATE	Hon'ble Appellate Tribunal of Electricity
ARR	Annual Revenue Requirement
CWIP	Capital Work in Progress
DPS	Delayed Payment Surcharge
DNW	Distribution Network
DS	Domestic Service
DS HT	Domestic Service High Tension
DVC	Damodar Valley Corporation
ETL	Electro-Technical laboratory
FAS	Financial Accounting System
FY	Financial Year
GFA	Gross Fixed Assets
GoI	Government of India
HT	High Tension
JSEB	Jharkhand State Electricity Board
JSERC	Jharkhand State Electricity Regulatory Commission
LT	Low Tension
kV	Kilovolt
kVA	Kilovolt-ampere
kW	Kilowatt
kWh	Kilowatt-hour
MU	Million Units
NTI	Non Tariff Income
O&M	Operations and Maintenance
PLR	Prime Lending Rate
PPA	Power Purchase Agreement
R&M	Repair and Maintenance
RoE	Return on Equity
SAIL	Steel Authority of India Limited
SBI	State Bank of India
SERC	State Electricity Regulatory Commission
SLM	Straight Line Method
TA	Town Administration

1. INTRODUCTION

1.1. Background

1. Steel Authority of India, a Government of India Undertaking, established a Steel Plant at Bokaro in the erstwhile Bihar, now Jharkhand in 1964. In order to provide electricity to its officers and employees, Bokaro Steel Limited (SAIL- BSL) obtained sanction under Section 28 of Electricity Act 1910 from the erstwhile Government of Bihar in 1964. Since then it has been distributing electricity to the people living in Bokaro. It was buying power from DVC, another Government of India Undertaking, under PPA. Power so purchased was distributed for plant operation as well as for distribution in Bokaro Steel City for the people staying in the area of its operation.
2. In respect of the task of maintaining the township as part of its operation, SAIL-BSL has a Town Administration Department under which there are different wings like Township Electrical, Horticulture, Water Supply, Building and Roads maintenance etc. Electricity is received from DVC at 220 kV at 220/132 kV Main Receiving Substation at Bokaro Steel plant from where it is further distributed for end use in plant and township. All the expenses for the complete electrical business have been accounted for in the Accounts of the Steel Plant right from the inception, which are then audited by Statutory Auditors and thereafter by C&AG of India. The requirement of electricity in plant, township and surrounding area, which formed its area of supply under State Government's sanction, was being provided by the plant management.
3. When Electricity Act 2003 came in to being, Electricity Act 1910 (under which the sanction was granted) was repealed. Thereafter, SAIL-BSL applied to the JSERC for distribution license. After following the due process, JSERC granted "Distribution

License” to SAIL-BSL and area of its operation was retained what was sanctioned by the then State Government.

4. The Petitioner is functioning in accordance with the provisions envisaged in the Electricity Act, 2003 and is engaged, within the framework of the Electricity Act, 2003, in the business of Distribution of Electricity to its consumers situated in its licensed area of Bokaro Steel City.
5. Section 62 of the Electricity Act 2003 requires the licensee to furnish details as may be specified by the Commission for determination of tariff. In addition, as per the Tariff Regulations issued by the Hon’ble Commission, SAIL- BSL is required to file the Petition for all reasonable expenses it believes it would incur over the next financial year and seek the approval of the Hon’ble Commission for the same. The filing is to be done based on the projections of the expected revenue and costs, which should be arrived at by a reasonable methodology adopted by the Petitioner. JSERC (Terms and Conditions for Determination of Distribution Tariff) Regulations, 2015 are applicable for the Control Period FY 2016-17 to FY 2020-21 and JSERC (Terms and Conditions for Determination of Distribution Tariff) Regulations, 2010 are applicable for the period FY 2013-14 to FY 2015-16 for considering different elements of ARR.
6. Further, Regulation 5.6 to 5.9 of the Tariff Regulations, 2015 provides that a Business Plan inter-alia containing, besides others, the Capital investment plan, Sales/Demand forecast, Power procurement, and distribution loss targets for the entire Control Period is required to be filed before the Hon’ble Commission as part of the Tariff Filings.
7. Based on the above premise, this Petition presents the Business plan of the Petitioner for the MYT Control period FY 2016-17 to FY 2020-21 depicting the future plan of action and the details of expenses projected to be incurred by SAIL-BSL for

improvement and maintenance of Distribution Network serving its consumers and for increasing the operational and commercial efficiency of the Petitioner as proposed in the present Petition.

8. It is submitted that the existing legacy of high distribution losses in several pockets of the licensed area and regulatory disallowances, have led to poor financial condition of SAIL- BSL. It is further submitted that the Petitioner is committed towards improving the electricity availability in its area of operation, while achieving the operational turnaround for a sustained business model in future. A slew of measures are being undertaken and activities are being carried out at a considerable level to achieve the goal of becoming a utility with sustainable operations.
9. The following sections of the Petition present the details of expenditure incurred and that planned for the next MYT period, the projections of Aggregate Revenue Requirement, underlying approach & methodology and rationale for proposed ARR and Tariff.

2. BUSINESS OVERVIEW

1. Bokaro Steel Plant is the fourth integrated plant in the Public Sector. The first phase of 1.7 MT ingot steel was completed in 1978 and in different phases it has further upgraded its capacity to 4.5 MT of liquid steel. The large Township of BSL is scattered in 12 sectors. The HT load of entire Bokaro Steel Township is catered from a 132 kV/11 kV Township Substation which was installed in 1965 and later it was expanded in different phases as per growth of Bokaro steel City Township. Township substation comprises of 132 kV switchyard and 11 kV indoor substation. There are 5 nos. (1x12.5MVA+ 2x15MVA+2x10MVA) 132kV/11kV transformers which have total 62.5MVA power handling capacity. Township substation receives power through 132 kV double circuit Transmission lines. There will be substantial increase in Township load demand in next five years. This demand projection calls for suitable capacity enhancement planning at Township substation and feeder augmentation to meet present peak load demand as well as future load growth of Township. Additionally, the Petitioner has planned to make investments for the purpose of providing sufficient illumination in the area.
2. Accordingly, the Petitioner intends to undertake several Capital Expenditure works as a key aspect of the expansion plan of SAIL-BSL and has planned and projected capital expenditure for the control period FY 2016-17 to FY 2020-21. Capital investment in respect of various works estimated to be undertaken during the next MYT period by SAIL- BSL is depicted in the subsequent sub-sections.

3. CAPITAL INVESTMENT PLAN

3.1. Augmentation of 132/11 kV substation

1. The HT load of entire Bokaro Steel Township is catered from a 132 kV/11 kV Township Substation. This Substation was installed in 1965 and later it was expanded in different phases as per growth of Bokaro steel City Township. Township substation comprises 132 kV switchyard and 11 kV indoor substation. There are 5 nos. 132 kV/11 kV transformers with total power handling capacity of 62.5 MVA. Township substation receives power through 132 kV double circuit Transmission lines.
2. It is submitted that owing to the efforts being made by the Petitioner, it is anticipated that there will be substantial increase in Township load demand during the next five years with connected load requirements of more than 130 MW and peak load expected at more than 80 MW. This demand projection called for suitable capacity enhancement planning at Township substation to meet present peak load demand as well as future load growth of Township.
3. In view of the increasing load requirements, the Petitioner had issued tender specifications for the purpose of design, supply, erection, testing and commissioning in respect of augmentation of 132 kV/11 kV Township substation comprising 132 kV switchyard with Hybrid EHV switchgears (outdoor GIS) and 11kV substation, substation building, new transformers and control room comprising relay & control equipment, auxiliaries, cabling, illumination, earthing & lightning protection etc.
4. The key aspects of the scope of works carried out under this investment scheme are as below:

- a. The Township substation comprises 132 kV switchyard and 11 kV indoor substation. There are 5 nos. (1x12.5MVA+ 2x15MVA+2x10MVA) 132 kV/11 kV transformers and associated 132 kV switchyard and 11 kV switchgear for evacuation of power to township load centres.
 - b. The 132kV switchyard is having single bus arrangement with two incomers without any bus coupler arrangement.
 - c. The extension of existing system by three bays for accommodating 132/11 kV, 2x25 MVA transformers and a bus-coupler.
 - d. Creation of 11 kV new section VI & section VII and replacement of old & obsolete 11kV switchgears of Section-I & section –II with new VCBs also considered in new substation building. 11kV incoming feeders from 25 MVA 132/11kV transformer shall be through 11 kV (UE) cables.
 - e. For evacuation of power at 11kV to township new load centres, 12 nos. four pole structures shall be created around periphery of switchyard.
 - f. Lighting for proposed extension of switchyard and adjacent area shall be provided by installation of High Mast lighting towers.
 - g. Proposed substation control building shall be constructed adjacent to the existing building. It shall house 11kV switchgears, control room as well as LT switchgear room, ventilation room, battery room and store room etc.
5. The work was awarded on turn-key basis to M/s Larsen and Toubro Limited in and around 2nd quarter of FY 2015-16 and has largely been completed during FY 2016-17. The work order in respect of the said works is enclosed as **Annexure A1**.

3.2. 11 kV Feeder Augmentation

1. SAIL- BSL is planning to invest a total of ₹9.00 Crore during FY 2018-19 and FY 2019-20 towards 11 kV feeder augmentation to improve power quality and reliability across the Bokaro Township. The power requirement of the Bokaro Township is on

the rise due to increased usage of electrical appliances by residents. In order to meet the increasing power demand of the consumers of Bokaro Steel township, capacity enhancement of the main step down substation (132/11 kV) has been taken up and augmentation of 11 kV distribution system of Bokaro Township has been planned during the next MYT period.

2. The substation capacity enhancement project has been executed. The augmentation of outgoing 11 kV transmission lines to load centers in various residential sectors which were not part of the sub-station up gradation project have been envisaged and appropriately depicted in its feasibility report. Through this capex work, the Petitioner intends to take out 10 out of 12 underground feeder cables from 132 kV to different sectors as specified in the Tender Specifications of works. Tender Specifications of this project have been prepared by Centre for Engg. & Technology (CET, A division of SAIL) and the total estimated cost of the proposal is ₹9.00 Crore. A notesheet in reference to the said works is enclosed as **Annexure A**.

3.3. Installation of High Mast Lighting Towers

The Petitioner had requested offers for supply and installation of the High Mast Lighting Towers through its Tender Ref. No. T&C (E)/A5849/RK/365. The technical specifications for the “Design, Manufacture, Supply, Erection, Testing and Commissioning of 20 nos. of 20/15 metre high Mast Lighting towers with fitting and Accessories in Township Area at Bokaro Steel City” were accordingly issued by the Petitioner. This work was meant to ensure illumination in the Township area. Subsequently, the order was placed to suitable vendor(s) and the work towards installation of twenty numbers of High Mast Lighting Towers was carried out during FY 2016-2017 at a cost of around ₹1.17 Crores. The Letter of Acceptance (LOA) in respect of the said works is enclosed as **Annexure B**.

3.4. Installation of LED Lamps

In view of the need to provide illumination in the township area, the Petitioner is projecting ₹40.00 lakh, ₹30.00 lakh and ₹30.00 lakh towards installation of LED lamps during FY 2017-18, FY 2018-19 and FY 2019-20 respectively.

The Capital investment plan of the Petitioner for the MYT period FY 2016-17 to FY 2020-21 is therefore summarized as below:

Table 1: Capital investment plan for the MYT period FY 2016-17 to FY 2020-21

(in ₹ Crore)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Augmentation of 132/11 kV substation	18.07	0.00	0.00	0.00	0.00
Feeder Augmentation - 11kV system	0.00	0.00	4.50	4.50	0.00
Installation of LED Lamp	0.00	0.40	0.30	0.30	0.00
High mast lighting tower	1.17	0.00	0.00	0.00	0.00
Total	19.24	0.40	4.80	4.80	0.00

4. FULFILING SOLAR POWER COMMITMENTS

SAIL as a company has committed to develop an overall capacity of 200 MW of renewable power. Bokaro Power Supply Company Ltd. (a joint venture of SAIL & DVC) has been entrusted with the responsibility of installing medium and large capacity solar power units in and around the SAIL- BSL township. It has been decided to initially utilize the roof top spaces at buildings such as Ispat Bhawan, Bokaro Niwas, General hospital etc. for installation of solar power panels. The work for installation of a 2 MW roof top plant has already been awarded and the activities towards its construction have commenced. Similarly, BPSCL has been granted approval by SAIL- BSL to develop another 20 MW solar power project at Bokaro for 100 % captive use by SAIL- BSL. The power generated from this solar power plant will be evacuated through the 11 kV transmission lines to be laid under this project from solar power plant to the township. This project will further help the Petitioner in developing its Renewable energy portfolio. The process for land acquisition is underway and the same is expected to be completed in due course of time.

5. DISTRIBUTION LOSS TARGETS AND MITIGATION EFFORTS

1. Regulation 5.23 of the Tariff Regulations, 2015 provides the following in respect of the distribution loss targets:

"5.23 The Licensee shall file the distribution loss trajectory for the entire Control Period in the Business Plan commensurate with the capital investment plan for each year of the control period for approval of the Commission after verification and evaluation of the same.

The Licensee shall be allowed to operate at below 5% audited distribution loss without any incentive/ penalty mechanism."

2. Regulation 5.23 of JSERC Terms and for Distribution Tariff) Regulation, 2015 provides that the Licensee shall be allowed to operate with relaxed distribution losses to the tune of 5% of the audited values. It is submitted that despite its best efforts, SAIL- BSL is finding it hard to meet the loss levels as desired by the Hon'ble Commission and as deemed suitable for the sustainable operation of the Licensee.
3. The actual distribution losses for FY 2013-14, 2014-15 and 2015-16 are 52.50%, 51.93% and 42.43% respectively. The key reason behind the significantly high distribution losses is theft of electricity through unauthorized means in the rural areas. It is submitted that the Petitioner has made several efforts to control such unauthorized usage of electricity. The key initiatives in this regard are listed below:
 - a) Formation of groups and roster wise site visits to check illegal connections and hooking in local areas.
 - b) Formation of teams jointly with the District police to launch massive drives to curb illegal power theft.

- c) Routine visits by senior officials in high theft prone areas.

Further, the issues encountered and the steps undertaken by the Petitioner have been explained in detail as below:

- a) There are several illegal possessions of the locals, and these illegal occupants do not have electricity connection. The Petitioner has not released connections to such illegal habitants, since that would tantamount to giving them a legal right to the occupied place. So, they have been consuming electricity through hooking and illegal tappings. It may be further noted that there are some areas which even though do not come under the Licensed area of SAIL- BSL, have been consuming electricity through hooking from SAIL- BSL's distribution system. These local people are supposed to use distribution system of Jharkhand Bijli Vitran Nigam Limited (JBVNL) but due to contiguousness of the area of supply with JBVNL, they have been illegally using the distribution system of SAIL- BSL despite several efforts made to control such theft of electricity. Subsequently, the officers of SAIL- BSL have disconnected such illegal connections and JBVNL had provided connections to such consumers which fall under its area of supply.
- b) It is further submitted that TA-electrical has been conducting time bound raids under various initiatives to identify illegal connections and hookings in different areas. However, the teams deployed for such purposes have been seriously manhandled in a number of cases. Similarly, the Police personnel accompanying the SAIL officers have also faced the brunt of the people consuming through illegal means.
- c) In an instance of vigilance conducted in Bharra Basti, around 7000 illegal connections estimated to cause a revenue loss of around Rs 50,000 per day to SAIL- BSL, were disconnected. This has been covered in several local media report viz. <http://www.dailypioneer.com/state-editions/ranchi/eight-including-5->

[cops-hurt-in-bokaro-clash.html](#) . This was one of the biggest operations conducted so far after meticulous planning with support of Police personnel and resulted in unearthing more than 20 electricity poles, half a dozen feeders and thousands of meters of wire which were being used illegally for power theft. However, whenever the Petitioner has tried to take corrective action in such instances, the local people have hurled stones, wielded rods, swords hurting the accompanying policemen, BSL guards and the employees. Newspaper articles have been enclosed in support of the claims made herein.

4. It is submitted that despite the efforts made by the Petitioner to curb theft and illegal tappings, the distribution loss in the form unauthorized usage remains largely unmitigated. In another instance of site visit, the police personnel had to charge rounds of tear gas to disperse the huge mob gathered to protest against the drive conducted by the Petitioner and pelt stones at the convoy of Petitioner company.
5. It is reiterated that the Petitioner is striving hard to reduce distribution losses and has been timely introducing new initiatives to check the same, but on an overall basis the situation is largely uncontrollable due to legacy issues. It is further submitted that the Petitioner is committed to reduce the losses and has been taking concrete steps for the same. However, such reduction may only be achieved in a gradual fashion.
6. The Hon'ble Commission has set the distribution loss target for the Petitioner in Regulation 5.23 of the Tariff Regulations, 2010 as depicted below:-

Table 2: Distribution loss trajectory as per norms in Tariff Regulations, 2010

2011-12	2012-13	2013-14	2014-15	2015-16
17%	15%	13%	11%	10%

7. In view of the aforesaid reasons submitted by the Petitioner, it is prayed that since the above trajectory set for reducing the distribution loss is very stringent, and difficult to

adhere to, the Hon'ble Commission may kindly relax the norms and approve the actual distribution losses for FY 2013-14 to FY 2015-16 as per the audited accounts and the following loss trajectory for the Control period FY 2016-17 to FY 2020-21:

Table 3: Projected Distribution loss during the MYT Period

2016-17	2017-18	2018-19	2019-20	2020-21
42.00%	32.00%	24.00%	16.00%	10.00%

8. It is requested that the Hon'ble Commission allows the aforesaid trajectory in view of the efforts and initiatives undertaken by the Petitioner towards the same. Further evidences on the steps taken by the Petitioner towards loss reduction efforts have been elaborated in the **Annexure C and D**.

6. ENERGY SALES/CONSUMPTION PROJECTIONS

Sales during previous years

SAIL- BSL is procuring electricity for consumption in the Steel Plant as well as for sale to the township. It is submitted that SAIL- BSL was drawing power at 132 kV level up to December 2016 and thereafter the power is being drawn at 220 kV level. The 220/132 kV sub-station is maintained by DNW which further distributes power to Plant and township through different feeders. Power purchase for the purpose of meeting the requirements of plant and Revenue from such consumption of power by the plant has not been considered as part of the ARR, as the rate at which power is sold to the plant is same as the power purchase rate from DVC. The purchase and sale of power for the Steel Plant is revenue neutral. It is humbly submitted before the Hon'ble Commission that the power consumption of the Steel Plant is the self consumption of the Petitioner and not the power sale at HTS tariff. In the previous order dated 3.9.2014, the Hon'ble Commission, considering the Plant consumption also in the power purchase, energy sales and revenue requirements, had determined the ARR of the Petitioner which had inadvertently resulted in surplus with the Petitioner, while in actual terms, there was no surplus on account of sale of power to the Plant since the sale rate is accounted at the power purchase rate for the Steel Plant.

Energy consumption in the Steel Plant during FY 2013-14 to FY 2015-16 as per the audited data is shown below:-

Table 4: Actual energy consumption by the Steel Plant

Category	Unit	2013-14	2014-15	2015-16
Consumption by the Plant	MUs	779.12	771.77	454.91

The category-wise no. of consumers, connected load and energy sales to the Township as per the actual audited figures for FY 2013-14 to FY 2015-16 are given in the table below:

Table 5: Actual No. of consumers in the Township

Category	Units	2013-14	2014-15	2015-16
DS-II	Nos.	36677	37621	33080
DS-III	Nos.	12	11	11
DS-HT	Nos.	5	5	5
LTIS	Nos.	35	35	35
NDS	Nos.	1686	1715	1759
HTS-11 kV	Nos.	5	7	7
HT/LT Utilities	Nos.	656	656	656

Table 6: Actual connected load in the Township

Category	Unit	2013-14	2014-15	2015-16
DS-II	kW	91692.5	94053	84777.5
DS-III	kW	321	321	321
DS-HT	kVA	4815	4815	4815
LTIS	HP	985	1017	1017
NDS	kW	11366	11822	13132
HTS-11 kV	kVA	2163	5125	3097
HT/LT Utilities	kW	26891	26891	26891

Table 7: Actual energy sales in the Township (MU)

Category	2013-14	2014-15	2015-16
DS-II	80.21	84.26	101.71
DS-III	1.06	1.21	6.43
DS-HT	5.73	5.99	6.2
LTIS	0.46	0.55	0.5
NDS	10.64	12.71	14.53
HTS-11 kV	4.42	5.67	9.2
HT/LT Utilities	46.78	48.17	50.17
Total Sales	149.31	158.56	188.74

The following key observations can be made from the above tables:

1. The billed consumption has increased at a 4 yr CAGR of 7.07 % in domestic category, 6.99 % in non-domestic category, and around 37 % in HTS categories and the total billed consumption has increased at a CAGR of 6.03% during the past three years.
2. In view of the increasing power requirements, SAIL- BSL has been making constant efforts to reduce the distribution losses so that maximum power being purchased can be utilized to service the increasing load requirements within the state. For instance, losses have been reduced from 52.49 % to 42.43 % between FY 2013-14 and FY 2015-16. In the longer run, the losses will be stabilized and thereafter actual energy input in the system will increase at a higher pace, in line with the improvements in life style of consumers with enhanced dependence on air-conditioning etc.
3. It is further submitted that due to higher penetration of electronic appliances including air-conditioners and geysers etc. in the recent years, the demand is further poised to increase. The increase in urban demand along with the loss reduction efforts being undertaken with special emphasis in the rural areas, it is estimated that the Licensee will be able to serve a much larger base of consumers in the coming period.
4. The long-term projections for energy requirements depend on the growth of economy, growth of population, the progress of energy conservation, increase in energy efficiency as well as societal and lifestyle changes. Without any doubt, the various methodologies adopted for projections will give different results. Nevertheless, it is useful to have a set of consistent projections with clearly stated assumptions to outline a framework for forecasting demand.
5. The methodology adopted by the Petitioner to project the sales during the next MYT period is outlined below:
 - a. 4 year CAGR is computed for sales in all the categories;
 - b. Where the CAGR is (+), the same is considered for the purpose of projection;

- c. Where the CAGR is (-), no increase is considered for projections;
- d. With the enhanced efforts of the Petitioner towards theft reduction and improvement in the quality of supply, the sales is not projected to reduce during the forthcoming period;
- e. Impact of externalities is captured through appropriate reduction/increase in the CAGR rate, as necessary.

It is submitted that based on the data available with the Petitioner, the aforesaid approach to project sales may be the best possible approach yielding closest possible results. Any deviations in the actual numbers may be considered while truing up for the years.

Sales Forecast during the Control Period FY 2016-17 to FY 2020-21

1. Plant Supply:- The consumption by the Steel Plant has been projected separately, since the Steel Plant's consumption is at 220 kV and owing to negligible losses at such level, the rate at which energy is consumed by the Steel Plant is accounted for at the rate of power purchase from DVC. It is reiterated and requested to the Hon'ble Commission to not consider the energy consumption of the Steel Plant as sale of power at HTS tariff. Energy sales, power purchase cost and revenue from sale of power is projected as follows:-

Table 8: Projections for consumption by the Steel Plant

Category	Units	2016-17	2017-18	2018-19	2019-20	2020-21
Steel Plant consumption	MUs	458.46	462.03	465.64	469.27	472.93
Per unit power purchase cost	₹/kWh	5.31	5.60	5.51	5.92	5.97
Power Purchase Cost - Plant consumption	₹ Crore	243.52	258.87	256.49	277.81	282.52

2. Sales projections for the Township: The Petitioner has proposed to shift around 3000 consumers from DS II category to DS III category. Certain private schools, hotels, Banks and small industries are expected to come into HT 11 kV. Such shift from one category to another has been projected in view of the expected change in the number of consumers and connected load in the licensed area of supply of the Petitioner.

3. For projecting the Sales in other categories, the existing no. of consumers have been projected to increase/decrease based on 4 year CAGR of previous years. Similarly, the connected load is also projected to increase/decrease based on the load per consumer. It may be pointed out that appropriate adjustments have been done to capture shift of consumers and respective loads from one category to another. Based on the projected sales and load, the energy sales have been projected. The projections in respect of the no. of consumers, connected load and the energy sales are as follows:

Table 9: Projected No. of Consumers during the MYT Period (Nos.)

Category	2016-17	2017-18	2018-19	2019-20	2020-21
DS-II	33338	30598	30837	31078	31321
DS-III	11	3011	3011	3011	3011
DS-HT	8	11	14	17	20
LTIS	35	35	35	35	35
NDS	1773	1787	1801	1816	1831
HTS-11 kV	11	15	20	20	20
HT/LT Utilities	656	656	656	656	656

Table 10: Projected Connected Load during the MYT Period

Category	Unit	2016-17	2017-18	2018-19	2019-20	2020-21
DS-II	kW	85438.70	78416.62	79029.13	79646.77	80269.53
DS-III	kW	321.00	7343.08	7343.08	7343.08	7343.08
DS-HT	kVA	7704.00	10593.00	13482.00	16371.00	19260.00
LTIS	HP	1017.00	1017.00	1017.00	1017.00	1017.00

Category	Unit	2016-17	2017-18	2018-19	2019-20	2020-21
NDS	kW	13236.52	13341.04	13445.56	13557.54	13669.52
HTS-11 kV	kVA	4866.71	6636.43	8848.57	8848.57	8848.57
HT/LT Utilities	kW	26891	26891	26891	26891	26891

- The total units to be billed in FY 2016-17 are estimated at 205.31 MUs against a billing of 188.74 MUs in the FY 2015-16. This reflects an increase of 8.78 % over the FY 2015-16.
- For the Control Period FY 2016-17 to FY 2020-21, the sales are estimated to increase from 205.31 MUs to 291.65 MUs. This entails a CAGR increase in sales of around 9.17 % during the Control Period.
- The category wise increase (%) in sales is estimated as below after considering the 4 year CAGR. The increase in billing during the Control Period FY 2016-17 to FY 2020-21 is also on higher side due to higher billing efficiency expected in the coming years.

Table 11: Projected Energy Sales during the MYT Period (MU)

Category	2016-17	2017-18	2018-19	2019-20	2020-21
DS-II (Less than 200 units)	80.22	73.63	82.34	92.08	102.98
DS-II (More than 200 units)	33.52	37.48	41.92	46.88	52.42
DS-III	6.43	13.02	13.12	13.23	13.33
DS-HT	6.27	6.35	6.43	6.50	6.58
LTIS	0.50	0.50	0.50	0.50	0.50
NDS	15.55	16.63	17.79	19.04	20.37
HTS-11 kV	12.65	17.41	23.94	32.93	45.30
HT/LT Utilities	50.17	50.17	50.17	50.17	50.17
Total Sales	205.31	215.19	236.22	261.33	291.65

7. ENERGY BALANCE

1. The Energy Balance of SAIL-BSL for the control period FY 2016-17 to FY 2020-21 which is based on the projected Energy Purchase and Sales based on the proposed trajectory of distribution losses is shown in the table below.

Table 12: Projected Energy Balance during the MYT Period

Particulars	Unit	2016-17	2017-18	2018-19	2019-20	2020-21
Energy Sales – Township	MUs	205.31	215.19	236.22	261.33	291.65
Distribution Losses	%	42.00%	32.00%	24.00%	16.00%	10.00%
Energy required at township periphery	MUs	353.99	316.46	310.81	311.11	324.05
Steel Plant consumption	MUs	458.46	462.03	465.64	469.27	472.93
Total Energy Required at SAIL- BSL Periphery	MUs	812.45	778.49	776.45	780.37	796.98

2. The trajectory of Distribution Loss levels is consistent with the initiatives planned during the control period to minimize the losses. With the increase in network spread, increase in load on the existing distribution system and increase in number of low tension consumers in the system, the Distribution Losses would tend to increase.
3. It is however reiterated that SAIL-BSL shall demonstrate its commitment towards minimizing the distribution losses to the best possible level approaching technical limits.

8. ESTIMATION OF ARR FOR THE CONTROL PERIOD

8.1. Power Purchase Cost

1. SAIL- BSL has been purchasing power from DVC under a contractually binding PPA. DVC, a central PSU, is a power generating company under aegis of Government of India and supplies power to SAIL- BSL in accordance with the tariff fixed by the State Commission.
2. SAIL-BSL has been able to cater to its systems energy requirement from the power available from DVC even under intermittent supply conditions. SAIL- BSL has filed a Petition in Case No. 07 of 2016 praying for exemption from RPO compliance justifying that the power purchased from DVC in essence covers the Renewable purchase obligation of SAIL- BSL also. The proceedings in the above matter are underway and thus the Petitioner has not projected any power from any renewable sources.
3. The energy purchased by SAIL Bokaro in last three years from DVC in total is as under:

Table 13: Actual power purchased during last three years

Particulars	Unit	2013-14	2014-15	2015-16
Total Power Purchase	MUs	1093.42	1101.67	782.74
Power Purchase – Township	MUs	314.30	329.90	327.83
Power Purchase – Plant	MUs	779.12	771.77	454.91
Per unit power purchase cost	₹/kWh	3.48	4.23	4.57
Total Power Purchase Cost	₹ Crore	380.19	466.36	357.88
Power Purchase Cost - Township	₹ Crore	109.29	139.66	149.89
Power Purchase Cost - Plant	₹ Crore	270.91	326.71	207.99

4. In view of the sales projected in the previous paras, the power purchase requirements have been worked out as below:

Table 14: Projected power purchase during the MYT Period

Particulars	Unit	2016-17	2017-18	2018-19	2019-20	2020-21
Total Power Purchase	MUs	812.45	778.49	776.45	780.37	796.98
Power Purchase - Township	MUs	353.99	316.46	310.81	311.11	324.05
Power Purchase - Plant	MUs	458.46	462.03	465.64	469.27	472.93
Per unit power purchase cost	₹/kWh	5.31	5.60	5.51	5.92	5.97
Total Power Purchase Cost	₹ Crore	431.56	436.19	427.70	461.98	476.10
Power Purchase Cost - Township	₹ Crore	188.03	177.31	171.21	184.18	193.58
Power Purchase Cost - Plant consumption	₹ Crore	243.52	258.87	256.49	277.81	282.52

5. The power purchase rates have been considered as submitted by DVC in its MYT Petition filed before the Hon'ble State Commission for the MYT Period FY 2016-17 to FY 2020-21.

8.2. Operation and Maintenance Costs

SAIL- BSL has integrated its various processes relating to inventory management, procurement and contracts, project management, Human Resources viz. payroll, leave management, performance management and finance & accounts through implementation of Enterprise Resource Planning (ERP) Software which has brought about a positive paradigm shift in the manner in which business is conducted. All transactions related to the above processes are conducted online thus bringing about a quantum improvement in efficiency and eliminating time consuming manual or repetitive transactions while enhancing the checks and balances that are so necessary now a days.

The Hon'ble Commission has defined O&M expenses in the Tariff Regulations, 2015 as a sum of:

- Employee Cost

- Administrative and General (A & G) Expenses
- Repair and Maintenance (R&M) Expenses

1. Regulations 6.5 and 6.6 of the Tariff Regulations, 2015 describe O&M expenses as follows:

"6.4 The O&M expenses for the Base Year of the Control Period shall be approved by the Commission taking into account the audited accounts, business plan filed by the Licensees, estimates of the actual for the Base Year, prudence check and any other factor considered appropriate by the Commission;

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:

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

Where,

R&M_n – Repair and Maintenance Costs of the Licensee for the nth year;

EMP_n – Employee Costs of the Licensee for the nth year excluding terminal liabilities;

A&G_n – Administrative and General Costs of the Licensee for the nth year;

X_n – is an efficiency factor for nth year. The value of X_n will be determined by the Commission in its first MYT order for the Control Period;

6.6 The above components shall be computed in the manner specified below:

*a) $R\&M_n = K * GFA$*

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;

'GFA' is the opening value of the gross fixed asset of the nth year;

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

Where,

INDX_n – Inflation factor to be used for indexing the employee cost and A&G cost. This will be a combination of the Consumer Price Index (CPI) and the Wholesale Price Index (WPI) for immediately preceding year before the base year;

G_n – Increase in Employee Expenses in nth year due to increase in consumer base/load growth. Value of G for each year of the Control Period shall be determined by the Commission in the MYT Tariff order based on Licensee's filing, benchmarking with the efficient utilities, actual cost incurred by the licensee due to increase in consumer base/load growth in past, and any other factor considered appropriate by the Commission;

$$c) \text{INDX}_n = 0.55 * \text{CPI}_n + 0.45 * \text{WPI}_n;"$$

2. It is submitted that the Employee costs are dependent upon many factors, such as the growth in economy in general and the sector in particular, requirement and availability of personnel with the requisite skill sets, etc. It may be further appreciated that in order to obtain commitment from the personnel, outstanding performance, loyalty, etc., which are a critical pre-requisites for any organization, especially a service utility, the organization must meet the rational needs of the personnel. As is well known, market equivalent salaries and growth are hygiene factors in employees' need hierarchy and it is imperative to meet these as a first step towards building a committed, loyal and performing work-force. The Petitioner has made its projections for the next Control Period in view of the aforesaid aspects.
3. The Base Year in the present filing is FY 2015-16. For the purpose of projecting different components of the O&M expenses viz. value of k for projecting R&M expense, inflation factor for projecting Employee and A & G expense, the actual expenditure of FY 2015-16 as the Base year and the expenditure/ values of FY 2014-15 as the previous year has been considered in the present filing.
4. Employee expenses are projected based on Regulation 6.6(b) of the Tariff Regulations, 2015. The escalation factor has been estimated in line with Regulation 6.6 (c) whereby the Wholesale Price Index (WPI) and Consumer Price Index (CPI) for a period of 2 years have been computed and a weighted average rate has been arrived at by giving 45% weightage to WPI and 55% weightage to CPI. Inflation factor has been computed as per applicable rates of WPI and CPI and is arrived at 4.36%. However, owing to the expected impact of 7th Pay Commission, it is requested

that the Hon'ble Commission may provide for an additional escalation for FY 2016-17 at 15%. The impact of the impending wage revision which is to be implemented in the control period FY 2016-17 to FY 2020-21 is proposed to be incorporated in the Employee costs as part of the O&M Costs and be treated as Uncontrollable Expenses.

5. The R&M expenditure incurred by the licensee is a function of the network condition of the licensee. The network condition would depend on the condition of the assets and subsequent augmentation/ strengthening/ capex undertaken by the Licensee. Benchmarking with other utilities in other State jurisdictions for the R&M expenditure therefore may not provide an appropriate indication. The K factor need to be customized for each licensee considering the above and may vary across years based on the capital expenditure in the previous years together with expenditure incurred during the year. R&M expenses are projected based on Regulation 6.6(a) of the Tariff Regulations, 2015.
6. It is pertinent to submit that mere indexation without adjusting the same for increase in level of activity, such as increase in number of consumers, amount of energy handled, may not be appropriate. Further, subsequent years projections need to be adjusted for any new initiatives or certain expenses that may have been deferred in the earlier years.
7. Hence the employee & A&G expenses in addition to linkage to inflation index should be linked to the change in the level of activity i.e. load growth, increase in billing, no. of consumers etc. In line with the Regulation 6.6 (b) and (c) the A&G expenses have been projected, with figures of FY 2014-15 being the base for arriving A&G expenses for FY 2015-16 and for the MYT control period.
8. The details of total O&M expenses inclusive of Employee, R&M and A&G expenses are provided in the table below.

Table 15: Projected O&M Expenses during the MYT Period

(in ₹ Crore)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Employee Expenses	11.82	12.34	12.88	13.44	14.02
R & M Expenses	4.23	5.08	6.10	7.32	8.80
A & G Expenses	2.35	2.46	2.56	2.67	2.79
Total O&M Expenses	18.40	19.87	21.54	23.44	25.61

8.3. Gross Fixed Assets (GFA) for the MYT Period FY 2016-17 to FY 2020-21

Based on the Capital expenditure plan presented in the earlier chapter and the Gross Fixed Asset arrived at the end of FY 2015-16, the GFA projected for the Control period FY 2016-17 to FY 2019-20 is depicted in the table below:

Table 16: Gross Fixed Assets for the MYT Period

(in ₹ Crore)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Opening GFA	18.58	37.82	38.22	43.02	47.82
Additional capital expenditure	19.24	0.40	4.80	4.80	0.00
Closing GFA	37.82	38.22	43.02	47.82	47.82

8.4. Depreciation

The details of capitalization / amount of capital expenditure transferred to GFA in each of the financial year have been detailed out in earlier chapters of this business plan. The projection of depreciation considers the Gross Fixed Assets as per the closing balance of FY 2015-16. Based on the closing GFA of FY 2015-16, the additions in GFA for the MYT control period have been added to arrive at the closing GFA figures for the MYT control period.

The depreciation rate has been considered as per the depreciation rates provided in the Appendix 1 of the Tariff Regulations, 2015. The computation of depreciation is based on Straight Line Method as prescribed in the Tariff Regulations issued by the Hon'ble Commission. Accordingly, the projected Depreciation for Control period FY 2016-17 to FY 2020-21 has been outlined in the table below.

Table 17: Projected Depreciation for the MYT Period

(in ₹ Crore)

Particulars	2016-17	2017-18	2018-19	2019-20	2019-20
Opening Gross Block	18.58	37.82	38.22	43.02	47.82
Additional Capitalisation	19.24	0.40	4.80	4.80	0.00
Closing Gross Block	37.82	38.22	43.02	47.82	47.82
Average Gross Block	28.20	38.02	40.62	45.42	47.82
Depreciation	1.76	1.79	2.12	2.30	2.30

8.5. Interest on Loan

SAIL- BSL has invested around ₹19.24 Crores so far and further intends to invest around ₹10.00 Crores during the MYT period FY 2016-17 to FY 2020-21 in the distribution infrastructure, as detailed in the business plan. These expenditure items are to be funded by SAIL- BSL on its own and for the additional capital expenditure up to FY 2020-21, the debt:equity ratio of 70:30 has been considered in accordance with the Tariff Regulations, 2015.

The debt schedule has been prepared considering the figure of closing debt as per the schedule of FY 2015-16. Regulation 6.24 of the Tariff Regulations, 2015 provides as below:

“6.24 The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year applicable to the project:

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

Provided further that if the licensee does not have actual loan, then the weighted average rate of interest of the licensee as a whole shall be considered:

Provided further, in case of new licensee commencing its operation after the date of effectiveness of these Regulations, and which doesn't has actual loan portfolio, the rate of interest shall be considered on normative basis and shall be equal to the Base rate of State Bank of India plus 200 basis points as on the date on which the distribution licensee is declared under commercial operation.

Provided that in case of normative debt, the rate of interest shall be equal to base rate of SBI plus 200 basis points as applicable on 1st April of the relevant financial year.”

Therefore, for the purpose of estimating interest on loan, a rate of interest of 11.30% has been considered. The detailed debt schedule and interest on debt has been provided in the table below:

Table 18: Projected Interest on Loan for the MYT Period

(in ₹ Crore)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Net Loan-Opening	13.01	26.47	26.75	30.11	33.47
Additions	13.47	0.28	3.36	3.36	0.00
Repayment during the year	1.76	1.79	2.12	2.30	2.30
Net Loan-Closing	24.71	24.97	27.99	31.17	31.17
Average Loan	18.86	25.72	27.37	30.64	32.32
Weighted Average Rate of Interest on Loan (%)	11.30%	11.30%	11.30%	11.30%	11.30%
Interest on Loan	2.13	2.91	3.09	3.46	3.65

8.6. Interest on Working Capital

Regulations 6.29 and 6.30 of Tariff Regulations, 2015 provide for estimation of working capital requirement and interest thereof. In line with the above Regulations, the working

capital requirement of SAIL- BSL has been estimated for the MYT control period, with the following components:

- a) One-twelfth of the amount of Operation and Maintenance expenses for retail supply business for such financial year; plus
- b) Maintenance spares at 1% of Opening GFA of wheeling business; plus
- c) Two months equivalent of the expected revenue from wheeling charges at the prevailing tariffs; minus
- d) 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
- e) One month equivalent of cost of power purchased, based on the annual power procurement plan.

Based on the above, the working capital requirement has been estimated and the interest rate of 12.80 % has been applied to arrive at the interest on working capital. The Regulation 6.31 provides for rate of interest on working capital to be equal to SBI base rate, which is prevailing at 9.30% plus 350 basis points, thus totaling to 12.80 %. The details of working capital and interest are provided in the table below:

Table 19: Projected Interest on Working Capital for the MYT Period

(in ₹ Crore)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
1/12 of O&M expenses	1.53	1.66	1.79	1.95	2.13
Maintenance spares 1% of GFA	0.19	0.38	0.38	0.43	0.48
2 Months Revenue	35.74	34.40	33.77	36.41	38.43
Less: 1 month of power purchase cost	15.67	14.78	14.27	15.35	16.13
Working capital	21.79	21.66	21.68	23.45	24.91
Interest rate	12.80%	12.80%	12.80%	12.80%	12.80%
Interest on working capital	2.79	2.77	2.78	3.00	3.19

8.7. Return on Equity

As discussed in previous chapters, the capital investments of SAIL- BSL shall be funded by itself under various plans and thus equity portion to the extent of 30% of remaining capital investment plan has been considered.

The rate of return on equity has been considered in line with the Regulation 6.17 of the Tariff Regulations, 2015, considering the projects to be completed on time. The details of projected equity capital to be employed and the estimated return on equity are provided in the table below:

Table 20: Projected Return on Equity for the MYT Period

(in ₹ Crore)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Opening Equity	5.57	11.35	11.47	12.91	14.35
Additions	5.77	0.12	1.44	1.44	0.00
Closing equity	11.35	11.47	12.91	14.35	14.35
Average Equity	8.46	11.41	12.19	13.63	14.35
Rate of Return	15.50%	15.50%	15.50%	15.50%	15.50%
Return on Equity	1.31	1.77	1.89	2.11	2.22

8.8. Bad Debts

As the measure of loss reduction during the MYT Control Period is AT&C loss which includes collection inefficiency, setting of any targets for provisioning of Bad Debts would not be of much significance. Further, target collection efficiency has been kept at 100 % of billing in accordance with Regulation 5.24 of the Tariff Regulations, 2015.

8.9. Summary of ARR - Control period FY 2016-2017 to FY 2020-21

Based on the above discussions, the table below summarizes SAIL-BSL's provisional Aggregate Revenue Requirement for the Control period FY 2016-17 to FY 2020-21.

(in ₹ Crore)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Power Purchase Cost	188.03	177.31	171.21	184.18	193.58
Employee Expenses	11.82	12.34	12.88	13.44	14.02
R&M Expenses	4.23	5.08	6.10	7.32	8.80
A&G Expenses	2.35	2.46	2.56	2.67	2.79
Depreciation	1.76	1.79	2.12	2.30	2.30
Interest on Loan	2.13	2.91	3.09	3.46	3.65
Return on Equity	1.31	1.77	1.89	2.11	2.22
Interest on Working Capital	2.79	2.77	2.78	3.00	3.19
Annual Revenue Requirement	214.43	206.42	202.62	218.49	230.56

9. QUALITY OF SUPPLY AND SERVICES

The Petitioner has prepared a 'Contingency Plan for restoration of power' wherein stepwise approach has been framed to restore power supply at different instances of events. Besides other details, the plan consists of aspects such as damage report preparation, preventive actions to be taken, priority wise feeder restoration, deployment of officers and availability of vehicles etc. The brief of the plan is annexed as **Annexure E**.

Further, the Petitioner has set objectives and targets in accordance with ISO 9001:2015 Quality Management System for the next MYT period. **Annexure F** is enclosed in this regard. The key features of these objectives and targets are as below:

Sl. No.	Objectives	Targets (FY 2016-17)
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Sl. No.	Objectives	Targets (FY 2016-17)
1	A. 'No -Light' complaint in general to be attended between 8 AM to 10 PM same day. B. 'No -Light' complaint due to failure of Transformers and Feeder cables etc. within 24hrs.	100%
2	10% reduction in no. of No-Light complaints with respect to the previous year's complaints	13,830
3	6% reduction in no. of General complaints with respect to the previous year's complaints	35,185
4	5% reduction in breakdown of Transformers	47

**No-Light - The minimum criteria for 'No-Light' is that there should be no electricity in the whole premises of an occupant. Moreover it extends to no electricity in a block, more than a block, a sub-sector or area and a complete sector or area. Partial failure of Electricity in a Quarter is beyond the purview of 'No-Light'*

Similarly, steps are being taken to adhere with the industry-wide standards of performance for other parameters also.