Jharkhand State Electricity Regulatory Commission

Order on
Approval of Business Plan
And
ARR for MYT Control Period
FY 2016-17 to FY 2020-21
And
Transmission and SLDC Tariff for
FY 2016-17
for
Jharkhand Urja Sancharan Nigam Ltd
(JUSNL)

Ranchi

February 2018

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List of Abbreviations

Abbreviation	Description
A&G	Administrative and General
ARR	Aggregate Revenue Requirement
Cr.	Crores
CWIP	Capital Work in Progress
DVC	Damodar Valley Corporation
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
JBVNL	Jharkhand Bijli Vitaran Nigam Limited
JUSNL	Jharkhand Urja Sancharan Nigam Limited
JUVNL	Jharkhand Urja Vikas Nigam Limited
JUUNL	Jharkhand Urja Utpadan Nigam Limited
LT	Low Tension
MU	Million Units
MYT	Multi Year Tariff
NFA	Net Fixed Assets
NTI	Non-Tariff Income
O&M	Operations and Maintenance
PFA	Power For All
PLR	Prime Lending Rate
R&M	Repair and Maintenance
RoE	Return on Equity
Rs	Rupees
SBI	State Bank of India
SLM	Straight Line Method

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BEFORE

Jharkhand State Electricity Regulatory Commission, Ranchi

Case No.: 17 of 2016 & 03 of 2017

In the matter of:

Petitions for the approval of Business Plan for MYT Control Period FY 2016-17 to FY 2020-21

And

Determination of ARR for the MYT Control Period

FY 2016-17 to FY 2020-21

And

Transmission & SLDC Tariff for FY 2016-17

In the matter:

Jharkhand Urja Sancharan Nigam Limited (JUSNL),
Dhurwa, HEC, Ranchi ……….....………………… Petitioner

PRESENT

Hon'ble Dr. Arbind Prasad - Chairperson

Hon'ble Mr. R.N. Singh - Member (Engg.)

Order dated 24th February 2018

In this Petition, Jharkhand Urja Sancharan Nigam Limited (hereinafter referred to as JUSNL) has prayed for approval of Business Plan for MYT Control Period FY 2016-17 to FY 2020-21 and determination of Aggregate Revenue Requirement for the MYT Control Period FY 2016-17 to FY 2020-21 and Tariff for FY 2016-17 for the Transmission & SLDC business.

A1: INTRODUCTION

Jharkhand State Electricity Regulatory Commission (JSERC)

1.1 The Jharkhand State Electricity Regulatory Commission (hereinafter referred to as "JSERC" or "the Commission") was established by the Government of Jharkhand under Section 17 of the Electricity Regulatory Commission Act, 1998 on August 22, 2002. The Commission became operational with effect from April 24, 2003.

1.2 The Government of Jharkhand vide its notification dated August 22, 2002 defined the functions of JSERC as per Section 22 of the Electricity Regulatory Commission Act, 1998 to be the following, namely:-

a) to determine the tariff for electricity, wholesale, bulk, grid or retail, as the case may be, in the manner provided in Section 29;

b) to determine the tariff payable for the use of the transmission facilities in the manner provided in Section 29;

c) to regulate power purchase and procurement process of the transmission utilities and distribution utilities including the price at which the power shall be procured from the generating companies, generating stations or from other sources for transmission, sale, distribution and supply in the State;

d) to promote competition, efficiency and economy in the activities of the electricity industry to achieve the objects and purposes of this Act.

1.3 After the Electricity Act, 2003 came into force, the earlier Electricity Regulatory Commission Act of 1998 stands repealed and the JSERC is discharging its functions as prescribed in Section 86 of the Act.

1.4 In accordance with provisions of the said Act, the JSERC discharges the following functions: -

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;

b) regulate electricity purchase and procurement process of distribution licensees including the price at which electricity shall be procured from the generating companies or licensees or from other sources through agreements for purchase of power for distribution and supply within the State;

c) facilitate intra-state transmission and wheeling of electricity;

d) issue licences to persons seeking to act as transmission licensees, distribution licensees and electricity traders with respect to their operations within the State;

e) promote cogeneration and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee;

f) adjudicate upon the disputes between the licensees and generating companies; and to refer any dispute for arbitration;

g) levy fee for the purposes of this Act;

h) specify State Grid Code consistent with the Grid Code specified under Clause (h) of sub-section (1) of Section 79;

i) specify or enforce standards with respect to quality, continuity and reliability of service by licensees;

j) fix the trading margin in the intra-state trading of electricity, if considered, necessary;

k) discharge such other functions as may be assigned to it under this Act.

1.5 The Commission advises the State Government on all or any of the following matters, namely:-

a) promotion of competition, efficiency and economy in activities of the electricity industry;

b) promotion of investment in electricity industry;

c) reorganisation and restructuring of electricity industry in the State;

d) matters concerning generation, transmission, distribution and trading of electricity or any other matter referred to the State Commission by that Government.

1.6 The State Commission ensures transparency while exercising its powers and discharging its functions.

1.7 In discharge of its functions, the State Commission is guided by the National Tariff Policy framed and published by Government of India under the provisions of Section 3 of the Act. The objectives of the present National Tariff Policy are to:

a) ensure availability of electricity to consumers at reasonable and competitive rates;

b) ensure financial viability of the sector and attract investments;

c) promote transparency, consistency and predictability in regulatory approaches across jurisdictions and minimize perceptions of regulatory risks;

d) promote competition, efficiency in operations and improvement in quality of supply.

The Petitioner - Jharkhand Urja Sancharan Nigam Ltd

1.8 The erstwhile Jharkhand State Electricity Board (JSEB) was constituted on March 10, 2001 under the Electricity (Supply) Act, 1948 as a result of the bifurcation of the erstwhile State of Bihar. Before that, the Bihar State Electricity Board (BSEB) was the predominant entity entrusted with the task of generating, transmitting and supplying power in the State.

1.9 The Energy Department, Government of Jharkhand, vide its Letter No. 1/Board-01-Urja-26/13 -1745 dated 28th June 2013 unbundled the erstwhile JSEB into following companies:

a) Jharkhand Urja Vikas Nigam Ltd (JUVNL) being the holding company;

b) Jharkhand Urja Utpadan Nigam Ltd (JUUNL) undertaking the generation function of the erstwhile JSEB;

c) Jharkhand Bijli Vitaran Nigam Ltd (JBVNL) undertaking the distribution function of the erstwhile JSEB;

d) Jharkhand Urja Sancharan Nigam Ltd (JUSNL) undertaking the transmission function of the erstwhile JSEB.

1.10 Jharkhand Urja Sancharan Nigam Ltd. (herein after to be referred to as "JUSNL" or the "Petitioner" or "erstwhile JSEB- Transmission function") has been incorporated under Indian Companies Act, 1956 pursuant to decision of Government of Jharkhand to reorganize erstwhile JSEB.

1.11 Reorganization of the JSEB has been done by Government of Jharkhand pursuant to "Part XIII – Reorganization of Board" read with section 131 of The Electricity Act 2003. The Petitioner is a Company constituted under the provisions of Government of Jharkhand, General Resolution as notified by transfer scheme vide notification no. 8, dated 6th January 2014, and is duly registered with the Registrar of Companies, Ranchi. Jharkhand Urja Sancharan Nigam Ltd was incorporated on 23rd October 2013 with the Registrar of Companies, Jharkhand, Ranchi and obtained Certificate of Commencement of Business on 28th November 2013.

1.12 Jharkhand Urja Sancharan Nigam Ltd. was incorporated on 23rd October 2013 with the Registrar of Companies, Jharkhand, Ranchi and obtained Certificate of Commencement of Business on 28th November 2013.

1.13 The Petitioner is a Transmission Licensee under the provisions of the Electricity Act, 2003 (EA, 2003) having license to establish or operate transmission lines in the State of Jharkhand.

1.14 The Petitioner is functioning in accordance with the provisions envisaged in the Electricity Act, 2003 and is engaged in the business of Transmission of electricity to its consumers situated over the entire State of Jharkhand.

The Petitioner's Prayers

1.15 The Petitioner in its Petitions has prayed before the Commission:

a) To approve the Business Plan for the Control Period (FY 2016-17 to FY 2020-21) in accordance with Regulation 6.6 of the JSERC (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2015

b) To admit this Multi-year Tariff Petition for FY 2016-17 till FY 2020-21 in accordance with the principles outlined in JSERC (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2015.

c) To approve the Multi-year Tariff for FY 2016-17 till FY 2020-21 to the extent claimed by the Petitioner in accordance with the submissions and rationale submitted in this Petition.

d) To issue appropriate directives for making applicable the Tariff determined for past period.

e) To condone any inadvertent omissions/errors/rounding off differences/ shortcomings/ deficiencies in the Petition and permit the Petitioner to add/modify/alter this filing and make further submissions as may be required at a future date.

Scope of the Present Order

1.16 The Commission in this Order has approved the Business Plan as well as ARR for MYT Control Period FY 2016-17 to FY 2020-21 and determined the tariff of for FY 2016-17.

1.17 While conducting the review and approval of Business Plan and ARR for MYT Control Period FY 2016-17 to FY 2020-21 and tariff determination for FY 2016-17, the Commission has taken into consideration:

a) Material placed on record

b) Provisions of the Electricity Act, 2003;

c) Principles laid down in the National Electricity Policy;

d) Principles laid down in the National Tariff Policy;

e) Provisions of the JSERC (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2015 (hereinafter referred to as 'Transmission Tariff Regulations, 2015');

1.18 Accordingly, the Commission has scrutinized the Petitions in detail and hereby issues the Order on the Business Plan as well as ARR for MYT Control Period FY 2016-17 to FY 2020-21 and Transmission & SLDC tariff for FY 2016-17.

A2: PROCEDURAL BACKGROUND

2.1 The Commission had issued its last Tariff Order (Provisional) for JUSNL in December 2015 for Review of ARR for FY 2013-14 (6th Jan 2014 – 31st Mar 2014) & FY 2014-15 and ARR and Transmission Tariff for FY 2015-16.

2.2 The 'Transmission Tariff Regulations, 2015', provides for filing of the Business Plan for the MYT control period from FY 2016-17 to FY 2020-21 by 31October 2015 by the Licensee and the Petition for approval of ARR for entire MYT control period from FY 2016-17 to FY 2020-21 and Transmission and SLDC tariff for FY 2016-17 by 30 November 2015.

2.3 However, the Licensee failed to file the above petitions as per the timelines provided in the Transmission Tariff Regulations 2015. The Petitioner filed the petition for approval of Business Plan for MYT control period from FY 2016-17 to FY 2020-21 for its Transmission and SLDC Business on 17th November, 2016 and the Petition for ARR & Tariff determination for MYT Control period FY 2016-17 to FY 2020-21 on 21st March, 2017.

Information Gaps in the Petition

2.4 As part of tariff determination exercise for the Control Period, several deficiencies/ information gaps were observed in the Petitions submitted by the Petitioner. The information gaps were pointed out and communicated vide letter no. JSERC/Case(T) No. 17 of 2016/586 dt. 13.12.2016, JSERC/Case(T) No. 17 of 2016/653 dt. 16.01.2017, JSERC/Case(T) No. 17 of 2016/743 dt. 27.02.2017, JSERC/Case(T) No. 03 of 2017/14 dt. 04.04.2017, JSERC/Case(T) No. 03 of 2017/89 dt. 26.04.2017 & JSERC/Case(T) No. 17 of 2016 & 03 of 2017/227 dt. 29.06.2017.

2.5 The Petitioner submitted its response to the aforesaid letters and furnished additional data/information vide letter no. 343 C.E, T (O&M)/JUSNL dt. 27.12.2016, letter no. 47, C.E, T (O&M)/JUSNL dt. 31.01.2017, letter no. 97 C.E, T (O&M)/JUSNL dt. 09.03.2017, letter no. 153 C.E, T (O&M)/JUSNL dt. 18.04.2017, letter no. 201 C.E, T (O&M)/JUSNL dt. 16.05.2017 & letter no. nil. dt. 28.07.2017.

2.6 The Commission scrutinized the additional data/ information submitted and considered the same while passing this Order on the Petition filed by the Petitioner. The Commission has examined the replies and supporting documents as supplied by the Petitioner on the discrepancies pointed out to it only on material already on record in the Petition filed by the Petitioner.

2.7 In order to provide adequate opportunity to all stakeholders and general public as mandated under Section 64 (3) of the Electricity Act 2003 and in relevant provisions of Regulation(s) framed by the Commission and in order to ensure transparency in the process of tariff determination, the Commission decided to conduct public hearings at divisional headquarters.

Inviting Public Comments/ Suggestions

2.8 The Commission directed the Petitioner to make available copies of the Petitions to the members of general public on request, and also issue a public notice inviting comments/ suggestions on the Petition for Business plan, ARR and Determination of Tariff for MYT control period FY 2016-17 to FY 2020-21.

2.9 The aforesaid public notice was issued by the Petitioner in various newspapers and a period of twenty one (21) days was given to the members of the general public for submitting their comments/suggestions.

Table 1: List of newspapers and dates on which the public notice appeared

Newspaper	Date
Prabhat Khabar	14/10/2017 & 17/10/2017
Dainik Bhaskar	14/10/2017
Telegraph	15/10/2017
Times of India	15/10/2017 & 18/10/2017
Farooqui Tanzeem	17/10/2017
Hindustan	17/10/2017
Dainik Jagran	18/10/2017
Hindustan Times	18/10/2017

2.10 Subsequently, the Commission issued advertisement on its website www.jserc.org and in various newspapers for conducting the public hearing on the Petition filed by the Petitioner. The newspapers wherein the advertisement for public hearing was issued by the Commission are detailed hereunder:

Table 2: List of newspapers and dates in which the public notice by JSERC was published

Sl. No.	Newspaper (Jharkhand edition)	Date of Publication
1.	Hindustan	02.12.2017
2.	Times of India	02.12.2017
3.	Prabhat Khabar	03.12.2017
4.	Hindustan Times	03.12.2017

Submission of Comments/ Suggestions and Conduct of public hearings

2.15 The public hearings were held during December 2017, on the dates as detailed under.

Table 3: Location and date of Public Hearings

Location	Date
Ranchi	13.12.2017
Deoghar	22.12.2017

2.16 For wider coverage and maximum response from the public, the Commission also issued notice for public hearings in the local newspapers on the day prior to the day of public hearing and also on the date of the hearing.

2.17 Numerous objections/comments/suggestions on the Petition were received. The objections/ comments/ suggestions of the public, Petitioner's responses and Commission's views thereon are detailed in the Section A4 of this Order.

A3: BRIEF FACTS OF THE PETITION

3.1 The following sub-sections present a summary of Business Plan & MYT Petition filed by the Petitioner:

Business plan for the MYT Control period FY 2016-17 to FY 2020-21

3.2 The Petitioner has categorized its capital expenditure in 4 broad categories:

a) Ongoing expenditure by JUSNL
b) Ongoing expenditure through PGCIL
c) Planned schemes:
   - DVC command area schemes
   - World bank funded schemes
d) Public Private Partnership (PPP)

a) Ongoing expenditure by JUSNL

3.3 There are 59 schemes currently being executed under this category primarily consisting of construction/ augmentation of 33 transmission lines with total length of 1638 Km and 14 GSS with total capacity of 3070 MVA among others. The summary of phasing of capital expenditure and capitalization is given below:

Table 4: Ongoing expenditure for JUSNL from FY 2016-17 to 2020-21 (Rs Cr)

S. No.	Particulars	2016-17	2017-18	2018-19	2019-20	2020-21	Total
1.	Capital expenditure	100.27	897.08	546.84	-	-	**1544.20**
2.	Capitalization	31.89	699.30	1067.01	-	-	**1798.20**

3.4 ***Funding for the capex:*** The Scheme is 100% funded by state government in the form of state government loan with an applicable interest rate of 13.00% per annum.

b) Ongoing expenditure through PGCIL

3.5 There are 40 projects being executed through PGCIL which primarily consist of construction of 26 transmission lines with total length of 957 Km and 10 GSS substation with total capacity of 3300 MVA among others. The summary of phasing of capital expenditure and capitalization is given below:

Table 5: Ongoing expenditure through PGCIL for JUSNL from FY 2016-17 to 2020-21 (Rs Cr)

S. No.	Particulars	2016-17	2017-18	2018-19	2019-20	2020-21	Total
1.	Capital expenditure	133.65	286.95	38.70	-	-	**459.29**
2.	Capitalization	95.25	833.84	66.82	-	-	**995.91**

3.6 ***Funding:*** The scheme is 100% funded by state government in the form of state government loan with an applicable interest rate of 13.00% per annum.

c) Planned schemes

i. DVC command area schemes:

3.7 JUSNL has proposed various schemes in the DVC command area for reaching out to the consumers of JBVNL in that area. As per JUSNL, there is a single transmission network of DVC in the command area which largely affects the consumers of JBVNL since they have to bear the wheeling charges of DVC. Further, the existing transmission network of DVC is not sufficient to fulfil the existing demand of consumers in its own area. Regular instances of tripping and load shedding are witnessed due to lack of adequate transmission infrastructure. Moreover many of the rural areas are not yet electrified since there is no reach of transmission network in those areas. In light of the above, JUSNL has proposed to build up transmission network in the DVC command area so that JBVNL consumers can be reached through JUSNL network and JBVNL will not have to pay for wheeling charges of DVC which are on a higher side. JBVNL may also go for addition of consumers in this area and can be accessed through JUSNL network.

3.8 There are 14 Schemes consisting of 38 projects worth Rs. 1,192.91 Crores, which are to be executed in DVC command area. These projects include 24 transmission lines with a total length of 741 Km and 14 GSS substation with capacity of 1400 MVA.

3.9 The details of its phasing of capital expenditure and capitalization is given below:

Table 6: Planned schemes in DVC command area for JUSNL from FY 2016-17 to 2020-21 (Rs Cr)

S. No.	Particulars	2016-17	2017-18	2018-19	2019-20	2020-21	Total
1.	Capital expenditure	-	175.62	581.03	218.58	163.33	**1138.56**
2.	Capitalization	-	-	96.14	733.90	-	**830.04**

3.10 ***Funding***: The projects that are to be carried out in DVC command area are part of State Plan and therefore 100% of the funding will be in the form of State Government loan with an applicable interest rate of 13.00% per annum.

ii. World bank funded schemes:

3.11 There are 26 schemes consisting of 72 projects worth Rs. 2,563.47 Crores, which are to be funded through World Bank. These schemes consist of 47 transmission lines with total length of 1872 Km and 25 GSS substations with total capacity of 2500 MVA. Details of phasing of capital expenditure and capitalization is as provided below:

Table 7: Planned World Bank funded schemes for JUSNL from FY 2016-17 to 2020-21 (Rs Cr)

S. No.	Particulars	2016-17	2017-18	2018-19	2019-20	2020-21	Total
1.	Capital expenditure	-	290.95	1483.76	677.888	110.872	**2,563.47**
2.	Capitalization	-	-	-	1454.75	1108.72	**2,563.47**

3.12 ***Funding:*** World Bank shall fund 70% of the project cost at an applicable interest rate of 2.50% and remaining 30% of the funds will be in the form of equity from Govt. of Jharkhand.

d) Public Private Partnership (PPP):

3.13 JUSNL has submitted that projects worth Rs. 5,180.88 Crores consisting of 53 transmission lines with length of 3,025 km and 22 substation of total 9300 MVA capacity will be taken up under the PPP mode. The private party /agency shall be selected through tariff based competitive bidding and the tariff shall be recovered directly by the agency from JBVNL. JUSNL would not have any role to play in this arrangement except till the time such agency is appointed through competitive bidding process.

Summary:

3.14 The details of capital expenditure along with capitalization for FY 2016-17 to FY 2020-21 submitted by licensee have been summarized in the following tables:

a) Capital Investment plan

Table 8: Summary of capital expenditure from FY 2016-17 to 2020-21 as submitted by the Petitioner (Rs Cr)

S. No.	Particulars	2016-17	2017-18	2018-19	2019-20	2020-21	Total
1.	Ongoing (JUSNL)	100.27	897.08	546.84	-	-	**1544.20**
2.	Ongoing (PGCIL)	133.65	286.95	38.70	-	-	**459.29**
3.	Planned Schemes						
	a) *DVC*	-	175.62	581.03	218.58	163.33	**1138.56**
	b) *World bank*	-	290.95	1483.76	677.89	110.87	**2563.47**
Total		**233.92**	**1650.60**	**2650.33**	**896.47**	**274.20**	**5705.52**

b) Capitalization

Table 9: Summary of Capitalization from FY 2016-17 to 2020-21 as submitted by the Petitioner (Rs Cr)

S. No.	Particulars	2016-17	2017-18	2018-19	2019-20	2020-21	Total
4.	Ongoing (JUSNL)	31.89	699.30	1067.01	-	-	**1798.20**
5.	Ongoing (PGCIL)	95.25	833.84	66.82	-	-	**995.91**
6.	Planned Schemes						
	c) *DVC*	-	-	96.14	733.90	-	**830.04**
	d) *World bank*	-	-	-	1454.75	1108.72	**2,563.47**
Total		**127.14**	**1533.14**	**1229.97**	**2188.65**	**1108.72**	**6187.62**

c) Funding

Table 10: Summary of funding for capital investment from FY 2016-17 to 2020-21 as submitted by Petitioner (Rs Cr)

S. No.	Particulars	2016-17	2017-18	2018-19	2019-20	2020-21	Total
1.	Debt	233.92	1563.31	2205.20	693.10	240.94	4936.48
2.	Equity	-	87.29	445.13	203.37	33.26	769.04
Total		**233.92**	**1650.60**	**2650.33**	**896.47**	**274.20**	**5705.52**

ARR for the MYT Control period FY 2016-17 to FY 2020-21

3.15 Following table summarizes the ARR of Transmission Business for the MYT Control period FY 2016-17 to FY 2020-21 as submitted by the Petitioner:

Table 11: Summary of ARR from FY 2016-17 to 2020-21 as submitted by JUSNL (in Rs Cr)

	FY17		FY18		FY19		FY20		FY21	
Particulars	**Original submission**	**Revised submission**	**Original submission**	**Revised submission**	**Original submission**	**Revised submission**	**Original submission**	**Revised submission**	**Original submission**	**Revised submission**
Operation & Maintenance Expenses	110	127	224	138	288	228	576	301	640	428
Employee Expenses	*44*	*44*	*48*	*48*	*52*	*52*	*56*	*56*	*60*	*60*
A&G Expenses	*6*	*6*	*7*	*7*	*8*	*8*	*8*	*8*	*9*	*9*
R&M Expenses	*59*	*76*	*169*	*83*	*229*	*169*	*512*	*237*	*570*	*359*
Depreciation Expenses	105	72	181	79	335	160	488	225	546	340
Interest and Finance Charges	151	188	255	286	469	450	666	619	698	747
Interest on Working Capital	14	18	26	18	42	28	69	38	76	51
Return on Equity Capital	110	150	217	150	433	150	650	184	731	244
Aggregate Revenue Requirement	490	554	903	671	1567	1016	2449	1367	2690	1810
Less: Non-Tariff Income	6	6	7	7	7	7	8	8	9	9
Aggregate Revenue Requirement	**483**	**548**	**896**	**664**	**1560**	**1009**	**2441**	**1359**	**2682**	**1801**
Un-accounted approved Gap of previous T.O.	100	100								

	FY17		FY18		FY19		FY20		FY21	
Particulars	**Original submission**	**Revised submission**	**Original submission**	**Revised submission**	**Original submission**	**Revised submission**	**Original submission**	**Revised submission**	**Original submission**	**Revised submission**
Aggregate Revenue Requirement including past gaps	**583**	**648**	**896**	**664**	**1560**	**1009**	**2441**	**1359**	**2682**	**1801**

3.16 The following table summarizes the ARR of SLDC Business for the MYT Control period FY 2016-17 to FY 2020-21 as submitted by the Petitioner:

Table 12: Summary of ARR for SLDC business from FY 2016-17 to 2020-21 as submitted by the Petitioner (Rs Cr)

Particulars	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**
Operation & Maintenance Expenses	1.74	1.87	2.01	2.16	2.32
Employee Expenses	*1.30*	*1.40*	*1.52*	*1.64*	*1.77*
A&G Expenses	*0.31*	*0.33*	*0.36*	*0.39*	*0.42*
R&M Expenses	*0.13*	*0.13*	*0.13*	*0.13*	*0.13*
Depreciation Expenses	0.18	0.18	0.18	0.18	0.18
Interest and Finance Charges	0.25	0.23	0.21	0.19	0.17
Interest on Working Capital	0.10	0.11	0.12	0.12	0.13
Return on Equity Capital	0.23	0.23	0.23	0.23	0.23
Aggregate Revenue Requirement	**2.50**	**2.62**	**2.74**	**2.88**	**3.03**

Proposed Transmission and SLDC Tariff for FY 2016-17

3.17 The summary of monthly transmission charges for FY 2016-17 to 2020-21 for the transmission business as filed by licensee in the Petition has been summarized in table below:

Table 13: Summary of monthly transmission charges from FY 2016-17 to 2020-21 as submitted by the Petitioner (Rs. Cr.)

	FY17		FY18		FY19		FY20		FY21	
Particulars	Original submission	Revised submission	Original submission	Revised submission	Original submission	Revised submission	Original submission	Revised submission	Original submission	Revised submission
ARR	583	648	896	664	1560	1009	2441	1359	2682	1801
Monthly Transmission charges	**48.60**	**54.00**	**74.68**	**55.33**	**129.97**	**84.08**	**203.40**	**113.25**	**223.46**	**150.08**
Projected Transmission (MUs)	13,175	13,175	16,475	16,475	20,901	20,901	21,958	21,958	23,130	23,130

3.18 The summary of SLDC charges are given below:

Table 14: Summary of SLDC charges from FY 2016-17 to 2020-21 as submitted by the Petitioner (Rs. Cr.)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Annual Fixed Charges (AFC)	**2.50**	**2.62**	**2.74**	**2.88**	**3.03**
SOC (80% of AFC)	**2.00**	**2.10**	**2.19**	**2.30**	**2.42**
Intra state transmission licensee @10% of SOC	0.20	0.21	0.22	0.23	0.24
Generating company @45% of SOC	0.90	0.94	0.99	1.04	1.09
Distribution licensee @45% of SOC	0.90	0.94	0.99	1.04	1.09
MOC (20% of AFC)	**0.50**	**0.52**	**0.55**	**0.58**	**0.61**
Generating company @50% of SOC	0.25	0.26	0.27	0.29	0.30
Distribution licensee @50% of SOC	0.25	0.26	0.27	0.29	0.30

A4: PUBLIC CONSULTATION PROCESS

4.1 The Petition evoked response from several consumers. Public hearings were held at Ranchi and Deogarh to ensure maximum public participation wherein stakeholders put forth their comments and suggestions before the Commission in the presence of the Petitioner. In all, 62 persons took part in the public hearing process. The list of the attendees is attached in **Annexure 1**. The Commission also received written suggestions/ comments from the public on the Petition filed by the Petitioner.

4.2 In course of public hearings, the Commission also allowed persons/ representatives of entities who had not submitted prior written representations but attended the public hearings to express their views, in person, regarding the Petition filed by the Petitioner and also about ways and means to improve the services rendered by the Petitioner.

4.3 The comments and suggestion of the members of the public along with the response thereon of the Petitioner and the views of the Commission are detailed hereunder:

Transmission Infrastructure

Public Comments/Suggestions

4.4 The stakeholders pointed out that for 200 KV and 132 KV transmission, JUSNL is having 6 & 33 GSS respectively, whereas for 400 KV transmission line of 180 KM length they do not have any GSS at all. They questioned how JUSNL is stepping down their transmission from 400 KV to 200 KV & 132 KV.

4.5 The stakeholder suggested that JUSNL should carry out a detailed load flow study and should design layout of transmission lines & substation to economise transmission losses.

4.6 The Stakeholder suggested that while designing layout JUSNL should try to plan maximum transmission through 400 KV and 220 KV to minimise Transmission Losses

Petitioner's Response

4.7 The Petitioner submitted that the existing 400 KV lines (400 KV Tenughat – Patratu Line and 400 KV Tenughat- Biharshariff) were constructed for evacuation of bulk power from Tenughat thermal power station. The transmission line is designed to operate at 400 KV. However, at present, the line is charged at 220 KV level as power generated from Tenughat plant is now stepping up at 220 KV. The Petitioner further submitted that the ongoing works for lines and substations till date cannot be compared with the existing infrastructure of JUSNL. The ongoing work involves transmission network for evacuation from generation stations and to meet demand growth in the state and considering reliability requirement of the network.

4.8 The Petitioner submitted that it has conducted a load flow study of its entire network, thereby identifying the lines and substations which are overloaded and need augmentation. The Petitioner has submitted its proposed schemes in line with the recommendations made in load flow study report. Similarly, transmission lines and substations required for evacuation of upcoming power stations have also been considered. JUSNL has also kept in mind the upcoming load (domestic and industrial) in various parts of the States and accordingly have proposed to set up its transmission network.

4.9 As regards to designing layout, the Petitioner submitted that it has already considered the stakeholder's suggestion in its planning and therefore more capacity is expected to get added at 220 KV and 400 KV level. JUSNL in its Business Plan has already proposed to have 7 nos. of 400 KV substations with total capacity of 6,490 MVA and 30 nos. of 220 KV substations with capacity of 11,220 MVA.

Views of the Commission

4.10 The Commission in its discrepancy note to the business plan directed the Petitioner to submit the Load flow study report. The Petitioner in its reply to discrepancy note submitted the detailed report on load flow study to the Commission. The Commission before approving the Business plan has scrutinized the load flow study report and accordingly dealt with issue in relevant sections of the order.

4.11 For other issues, the Commission has considered the views of the stakeholders and the Petitioner and has dealt the issue in detail in relevant sections of the order.

Capital Investment plan

Public Comments/Suggestions

4.12 The stakeholders observed that although JBVNL has proposed its demand to go up by 5112 MW by FY 2019-20, but it should be analysed if there shall be corresponding increase in generating capacity. The stakeholders questioned the rationale of increasing transmission capacity without increasing load generation.

4.13 The stakeholders also observed that JBVNL is the largest consumer of JUSNL, thus its transmission units should be in line with the energy requirements of JBVNL. Therefore, the Commission may thoroughly review the transmission units projected by the Petitioner for MYT Control Period.

4.14 The stakeholders further observed that the Petitioner has projected the R&M and Augmentation expenses of Rs. 600.69 Crores for MYT Control Period 16-17 to FY 20-21 which is quite high and would result in higher ARR and final MYT Tariff. Therefore the Commission may analyse the detailed project reports including cost benefit analysis submitted by the Petitioner before approving the final R&M expenses.

4.15 The Stakeholder observed that the Petitioner has projected Rs. 10,429.96 capitalization during FY 16-17 to FY 20-21. It is to be noted that the total capital expenditure projected by the Petitioner seems too aggressive. Also since JBVNL is the largest consumer of JUSNL, the Petitioner must prepare its capex plan keeping in view the JBVNL's MYT and Business Plan approved by the Commission for FY 16-17 to FY 20-21.

Petitioner's Response

4.16 The Petitioner submitted that the demand of the distribution licensee (JBVNL) may not be linked to the increase in generation in the State. By implementation of open access, any consumer in Jharkhand can avail power from any State in the country (by using JUSNL's infrastructure for intra-state transmission of energy) and therefore may not be restricted to the generation capacity in the State. JUSNL has proposed to set up infrastructure in such a way that it should be in a position to provide open access to any consumer in the State. This would help power to flow from different parts of the country into Jharkhand even if the generation in the State is minimal.

4.17 The Petitioner submitted that quantum of energy to be transmitted mentioned by the Objector is the quantum required at distribution periphery by JBVNL, whereas transmission network has to handle total energy purchased at generation ex bus bar which will be definitely on higher side. The Petitioner also submitted that the energy demand projected for the Control Period FY 2016-17 to FY 2020-21 is the growth expected from the consumer base of JBVNL as well as the Open access transactions. The upcoming industrial consumer load is also taken into consideration which is about 950 MW as per the MoUs signed during Momentum of Jharkhand. JUSNL network is planned in such a manner that any consumer from any corner of the State can avail for open access and JUSNL expects an increase in open access consumer base going forward. Presently, Indian Railway is availing open access from JUSNL at 132 KV and an increase in such open access consumers will result in more energy wheeled through the network of JUSNL. Moreover, the recent Saubhagya Scheme targets to electrify 30 Lakh household (As per GARV portal) in the next two years, which was launched by Hon'ble Prime Minister in September 2017. Increase in demand due to 100% household electrification was not part of JBVNL projections when Tariff Order was issued in June 2017. Considering the above factors, demand projections of JUSNL are higher than that of JBVNL. The Hon'ble Commission is therefore requested to kindly consider the submission of JUSNL which is based on anticipated increase in household and industrial demand in the state.

4.18 The Petitioner submitted that it has revised its submission with respect to planned schemes that are to be carried out in the next control period. These schemes are bifurcated into three parts based on the funding that is required to carry out the schemes. The projects proposed under State Plan and World Bank will form the asset of JUSNL and therefore are part of proposed ARR and tariff of JUSNL. It has therefore requested the Commission to kindly approve the capitalization as submitted based on revised schemes.

4.19 The Petitioner further submitted that it has submitted the revised capitalization schedule to the Commission for the period FY 16-17 to FY 20-21. The total cumulative capitalization now works out to Rs. 6,187.62 Crores which was also published in the public notice. JUSNL reiterated that it has conducted a load flow study based on which the schemes were proposed in the Business Plan. Also, the demand projection of JBVNL were also considered along with the increase in open access transactions in the State. JUSNL would also like to submit that the energy demand projected for the Control Period FY 2016-17 to FY 2020-21 is the growth expected from the consumers of JBVNL, Open Access Consumers and industrial consumers in future. JUSNL has also come up with the plan for funding through PPP mode due to which tariff has reduced to a great extent. JUSNL has already submitted DPRs and cost benefit analysis to the Commission for the proposed schemes.

Views of the Commission

4.20 The Commission has considered the views of the stakeholders and the Petitioner and has dealt the issue in detail in relevant sections of the order.

Components of ARR

Public Comments/Suggestions

4.21 The stakeholders observed that transmission charges projected by Petitioner are much higher than the transmission charges approved in the Commission's Order on MYT and Business Plan of JBVNL dated 21st June 2017.

4.22 The stakeholders also submitted that the proposed ARR has increased significantly in FY 2018-19 from FY 2017-18 & in FY 2020-21 from FY 2019-20 and should be reviewed and controlled.

4.23 The stakeholders were also of the opinion that development of infrastructure is responsibility of the State government and therefore depreciation expense, interest and finance charge, interest on working capital & return on equity, as claimed by the Petitioner should not be burdened on consumers.

Petitioner's Response

4.24 The petitioner submitted that the monthly transmission charges approved by the Commission, in JBVNL's MYT Order are the charges applicable to JBVNL for usage of JUSNL network. However, JBVNL is not the only consumer of JUSNL and therefore ARR of JUSNL is bound to be higher than the transmission charges of JUSNL approved in Tariff Order for JBVNL dated 21st June 2017. Further the Commission in Tariff Order dated 21st June 2017 had considered transmission charges based on actual transmission charges for FY 2015-16 and an escalation of 2.5% every year. The Tariff Order of JUSNL was not finalized while issuing the Tariff Order of JBVNL and therefore normative tariff was approved in the Tariff Order for JBVNL for entire control period. Therefore, the approved number in Tariff Order for JBVNL cannot be the basis for approving tariff of JUSNL for the Control Period.

4.25 The Petitioner submitted that majority of the ongoing works will be capitalised in FY 18-19. Moreover all the planned schemes which will be initiated in the ensuing year will be completed in FY 2020-21. Since, the ARR/ tariff is recovered on the basis of asset that is being put to use by JUSNL for respective years and the majority of the capitalization (asset put to use) is expected in FY 18-19 and FY 20-21, the ARR for those year have seen a sudden increase as compared to its previous years.

4.26 The Petitioner submitted that it is a Transmission Licensee in the State of Jharkhand and functions as per the Regulations defined by JSERC which has notified Regulations for determination of Transmission Tariff applicable for all Utilities in the State of Jharkhand. In accordance with these Regulations, JUSNL has filed for determination of ARR and tariff for transmission and SLDC business. As per the Regulations fixed cost components such as Depreciation, Interest and Finance Charge, Interest on Working Capital, Return on Equity etc. are part of Aggregate Revenue Requirement (ARR) necessary for determination of tariff. JUSNL is therefore abided by the Regulations of JSERC for determination of transmission tariff. JUSNL also submitted that the existing network will not be adequate to meet the future demand. Capital investment has to be done to develop transmission network for providing reliable supply as well as to meet future growth in demand. State government provides loan under state plan to JUSNL for developing transmission network. As the capital required is more, JUSNL is also availing loan from World Bank for completing the transmission schemes. Rest of the schemes are covered under PPP mode. The cost of raising capital (Long term and Short term) and providing reasonable return to JUSNL needs to be paid by the beneficiary, the user of the network. It should also be noted that JUSNL has done load flow study to assess the network required and also gone through possible funding options to minimise the lower cost. If quality and reliable supply is required in future, adequate recovery of cost is essential and the same is done from beneficiaries based on "Pay by use" principle.

Views of the Commission

4.27 The Commission has considered the views of the stakeholders and the Petitioner. The Commission while approving the ARR has undertaken prudence checks and granted approvals as per norms specified in the Jharkhand State Electricity Regulatory Commission (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2015.

4.28 The Commission in its JBVNL Distribution and Retail Supply tariff order dated 21st June 2017 stated that it has considered the methodology adopted by the JBVNL for computation of transmission charges on energy wheeled through intra-state transmission network. An escalation of 2.5% every year has been considered to arrive at the transmission charges (Rs/kWh) every year over the actual transmission charges for the FY 2015-16.These are subject to change as and when the Tariff Order for JUSNL for the prevailing control period is finalized. The impact of variation on this account shall be considered during the True-up of the relevant year. The Commission is therefore satisfied with the Petitioner's submission.

A5: BUSINESS PLAN FOR MYT PERIOD FROM FY 2016-17 TO FY 2020-21

5.1 The Petitioner filed its Business Plan for the MYT Control Period FY 2016-17 to FY 2020-21 on 17th November, 2016 in line with the Transmission Tariff Regulations, 2015. The relevant extract of the Regulations is as under:

"6.6 The Business Plan shall be for the entire Control Period and shall, inter alia, contain:

a) *Capital Investment Plan: This should be commensurate with load growth and quality improvement proposed in the Business Plan. The investment plan should also include corresponding capitalization schedule and financing plan;*

b) *The appropriate capital structure and cost of financing (interest on debt) and return on equity, terms of the existing loan agreements, etc;*

c) *Operation and Maintenance (O&M) Expenses: This shall include the costs estimated for the Base Year, the actual expenses incurred in the previous control period and the projected values for each year of the Control Period based on the proposed norms for O&M cost, including indexation and other appropriate mechanisms;*

d) *Depreciation: Based on the fair life of the asset and capitalization schedules for each year of the Control Period;*

e) *Performance Targets: A set of targets proposed for controllable items such as Availability of transmission system, transformer failure rate, and any other parameters for quality of supply. The targets shall be consistent with the capital investment plan proposed by the Transmission Licensee;*

f) *Proposals for Non-Tariff Income with item-wise description and details;*

g) *Proposals in respect of income from Other Business; and*

h) *Other Information: This shall include any other details considered appropriate by the Transmission Licensee for consideration during determination of tariff"*

5.2 The component-wise description of the Petitioner's submission and the Commission's analysis thereof is provided hereunder.

CAPITAL INVESTMENT PLAN

Petitioner's Submission

Overview

Electricity Demand scenario in Jharkhand from 2016-17 to 2020-21

5.3 The Petitioner submitted that the demand for power has been increasing gradually in Jharkhand over the years. For JBVNL alone, which is the State's largest distribution company, it is expected to increase by almost 80% from 9,759 MUs to 17,133 MUs during the said control period from 2016-17 to 2020-21.The exponential rise in electricity sales is primarily seen as a result of the ambitious efforts to enhance accessibility of electricity to households besides meeting the requirement of industries and other category of consumers.

5.4 The projected requirement of power transmission for the said period from FY 2016- 17 to 2020-21, is expected to increase by more than 50% from 13,175 MUs to 23,130 MUs. The increase over the years is illustrated in the figure below:

Table 15: Electricity Transmission (MU)

Year	2016-17	2017-18	2018-19	2019-20	2020-21
Electricity Transmission (MU)	13715	16475	20901	21958	23130

5.5 The above projections have been computed considering the following energy projections of JBVNL:

Table 16: Year wise Projection of Sales (MU)

Year	2016-17	2017-18	2018-19	2019-20	2020-21
Sales (MU)	9,759	12,204	15,482	16,265	17,133

5.6 The AT&C loss level for JBVNL has been considered as 30% as mentioned in PFA document and technical loss (transmission) has been considered as 5%. As JUSNL is primarily transmitting power to JBVNL, hence only their projections have been considered. Such a huge growth in power transmission is expected owing to development of large IPPs in state of Jharkhand, up gradation of Patratu Thermal power plant and downstream strengthening of 220/132 KV network which is required to ensure efficient power transfer from interstate generation projects. The large addition in transmission capacity is required to facilitate open access, decongest the transmission system and strengthen the intra state grid to provide the required support to the downstream discoms.

5.7 As per Power for All (24X7) report, the peak load demand projections by end of XIIth Plan (2016-17) would be 4616 MW. However the same is expected to grow by an average 5 yearly growth of 37% for the next three five-year plans period ending 2031-32 as shown below:

Table 17: Short Term Peak Load Demand Projections Year wise (MW)

Year	2016-17	2021-22	2026-27	2031-32
Peak Load Demand Projection	4,616	6,341	8,780	11,930

Capital Expenditure & Capitalization

As submitted by the Petitioner in the original submission

5.8 The Petitioner submitted that the congestion/ loading on JUSNL's transmission system is likely to increase further due to implementation of upcoming electricity access enhancement projects in the downstream distribution segment viz. DDUGJY, RGGVY, IPDS and other state funded schemes for meeting the 24X7 PFA objectives. JUSNL's overall objectives that drive the ongoing schemes include:

a) Meeting demand for power arising from existing and future end-consumers in various load centres/ pockets in the State;

b) Providing connectivity for evacuation of power from various upcoming intra and inter-state power plants and for onward delivery of such power to load centres/ drawl points;

c) Improving the availability and reliability of the intra-state transmission systems in the state; and

d) Improving efficiency by way of reducing technical losses in the intra- state transmission systems.

5.9 The petitioner submitted that for the purpose of this business plan, the planned capital initiatives have been divided into four components as below:

a) Ongoing capex schemes

b) Proposed capex schemes

c) Infrastructure augmentation schemes

d) Renovation and Modernisation schemes

5.10 The Petitioner submitted that phasing of planned projects has been considered taking into account the number of years left to complete the project execution. Phasing of projects based on numbers of years left and is as follows:

Table 18: Capital Investment phasing of projects

Capex phasing	Year 1	Year 2	Year 3	Year 4
1 year project	100%	-	-	-
2 year project	40%	65%	-	-
3 year project	30%	43%	35%	-
4 year project	15%	32%	47%	19%

5.11 The petitioner further submitted that the project cost also contains an escalation factor of 8% which is in line with JSERC 2015 Regulations. The regulations prescribe calculation of escalation factor using average of 5 year whole sale price index (WPI) and consumer price index (CPI). The average of the CPI and WPI is then combined as per the following formula to arrive at the escalation factor (0.55 * CPI + 0.45 * WPI). This has resulted into an escalation factor of 8%. The escalation factor so derived has been used for the entire control period.

5.12 The total project cost for all the ongoing, planned, augmentation and R&M schemes, for the 2nd control period, is Rs10,674.79 Cr. A summary of the year wise capital expenditure is as follows:

Table 19: Capital Expenditure for JUSNL from FY 2016-17 to 2020-21 (Rs Cr)

S.No	Particulars	2016-17	2017-18	2018-19	2019-20	2020-21	Total
1	Ongoing Schemes	360.98	46.31	-	-	-	**407.29**
2	Planned Schemes	1305.61	2911.16	2935.43	982.91	694.31	**8829.41**
3	Augmentation Schemes	508.58	64.80	87.48	-	-	**660.86**
4	Renovation & Modernization Schemes	291.65	292.61	162.95	-	30.01	**777.22**
	Total	**2466.82**	**3314.88**	**3185.86**	**982.91**	**724.32**	**10674.79**

5.13 Post the commissioning of the respective transmission line/GSS, the project cost of the commissioned element is considered to be capitalized in the same year. A summary of the year wise Capitalization is as follows:

Table 20: Capitalization for JUSNL from FY 2016-17 to 2020-21 (Rs Cr)

S.No	Particulars	2016-17	2017-18	2018-19	2019-20	2020-21	Total
1.	Ongoing Schemes	1254.34	108.91	0.00	0.00	0.00	1363.25
2.	Planned Schemes	7.66	605.31	4793.72	1050.25	1217.43	7674.37
3.	Augmentation Schemes	425.00	54.00	69.98	0.00	0.00	548.98
4.	Renovation & Modernization Schemes	291.65	292.61	229.10	0.00	30.00	843.36
	Total	**1978.65**	**1060.83**	**5092.80**	**1050.25**	**1247.43**	**10429.96**

As submitted by the Petitioner in the revised submission

5.14 The Petitioner submitted that the capital investment plan proposed earlier in the Business Plan is in conformity with the Power For All (PFA) document which was a joint initiative by the Government of Jharkhand and Government of India. The plans mentioned in the Power For All document is a planning document that has schedules of projects and schemes as per the requirement for the Generation, Transmission and Distribution in lieu with the power demand in future, new generation coming up, focus on areas of congestion and improvement in quality of supply.

5.15 However, there has been a few inclusion/ exclusions of some of the schemes in the capital investment plan which is to be carried out by JUSNL in this Control Period after submission of Business Plan to the Commission. The final capital investment plan has been divided into four sections:

a) Ongoing expenditure by JUSNL
b) Ongoing expenditure through PGCIL
c) Planned schemes:
   - DVC command area schemes
   - World bank schemes
d) Public Private Partnership (PPP)

5.16 The Petitioner has submitted that the proposed capital expenditure submitted is based on the load flow study carried out by JUSNL and is in conformity with the load growth plan and requirement of the distribution licensee (JBVNL). The proposed plan has also been approved by the State Government for execution.

a) Ongoing expenditure by JUSNL

5.17 There are 59 schemes currently being executed under this category primarily consisting of construction/ augmentation of 33 transmission lines with total length of 1638 Km and 14 GSS with total capacity of 3070 MVA and other schemes. The summary of phasing of capital expenditure and capitalization is given below:

Table 21: Ongoing expenditure for JUSNL from FY 2016-17 to 2020-21 (Rs Cr)

S.No	Particulars	2016-17	2017-18	2018-19	2019-20	2020-21	Total
1.	Capital expenditure	100.27	897.08	546.84	0	0	**1544.20**
2.	Capitalization	31.89	699.30	1067.01	0	0	**1798.20**

b) Ongoing expenditure through PGCIL

5.18 There are 40 projects being executed through PGCIL which primarily consist of construction of 26 transmission lines with total length of 957 Km and 10 GSS substation with total capacity of 3300 MVA and other schemes. The summary of phasing of capital expenditure and capitalization is given below:

Table 22: Ongoing expenditure through PGCIL for JUSNL from FY 2016-17 to 2020-21 (Rs Cr)

S. No.	Particulars	2016-17	2017-18	2018-19	2019-20	2020-21	Total
1.	Capital expenditure	133.65	286.95	38.70	0.00	0.00	**459.29**
2.	Capitalization	95.25	833.84	66.82	0.00	0.00	**995.91**

c) Planned schemes

i. DVC command area schemes:

5.19 JUSNL has proposed various schemes in the DVC command area for reaching out to the consumers of JBVNL in that area. As per JUSNL, there is a single transmission network of DVC in the command area which largely affects the consumers of JBVNL since they have to bear the high wheeling charges of DVC. Further, the existing transmission network of DVC is not sufficient to fulfil the existing demand of consumers in its own area. Regular instances of tripping and load shedding are witnessed due to lack of adequate transmission infrastructure. Moreover, many of the rural areas are not yet electrified since there is no reach of transmission network in those areas. In light of the above, JUSNL has proposed to build up transmission network in the DVC command area so that JBVNL consumers can be reached through JUSNL network and JBVNL will not have to pay for wheeling charges of DVC which are on a higher side. JBVNL may also go for addition of consumers in this area which can be accessed through JUSNL network.

5.20 There are 14 Schemes consisting of 38 projects worth Rs. 1,192.91 Crores, which are to be executed in DVC command area. These projects include 24 transmission lines with a total length of 741 Km and 14 GSS substation with capacity of 1400 MVA. The details of its phasing of capital expenditure and capitalization is given below:

Table 23: Planned schemes in DVC command area for JUSNL from FY 2016-17 to 2020-21 (Rs Cr)

S. No.	Particulars	2016-17	2017-18	2018-19	2019-20	2020-21	Total
1.	Capital Investment plan	-	175.62	581.03	218.58	163.33	**1138.56**
2.	Capitalization	-	-	96.14	733.90	-	**830.04**

ii. World Bank schemes:

5.21 There are 26 schemes consisting of 72 projects worth Rs. 2,563.47 Crores, which are to be funded through World Bank. These schemes consist of 47 transmission lines with total length of 1872 Km and 25 GSS substations with total capacity of 2500 MVA. Details of phasing of capital expenditure and capitalization is as provided below:

Table 24: Planned World Bank funded schemes for JUSNL from FY 2016-17 to 2020-21 (Rs Cr)

S. No.	Particulars	2016-17	2017-18	2018-19	2019-20	2020-21	Total
1.	Capital Expenditure	-	290.95	1483.76	677.888	110.872	**2,563.47**
2.	Capitalization	-	-	-	1454.75	1108.72	**2,563.47**

d) Public Private Partnership (PPP):

5.22 JUSNL has submitted that projects worth Rs. 5,180.88 Crores consisting of 53 transmission lines with length of 3,025 km and 21 substation of total 9300 MVA capacity will be taken up under the PPP mode. The private party /agency shall be selected through tariff based competitive bidding and the tariff shall be recovered directly by the agency from JBVNL. JUSNL would not have any role to play in this arrangement except till the time such agency is appointed through competitive bidding process.

Commission Analysis

5.23 The Commission in its exercise of conducting a prudence check has scrutinized the capital expenditure plan submitted by the Petitioner. The JSERC terms and conditions of Transmission Tariff regulations 2015, states as under with regard to the capital investment plan:

"6.7 The Commission shall approve the system augmentation plan submitted by the Transmission Licensee, based on the load growth forecast during the Control Period. The same would be considered for computation of ARR, wherein the amount of electricity transmitted by the Transmission System shall be projected considering the estimated growth plan of its Beneficiaries and any plans of new transmission system, based on network expansion plans within the State.

6.8 Capital investment plan submitted by the Licensee shall also provide details of ongoing projects that will spill into the Control Period and new projects that will commence during the Control Period but may extend beyond the Control Period.

6.9 The capital investment plan shall be in conformity with the plans made by the CEA/CTU and with the capital investment plans of the Distribution Licensee and the Generating Company. The investment plan shall be scheme-wise and each scheme shall include:

(a) Purpose of investment (i.e. replacement of existing assets, meeting load growth, technical loss reduction, meeting reactive energy requirements, improvement in quality and reliability of supply, etc) ;

(b) Capital Structure;

(c) Capitalization Schedule;

(d) Financing Plan;

(e) Cost-benefit analysis;

(f) Improvement in operational efficiency envisaged in the control period;"

5.24 The Commission observed various inconsistencies and data gaps in the petitions submitted by the Petitioner.

5.25 The Commission directed the Petitioner to confirm whether capital investment plan is in conformity with the perspective plans made by the CEA /CTU and the capital investment plans of the Distribution Licensee and the Generating Company. The Petitioner submitted that:

"Capital investment plan filed by JUSNL for the 2nd control period is in conformity with the Power for All plan (PFA) notified by the Government of Jharkhand.

JUSNL submits that the Power for all document was released on 12th Oct 2015 which was more than a year old before the filing of Business Plan by JUSNL in November 2016. Therefore most of the schemes which were proposed in the power for all document are now coming under ongoing schemes in the Business Plan Petition. In addition to the schemes proposed in power for all, JUSNL has additionally considered schemes that are planned to be undertaken in the control period from FY 2016-17 to FY 2020-21 which is in conformity with the plan made by the CEA/CTU. These schemes are categorized under planned schemes in the Business Plan Petition."

5.26 The Commission also directed the petitioner to submit load growth study for the control period, Detailed Project Report (DPR) of each scheme, scheme wise capital expenditure phasing, capitalization schedule, cost benefit analysis, improvement in operational efficiency envisaged in the control period along with audited numbers of the capital expenditure, capitalisation along with the audited annual accounts for the past five year period.

5.27 The petitioner in its reply has submitted load flow study from FY 2016-17 to FY 2020-21 which study provides a validation of existing network and perspective transmission plan from FY 2016-7 to FY 2020-21 for JUSNL system.

5.28 A summary of requirement of number of substation and capacity based on JUSNL original plan and revision suggested by the study is given below:

Table 25: Summary of requirement of number of substation and capacity

1	Voltage level (kV)	Existing as on May-16	2016-17	2017-18	2018-19		2019-20		2020-21		2021-22		Total number of SS and capacity by end of 2021-22
					JUSNL	Study team	JUSNL	Study team	JUSNL	Study team	JUSNL	Study team	
Number of substation													
1	400/220(2)	-	-	2	3	3	-		-	-	1	1	6
2	220/132(1)	6	1	4	10	9	-	1	4	4	6	6	31
3	132/33	30	6	5	39	36	4	3	5	5	6	10	95
Total		**36**	**7**	**11**	**52**	**48**	**4**	**4**	**9**	**9**	**13**	**17**	**132**
Substation capacity in MVA													
1	400/220(2)	-	-	1260	3000	3000	-	-	-	-	1000	1000	5260
2	220/132(1)	2000	300	1200	3000	2700	-	300	1200	1200	1800	1800	9500
3	132/33	2795	570	500	3900	3600	400	300	500	500	600	1000	9265

1. Number and capacity of 220/132 kV substations for year 2018-19 & 2021-22 includes 2 numbers of new 2x150 MVA, 220/132 kV substation proposed by PRDC study team i.e. Jadugoda and Khunti substation respectively.
2. The above count does not include 6 numbers, 5205MVA of existing/proposed 400/220 kV substations of CTU and one 765/400 kV Ranchi pooling station.
3. If any substation is having more than one transformation level, then each transformation level is counted separately. Example 220/132 kV in 400/220/132 kV is counted separately as 2 numbers.

5.29 The Petitioner has also submitted the DPRs of projects worth Rs. 4000 Cr. of ongoing schemes along with schemes under DVC area. The petitioner has also submitted the Contract document executed with PGCIL for works being undertaken by PGCIL. The Petitioner further submitted that the DPRs for the projects which are proposed to be funded by World Bank are under preparation by Tata Consulting Engineers Limited which shall be submitted to the Commission in due course of time.

5.30 As informed to the Commission, for the projects under PPP mode, JUSNL shall appoint private players who will provide the detailed study of the network/ infrastructure that is proposed to be built under PPP along with the feasibility report as well as the cost benefit analysis of these projects.

5.31 The Commission, on analysis of the DPRs submitted by the Petitioner, found that these DPRs did not provide details of cost-benefit analysis, estimated life extension from a reference date, financial package, phasing of expenditure, schedule of completion etc. The Commission subsequently directed the Petitioner to submit the missing information.

5.32 The Petitioner in its reply submitted cost benefit analysis of schemes under DVC command area. The Petitioner also submitted that the detailed cost benefit analysis of project funded by World Bank will be provided as soon as the DPRs for each of the schemes are finalized.

5.33 The Commission also noted that the cost as per the DPRs did not match with scheme wise project cost given by the petitioner in the Business plan and directed the petitioner to submit revised scheme wise project cost. The petitioner in its subsequent replies to data gaps submitted revised scheme wise project cost based on DPR of the schemes.

5.34 The Commission directed the petitioner to submit actual Capital expenditure incurred for FY 2016-17 and schemes capitalized in FY 2016-17. The petitioner in its reply submitted the scheme wise capital expenditure and capitalization for FY 2016-17. The Commission conducted prudence check on the provisional data submitted by the petitioner and observed that only Rs. 234 Cr. has been spent as capital expenditure in FY 2016-17 as against capital expenditure of Rs. 2467 Cr. proposed by the Petitioner in its original submission. The petitioner has actually spent less than 10% of the amount originally proposed to be spent as capital expenditure during FY 2016-17. Similarly, in case of schemes capitalized for FY 2016-17, the Commission observed that out of Rs. 1979 Cr. worth of schemes proposed to be capitalized as per the original submission, the Petitioner was only able to capitalize schemes worth Rs. 127 Cr. i.e. a meagre 6% of the total amount to be capitalized as per the original submission. The Commission has also observed that the petitioner had planned to incur capital expenditure on Planned schemes in DVC area and World bank funded schemes during FY 2016-17 but the petitioner has not been able to spend any capital expenditure for these schemes in FY 2016-17 and has planned to carry forward these expenditure in FY 2017-18.

5.35 As part of prudence check, the Commission also directed the Petitioner to submit scheme wise details of capital expenditure and capitalization for the years prior to the 2nd MYT period. The Commission observed that the Petitioner was only able to spend Rs. 859 Cr. from FY 2013-14 to FY 2015-16 and was able to capitalize/ commission schemes worth Rs 367 Cr. during the same period. The Commission observed that even though the Petitioner is not able to commission its assets on time because of delays at various levels and its inefficiencies, yet it has projected very aggressive capital expenditure and capitalization plan of Rs 5,705 Cr. and 6,187 Cr. respectively.

5.36 The Commission also directed the Petitioner to provide cost estimation mechanism of the scheme wise project cost mentioned in the business plan to which the petitioner replied that cost estimation is based on standard JUSNL budgetary document for framing departmental estimates for approval of competent authority. Excerpts of the Petitioner's reply is given below:

"The cost estimation made for projects proposed in Business Plan is as per the Schedule of Rates document for labour and material items of 220 KV and 132 KV transmission lines and substations works. The schedule of rates is a standard document of JUSNL and is used for budgetary purpose and for framing departmental estimates for approval of competent authority. The rates may differ from the actual work order cost which is discovered through competitive bidding process."

5.37 With regards to the establishment of network in the DVC area, the Commission directed the Petitioner to justify whether it has explored possibility of sharing of existing infrastructure of DVC in the DVC command area. The Petitioner submitted that it has proposed to build up transmission network in the DVC command area so that JBVNL consumers can be reached through JUSNL network and JBVNL will not have to pay for wheeling charges of DVC. The Petitioner also submitted that JBVNL may also go for addition of consumers in the DVC area and who can be accessed through JUSNL network. Key excerpts of the Petitioner's reply is given below:

"It is submitted that DVC as a distribution licensee does not supply power to consumers who are connected below 33 KV (LT consumers) in its own license area. JBVNL being a deemed distribution licensee in the State of Jharkhand supplies power to such consumers in DVC command area.

Presently there is no transmission network of JUSNL in the seven districts of DVC command area and therefore JBVNL is completely dependent on the transmission network of DVC for supply to its consumers in that area.

It is observed that the existing transmission network of DVC is not sufficient to fulfil the existing demand of consumers in its own area. Regular reports of tripping and load shedding in are witnessed due to lack of adequate transmission infrastructure. Moreover many of the rural areas are not yet electrified since there is no reach of transmission network in those areas.

DVC is the sole transmission network provider in its command area and therefore in case of overloading of transmission lines due to high demand, DVC prioritizes its own consumers and curtails power to JBVNL consumers. DVC supplies power at restricted load for consumers of JBVNL and has shown no intension to augment its capacity to provide sufficient transmission infrastructure in its area.

JUSNL would like to bring to the notice of Hon'ble Commission that even after witnessing regular power cuts in DVC command area, consumers of JBVNL still have to pay higher transmission charges to DVC for getting the supply. In order to avoid such huge burden of charges, JBVNL has made an attempt to change its contract with DVC from consumer mode to PPA mode. This would help JBVNL save Rs. 1 per unit on power purchase cost from DVC.

JUSNL on the other hand being a State transmission licensee in Jharkhand, has an obligation to set up its transmission network in all areas where the Distribution Licensee (JBVNL) is currently supplying power to its consumers, including the DVC command area. Moreover as per Power for All document, JUSNL has to augment its infrastructure in order to supply power to every single consumer in the State. Since the existing transmission licensee (DVC) is not able to fulfil the demand of the consumers in its area, JUSNL propose to set up its infrastructure so as to supply power without any load restrictions.

As per the Electricity Act, Transmission licensee should be in a position to provide non-discriminatory open access to all the consumers in its license area, i.e. in the entire state of Jharkhand in case of JUSNL. Open access can be only provided by JUSNL if it has end to end connectivity and reach of its network in all corners of the State. JUSNL therefore cannot have a gap in its transmission network as it currently persist in DVC command area.

JUSNL had recently conducted a load flow study to assess the existing and futuristic demand of the State and discovered that there is a massive need for augmentation of transmission infrastructure in the State including the DVC command area. The load flow study also provided the area wise need for transmission lines and substations which are *required to be set up in the next five years to meet the growing demand. Based on the load flow study report, JUSNL has devised a plan for setting up the required infrastructure in this control period which is put forth before the Hon'ble Commission for approval.*

It is submitted that the lines and substations which are proposed to be carried out in DVC command area are already in conformity and with consent of JBVNL. Further JUSNL has carried out a cost benefit analysis of the transmission infrastructure that is proposed in DVC command area. It is observed that over a period of 25 years, the revenue earned is higher than the cost incurred by JUSNL for this infrastructure."

5.38 The Commission takes cognizance of the Petitioner's submission that its additional network is required in DVC area because the existing transmission infrastructure is inadequate leading to tripping and load shedding, increase in load growth in the area due to 24x7 Power For All and implementation of Saubhagya.

5.39 The Commission also notes that as per National Tariff Policy 2016:

"*The tariff policy, insofar as transmission is concerned, seeks to achieve the following objectives:*
1. Ensuring optimal development of the transmission network to promote efficient utilization of generation and transmission assets in the country;"

The Commission thus does not agree with the Petitioner's contention that one of the purpose of setting up transmission network in DVC command area is to reduce wheeling charges of JBVNL, which has not been justified by the Petitioner through any quantitative analysis. The Commission notes that JUSNL and JBVNL are separate legal entities and thus JUSNL should prioritize its finances over that of other entities and thus optimally utilize scarce funds available with it. The Petitioner should thus optimally develop its transmission network for efficient utilization of its assets without any unnecessary duplication of assets. The Petitioner should plan its business plan based on demand growth of JBVNL, railways and its other open access consumers.

5.40 Further, during the course of scrutiny of the Petitioner's submission, the Commission also directed the Petitioner to submit improvement in operational efficiency envisaged in the Control Period supported by detailed justifications. The petitioner was also asked to submit its detailed action plan for achieving the transmission loss of 4% target by FY 2018-19 as envisaged in the UDAY scheme.

5.41 The Petitioner submitted that it has carried out load flow study through a third party and the transmission loss arrived in the system study report is detailed in the table below which is well below 4% as detailed in the table below. The schemes proposed under augmentation and renovation and modernization will ultimately result in bringing the losses to further lower levels and improving the quality of supply.

Table 26: JUSNL Transmission Loss

S.No	Voltage Level	Loss (MW)	% Loss for ex-bus generation (1855 MW)
1	220 KV Transmission Line	6.52	0.35%
2	132 KV Transmission Line	18.86	1.02%
	Total Transmission system Losses	**25.38**	**1.37%**
3	220/132 KV Transformation	4.46	0.24%
4	132/33 KV Transformation	7.4	0.40%
	Total Transformation Losses	**11.86**	**0.64%**
5	Other Losses	4.08	0.22%
	Total JUSNL system loss	**41.35**	**2.23%**

Key excerpts of petitioner's submission is given below:

"JUSNL submits that the transmission loss at current levels has been within the prescribed limit of 5% as approved by the Commission in last tariff Order. The transmission losses are expected to come down in this control period based on account of the capex which is being proposed to be executed by JUSNL. The proposed capex also includes removal of network congestion and improvement of quality of supply. Both these factors will definitely bring down to the losses to the desired level. However, JUSNL has proposed to keep the transmission loss trajectory at 5% for the entire control period based on the current level loss measured. In case of reduction in transmission loss, the same will be submitted in true up petition for each of the respective years.

In case of the Transmission availability, the availability at current levels is more than 95% based on the tripping report generated at the grid. The transmission availability is expected to improve in the future on account of capex which will reduce the number of faults and unplanned outages in the network.

The Hon'ble Commission is therefore requested to approve the transmission loss and transmission availability that has been proposed in the MYT Tariff Petition. Any variation in the operational parameters can be provided in the truing up petition which is to be filed subsequently."

5.42 The Commission is of the opinion that quality and reliable transmission network is important for overall development of power sector in the state aiding in providing last mile connectivity. The Commission has also taken cognizance of the plans of JBVNL to achieve 100% electrification, provide 24x7 power to all consumers, implementation of Saubhagya scheme in the State of Jharkhand as well as expected increase in industrial load based on MoU signed in Jharkhand Summit. Further, with the push of Government of India to install 175 GW of renewable energy capacity in the country, it is imperative that there is a high quality transmission infrastructure in place to facilitate evacuation of such renewable power. JUSNL has submitted that it will also be catering to Open Access consumers, Railways, other distribution licensees, evacuation of power generation and other related works.

5.43 Therefore, the Commission, after a thorough prudence check, provisionally approves the capital expenditure as proposed by the Petitioner in its revised submission. This will be subject to true up based on actual data.

Table 27: Summary of Capital Expenditure as approved by the Commission from FY 2016-17 to 2020-21 (Rs Cr)

S.No	Particulars	2016-17	2017-18	2018-19	2019-20	2020-21	Total
1.	Ongoing (JUSNL)	100.27	897.08	546.84	0	0	**1544.20**
2.	Ongoing (PGCIL)	133.65	286.95	38.70	0.00	0.00	**459.29**
3.	Planned Schemes						
a)	*DVC*	-	175.62	581.03	218.58	163.33	**1138.56**
b)	*World bank*	-	290.95	1483.76	677.89	110.87	**2563.47**
Total		**233.92**	**1650.60**	**2650.33**	**896.47**	**274.20**	**5705.52**

5.44 The Commission directs the Petitioner to make all out efforts to ensure that for every network, upstream and downstream network is also built in synchronization and there is no stranded asset as the transmission infrastructure cannot operate in isolation. The Commission also directs the petitioner to expeditiously prepare the DPRs of the pending schemes with cost benefit analysis.

5.45 The Petitioner, in its Petition, had submitted that projects under PPP mode shall be selected through tariff based competitive bidding and the tariff shall be recovered directly by the agency from JBVNL. The Commission, at the moment, has not considered project under PPP mode as part of capital expenditure. Moreover, the submission of the Petitioner is vague and ambiguous. The Petitioner has not mentioned whether the infrastructure to be built under the PPP mode would be built by the private player on behalf of JUSNL or whether it would be built on behalf of JBVNL. In case it is to be built on behalf of JUSNL, which is the transmission licensee and caters to consumers other than JBVNL such as Open Access consumers, railways etc., then contention of the recovery of charges directly by the private party from JBVNL is erroneous. Moreover, JUSNL should independently assess the requirement of the infrastructure backed by detailed studies besides assessing the business model to be adopted for entering into a PPP arrangement. In case the infrastructure is to be built as per requirement of JBVNL, the Commission observes that there is no mention of such infrastructure (and consequent payment of transmission charges) in the business plan of JBVNL for the period FY 2016-17 to FY 2020-21. Moreover, the role of JUSNL in such a case is also not clear. Due to lack of clarity, the Commission does not approve the submission of the Petitioner at this stage and directs it to submit to the Commission the requisite details as elucidated above, before chalking out any plan for such PPP participation.

5.46 With regards to capitalization, the Commission has observed that the petitioner takes around 4-7 years to commission a Transmission line/GSS due to delays at various level. Eg 220 kV D/C Lohardagga - Latehar Transmission Line with an estimated cost of Rs 35 Cr. was started in 2008 but was Commissioned in 2013 similarly 400 KV DC Latehar (JSEB) to 400 KV D/C PTPS scheme with an estimated cost of Rs. 151 cr. was started in 2012 and is expected to be completed in 2018. The Petitioner in its scheme wise capitalization submission has submitted that it will commission various lines within 18 months in the control period. The Commission after its prudence check and based on realistic parameters has considered 30-36 months as an average time taken by the Petitioner to commission a Transmission line/GSS based on the past track record of the Petitioner and has accordingly approved capitalization in the control period. The Commission based on its prudence check and submissions made by the petitioner approves the following provisional Capitalization for the Control Period FY 2016-17 to 2020-21. This will be subject to true up based on actual data.

Table 28: Summary of Capitalization as approved by the Commission from FY 2016-17 to 2020-21 (Rs Cr)

S. No.	Particulars	2016-17	2017-18	2018-19	2019-20	2020-21	Total
1.	Ongoing (JUSNL)	31.89	170.36	820.57	775.39	0.00	**1798.20**
2.	Ongoing (PGCIL)	95.25	798.66	102.01	0.00	0.00	**995.91**
3.	Planned Schemes						
a)	DVC	0.00	0.00	0.00	205.39	624.65	**830.04**
b)	World bank	0.00	0.00	0.00	0.00	1562.75	**1562.75**
Total		**127.14**	**969.01**	**922.57**	**980.78**	**2187.40**	**5186.91**

5.47 The Commission shall review the actual capital expenditure incurred and capitalisation at the end of each year of the Control Period vis-à-vis the approved capital expenditure and capitalisation schedule. The Commission shall also conduct a mid-term review at the end of second year of the Control Period. In case, the cumulative incurred capital expenditure and/or capitalisation deviates from the approved capital expenditure / capitalisation by more than 20% (cumulative), the Commission will make necessary changes to capital investment plan for the Control Period and adjust depreciation and financing cost, which includes cost of debt (interest), working capital interest, cost of equity (return) based on the actual capital expenditure and/or capitalisation vis-à-vis approved capital expenditure / capitalisation.

5.48 In case the capital expenditure is required for emergency work which has not been approved in the capital investment plan, the Licensee shall submit an application (containing all relevant information along with reasons justifying emergency nature of the proposed work seeking approval by the Commission. The Licensee shall take up the work prior to the approval of the Commission provided that the emergency nature of the scheme has been certified by the Board of Directors.

Financing Plan

Petitioner's Submission

5.49 The Petitioner has submitted the following financing plan of the schemes based on the four broad categories:

a) **Ongoing expenditure by JUSNL:** The Scheme is 100% funded by state government in the form of state government loan with an applicable interest rate of 13.00% per annum.

b) **Ongoing expenditure through PGCIL:** The scheme is 100% funded by state government in the form of state government loan with an applicable interest rate of 13.00% per annum

c) **DVC command area schemes**: The projects that are to be carried out in DVC command area are part of State Plan and therefore 100% of the funding will be in the form of State Government loan with an applicable interest rate of 13.00% per annum.

d) **World Bank funded Schemes:** World Bank shall fund 70% of the project cost at an applicable interest rate of 2.50% and remaining 30% of the funds will be in the form of equity from Govt. of Jharkhand

5.50 The financing plan for the Control Period is summarized below:

Table 29: Funding plan of Control Period (Rs. Cr.)

	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Debt					
Ongoing JUSNL	31.89	699.30	1067.01	0.00	0.00
Ongoing PGCIL	95.25	833.84	66.82	0.00	0.00
Planned					
DVC	*0.00*	*0.00*	*96.14*	*733.90*	*0.00*
World Bank	*0.00*	*0.00*	*0.00*	*1018.33*	*776.10*
Total Loan	**127.14**	**1533.15**	**1229.98**	**1752.23**	**776.10**
Equity (30% of World bank funded Schemes)					
Equity	0.00	0.00	0.00	436.43	332.62
Total	**127.14**	**1533.15**	**1229.98**	**2188.65**	**1108.72**

Commission analysis

5.51 The Petitioner in its original submission submitted that the Debt and Equity ratio has been assumed as 70% and 30% for the financing plan. The Commission directed the petitioner to submit scheme wise financing plan. The petitioner in its revised submission provided the Commission with scheme wise financing plan.

5.52 The Commission enquired from the Petitioner that whether it is planning to avail funding for the capital investment plan from the cheapest source possible. The petitioner submitted that it is a State transmission utility and its entire holding is with the State Government. Being a State holding Company the loan facilities available are primarily from the Government of Jharkhand, REC and PFC. JUSNL has been taking loan from these institutions in the past and will continue taking loans from these institutions in future as well. JUSNL also submitted that it cannot be compared with any other private company which can avail loan from the cheapest financial source available in the market based on its net worth and loan repayment ability. JUSNL mentioned that substantial amount of projects are being carried out through World Bank funding which is the cheapest source available.

5.53 The Commission does not agree with the Petitioner's submission that it cannot be compared with any other private company which can avail loan from the cheapest financial source available in the market. Except for its own inefficiencies, there is no constraint for the Petitioner to approach Banks/ FIs/ Bond Market to source cheap sources of funds for its capital expenditure program.

5.54 Further, as per the JSERC (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2015:

"7.22 The Transmission Licensee shall make every effort to re-finance the loan as long as it results in net savings on interest and in that event the costs associated with such refinancing shall be borne by the Beneficiaries and the net savings shall be shared between the Beneficiaries and the Transmission Licensee, in the ratio of 2:1."

The Commission observes that most of the schemes of the Petitioner are financed at 13% rate of interest which is higher than the rates currently prevailing in the market. The Commission also notes that the Petitioner has not taken any step to get these schemes financed from the cheapest source at the first place. The Commission thus directs the petitioner to make all efforts to re-finance the loan for such schemes from the cheapest source available. The Petitioner may approach the State Government to convert the loans into grant or equity. The Petitioner may also look for Viability Gap Funding. The Petitioner is directed to submit along with the next tariff petition, the steps taken towards refinancing of these schemes.

5.55 The Commission based on its prudence check approves the following financing plan for the control period FY 2016-17 to FY 2020-21:

Table 30: Financing plan as approved by the Commission for FY 2016-17 to FY 2020-21 (Rs. Cr.)

Actual Funding	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Debt					
Ongoing JUSNL	31.89	170.36	820.57	775.39	0.00
Ongoing PGCIL	95.25	798.66	102.01	0.00	0.00
Planned					
DVC	0.00	0.00	0.00	205.39	624.65
World Bank	0.00	0.00	0.00	0.00	1093.93

Total Loan	**127.14**	**969.01**	**922.57**	**980.78**	**1718.58**
Equity (30% of World bank funded Schemes)					
Equity	0.00	0.00	0.00	0.00	468.83
Total	**127.14**	**969.01**	**922.57**	**980.78**	**2187.40**
Equity %	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**21.43%**

A6: AGGREGATE REVENUE REQUIREMENT FOR MYT CONTROL PERIOD FY 2016-17 TO FY 2020-21 FOR TRANSMISSION BUSINESS

Gross Fixed Asset (GFA)

Petitioner's Submission

6.1 The Petitioner has submitted the following closing GFA for the Control period FY 2016-17 to FY 2020-21:

Table 31: Gross Fixed Assets for FY 2016-17 to FY 2020-21 proposed by the Petitioner (Rs. Cr.)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Opening Balance of GFA	1,365.43	1,492.57	3,025.71	4,255.68	6,444.33
Additions during the year	127.14	1,533.14	1,229.97	2,188.65	1,108.72
Closing Balance of GFA	**1,492.57**	**3,025.71**	**4,255.68**	**6,444.33**	**7,553.05**

Commission's Analysis

6.2 The Commission has repeatedly directed the Petitioner to submit CAG report for the accounts of FY 2015-16. The Petitioner has failed to submit the same.

6.3 Further on scrutiny of the comments of the independent auditor on the Petitioner's accounts for FY 2015-16, the Commission observed that the auditor has given a Qualified Opinion on various issues.

6.4 As per Para 1 of the Basis for qualified opinion, the Commission finds that the compliance of the independent auditor's report for the year ended 31st March 2015 & 31st March 2014 were not received. Further, internal audit reports are not submitted.

6.5 The Auditor has remarked that the "Restructuring account pending adjustment" exceeded the authorized capital of JUSNL and was also not in accordance with the notified Transfer Scheme/ Notification of Government of Jharkhand. The auditor has also questioned the authenticity of receivable of long term capital advance, Short term loans & advance etc. due to inadequate internal controls, ineffective and delayed internal audit and lack of transparency through computerisation in financial/ operational fields.

6.6 The Commission also observes that the Auditors have pointed out that AS6 "Depreciation Accounting", AS 10 "Accounting for Fixed Assets", AS 1 "Disclosure of Accounting policy", AS 9 "revenue Recognition" etc. have not been complied with.

6.7 The Auditor has also noted that the company has not maintained proper records showing full particulars of fixed assets upto 31st March, 2016.

6.8 In view of the above, the Commission finds sufficient reason not to consider the opening balances for the FY 2016-17 (closing balances of the FY 2015-16) as per the Audited accounts submitted by the Petitioner.

6.9 Accordingly, the Commission directs the Petitioner to address the exceptions raised by the Auditor in an appropriate manner so that reliable data is available.

6.10 As stated in Para 6.8, the Gross Fixed Assets as per the Petition as well as the audited accounts are not reliable and as such cannot be considered at this stage. Accordingly, the Commission has considered the opening balance of GFA for FY 2016-17 based on the closing GFA for FY 2015-16 as per tariff order dated 14th December, 2015

6.11 Considering the capitalization approved for the control period in this Order, the Commission has determined the closing GFA for the Control period as summarized in the following table:

Table 32: Approved GFA for FY 2016-17 to FY 2020-21 (Rs. Cr.)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Opening Balance of GFA	1190.76	1317.90	2286.91	3209.49	4190.27
Additions during the year	127.14	969.01	922.57	980.78	2187.40
Closing Balance of GFA	**1317.90**	**2286.91**	**3209.49**	**4190.27**	**6377.67**

Debt-Equity Ratio

Petitioner Submission

6.12 The Petitioner submitted that closing balance of term loan as on 31st March 2016 is taken as the opening balance as loan for FY 2016-17. Depreciation for the year is considered as repayment during the year.

6.13 Addition of debt and equity during the year is based on the scheme wise actual financing plan. The following tables provide the details of debt and equity for the control period:

Table 33: Loan Balance for FY 2016-17 to FY 2020-21 (Rs. Cr.)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Opening Balance of Loan	1,420.63	1,475.68	2,930.01	4,000.22	5,527.75
Additions during the year	127.14	1,533.14	1,229.97	1,752.23	776.10
Repayments during the year	72.09	78.81	159.76	224.70	340.26
Closing Balance of Loan	**1,475.68**	**2,930.01**	**4,000.22**	**5,527.75**	**5,963.59**

Table 34: Equity Balance for FY 2016-17 to FY 2020-21 (Rs. Cr.)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Opening Balance of Equity	970.86	970.86	970.86	970.86	1,407.29
Additions during the year	-	-	-	436.43	332.62
Closing Balance of Equity	**970.86**	**970.86**	**970.86**	**1,407.29**	**1,739.90**

Commission Analysis

6.14 JSERC (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2015" states that:

7.10 For a project declared under commercial operation on or after 1.04.2016, if the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan:

Provided that where equity deployed is less than 30% of capital cost, the actual equity shall be considered for determination of tariff"

6.15 Since equity contribution is less than 30% of the capitalization during the control period, the commission has considered Debt-Equity based on actual Debt-Equity ratio. The following tables provide the details of Debt and Equity for the control period:

Table 35: Debt-Equity as approved by the Commission for FY 2016-17 to FY 2020-21 (Rs. Cr.)

Particulars	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Loan	127.14	969.01	922.57	980.78	1718.58
Equity	0.00	0.00	0.00	0.00	468.83
Total	**127.14**	**969.01**	**922.57**	**980.78**	**2187.40**
D/E ratio	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**21.43%**

Return on Equity

Petitioner's Submission

6.16 The Petitioner in its submission has calculated Return on equity on Average equity balance during the year with post tax return of 15.5%. Accordingly, year wise projections of Return on Equity is as follows:

Table 36: Return on equity for the control period FY 2016-17 to 2020-21 (Rs. Cr)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Opening Balance of Equity	970.86	970.86	970.86	970.86	1,407.29
Additions during the year	-	-	-	436.43	332.62
Closing Balance of Equity	970.86	970.86	970.86	1,407.29	1,739.90
Average balance during the year	970.86	970.86	970.86	1,189.08	1,573.60
Return On Equity @ 15.5%	**150.48**	**150.48**	**150.48**	**184.31**	**243.91**

Commission's Analysis

6.17 JSERC (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2015" states that:

"Return on equity shall be computed in rupee terms, on the equity base determined in accordance with clause 7.10 of these Regulations.

7.12 Return on equity shall be computed on pre-tax basis at the base rate of 15.50% applicable only for those Transmission systems which meet the norms of operation specified under clause 8.3 of these Regulations to be grossed up as per clause 7.13 of these Regulations."

6.18 As stated in Para 6.8, the Equity as per the Petition as well as the audited accounts are not reliable and as such cannot be considered at this stage. Accordingly, the Commission has considered the opening balance of Equity for FY 2016-17 based on the closing Equity for FY 2015-16 as per tariff order dated 14th December, 2015

6.19 The addition in equity for the control period has been considered as per Table 30 of this Order.

6.20 The return on normative equity as approved by the Commission for the Control Period is summarized in the following table:

Table 37: Approved Return on equity for the control period FY 2016-17 to 2020-21 (Rs. Cr)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Opening Balance of Equity	357.23	357.23	357.23	357.23	357.23
Additions during the year	0.00	0.00	0.00	0.00	468.83
Closing Balance of Equity	357.23	357.23	357.23	357.23	826.05
Average Equity Balance	357.23	357.23	357.23	357.23	591.64
Return on Equity @ 15.5%	**55.37**	**55.37**	**55.37**	**55.37**	**91.70**

Interest & Finance charges

Petitioner's submission

6.21 The petitioner has submitted that Interest & Finance Charges of the 2nd control period is projected in accordance with the JSERC (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2015. The Petitioner has submitted that for calculation of Interest and Finance charges, average loan balance during the year is considered for the control period. The interest rate of 13% on state government loan has been considered as rate of interest. The repayment for the year has been deemed to be equal to the depreciation allowed for that year in accordance with the Transmission Tariff Regulations, 2015. Summary of Interest & Finance Charges for the control period is given below:

Table 38: Interest & Finance charges for the control period FY 2016-17 to 2020-21 (Rs. Cr)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Opening Balance of Loan	1,420.63	1,475.68	2,930.01	4,000.22	5,527.75
Additions during the year	127.14	1,533.14	1,229.97	1,752.23	776.10
Repayments during the year	72.09	78.81	159.76	224.70	340.26
Closing Balance of Loan	1,475.68	2,930.01	4,000.22	5,527.75	5,963.59
Interest on Loan @ 13%	**188.26**	**286.37**	**450.46**	**619.32**	**746.94**

Commission's analysis

6.22 JSERC (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2015" states that:

"7.10 For a project declared under commercial operation on or after 1.04.2016, if the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan:

Provided that where equity deployed is less than 30% of capital cost, the actual equity shall be considered for determination of tariff:

7.15 The loans arrived at in the manner indicated in clause 7.10 of these Regulations shall be considered as gross normative loan for calculation of interest on loan.

7.16 The normative loan outstanding as on 1.4.2016 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2016 from the gross normative loan.

7.17 The repayment for the year of the Tariff Period shall be deemed to be equal to the depreciation allowed for that year.

7.19 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 Transmission System does not have actual loan, then the weighted average rate of interest of the Transmission Licensee as a whole shall be considered:"

6.23 As stated in Para 6.8, the Loan balance as per the Petition as well as the audited accounts are not reliable and as such cannot be considered at this stage. Accordingly, the Commission has considered the opening balance of Loan Balance for FY 2016-17 based on the closing Loan balance for FY 2015-16 as per tariff order dated 14th December, 2015

6.24 Addition during the control period has been considered as per Table 30 of this Order

6.25 The repayment for the year has been deemed to be equal to the depreciation allowed for that year in accordance with the Transmission Tariff Regulations, 2015.

6.26 Average loan balance during the year is considered for calculation of Interest on loan during the control period.

6.27 As stated in Para 5.54, the Commission observes that most of the schemes of the Petitioner are financed at 13% rate of interest which is higher that the rates currently prevailing in the market. The Commission also notes that the Petitioner has not taken any steps to get these schemes financed from the cheapest source at the first place. The Commission thus directs the petitioner to make all efforts to re-finance the loan for such schemes from the cheapest source available. The Petitioner may approach the State Government to convert the loans into grant or equity. The Petitioner may also look for Viability Gap Funding for schemes which may be developed for social cause.

6.28 Accordingly, the Commission has considered a rate of interest of 13% for FY 2016-17 and FY 2017-18 and a rate of 5% for the remaining period of the Control Period assuming the Petitioner is able to re-finance its loans and avail grant/ equity/VGF/cheaper loans.

6.29 The interest and finance charges approved by the Commission are as follows:

Table 39: Interest & finance Charges as approved by the Commission for the Control Period FY 2016-17 to FY 2020-21 (Rs. Cr.)

Particulars (Rs. Cr.)	2016-17	2017-18	2018-19	2019-20	2020-21
Opening Balance of Loan	527.68	600.79	1487.65	2278.13	3076.57
Additions during the year	127.14	969.01	922.57	980.78	1718.58
Repayments during the year	54.03	82.16	132.09	182.34	265.98
Closing Balance of Loan	600.79	1487.65	2278.13	3076.57	4529.16

Particulars (Rs. Cr.)	2016-17	2017-18	2018-19	2019-20	2020-21
Average Loan balance	**564.23**	**1044.22**	**1882.89**	**2677.35**	**3802.87**
Weighted Average Interest Rate	13.00%	13.00%	5.00%	5.00%	5.00%
Interest on Loan	**73.35**	**135.75**	**94.14**	**133.87**	**190.14**

Operation and Maintenance (O&M) Expenses

Petitioner's Submission

6.30 The rate used by the petitioner for escalation of employee costs and A&G expenses is 8%. The value of CPI has been considered as 9% (average of last 5 years) and WPI has been considered as 6.7% (average of last 5 years).

6.31 The Petitioner has taken an escalation factor of 8% to be used to arrive at the employee costs. Year wise projections are as follows:

Table 40: Employee expenses for the control period FY 2016-17 to 2020-21 (Rs. Cr)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Employee expenses	44.33	47.88	51.71	55.85	60.31

6.32 For projecting the A&G expenses, the petitioner has used the escalation rate of 8%. Accounts of FY 2014-15 has been taken, the same has been escalated over the years using a rate of 8% to arrive at the projected A&G expenses for each year.

Table 41: Administration & General (A&G) Expenses for the control period FY 2016-17 to 2020-21 (Rs. Cr)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Administration & General (A&G) Expenses	6.46	6.98	7.53	8.14	8.79

6.33 For R&M expenses, the Petitioner has determined the 'k' factor as per the Transmission Tariff Regulations, 2015. The 'K' factor for the 2nd control period is considered @ 5.57% after considering the values of R&M and GFA based on 2015-16 accounts.

Table 42: Calculation of K factor

Particulars	Amount (Rs. Cr.)
Opening GFA for 2015-16	1,365.43
Value of 'K'	**5.57%**

6.34 The petitioner has projected R&M expenses for the control period as follow:

Table 43: R&M expenses for the control period 2016-17 to 2020-21

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
R&M expenses	76.05	83.14	168.53	237.04	358.95

6.35 The summary of O&M expenses for the 2nd control period (FY 2016-17 to 2020-21) is given in the table below:

Table 44: Summary of O&M expenses for the 2nd control period (FY 2016-17 to 2020-21)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Employee expenses	44.33	47.88	51.71	55.85	60.31
A&G expenses	6.46	6.98	7.53	8.14	8.79
R&M expenses	76.05	83.14	168.53	237.04	358.95
Total O&M charges	**126.84**	**138.00**	**227.77**	**301.03**	**428.05**

Commission's analysis

6.36 As per Transmission Tariff Regulations 2015, the O&M expenses permissible towards ARR for each year of the Control Period shall be determined using the formula detailed below:

(a) $O\&M_n = (R\&M_n + EMP_n + A\&G_n) * (1 – X_n)$ + Terminal liabilities

(i) Where, $R\&M_n = K * GFA$;

(ii) $EMP_n + A\&G_n = (EMPn-1 + A\&Gn-1) * (INDX\ n/ INDX\ n-1)$; and

(iii) $INDX = 0.55 * CPI + 0.45 * WPI$

Where,

(b) $R\&M_n$ – Repair and Maintenance Costs of the Licensee for the n^{th} year;

(c) $A\&G_n$ – Administrative and General Costs of the Licensee for the n^{th} year;

(d) EMP_n – Employee Costs of the Licensee excluding terminal liabilities for the n^{th} year;

(e) X_n is an efficiency factor for n^{th} year.

(f) '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;

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

(h) $INDX_n$ – 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;

6.37 In accordance with the aforesaid Regulations, the Commission determined the inflation factor by taking weighted average of the WPI (new 2012 base year) and CPI (new 2012 base year) for the FY 2014-15 in the ratio 45:55. Thus, inflation factor for indexing the employee cost and A&G cost is determined to be 3.35%.

Employee Cost

6.38 The Commission has determined the employee cost for MYT control period by increasing the employee cost as per the Tariff Order dated 14th December, 2015, (excluding the amount of terminal benefits) by the inflation factor of 3.35%.

6.39 The Commission has considered the cost towards terminal benefits during the MYT control period to be same as that for FY 2015-16 as per Tariff Order dated 14th December 2015 subject to true up.

6.40 Thus, the employee cost determined by the Commission for the control period is summarized in the following table:

Table 45: Employee cost as approved by the Commission for the control period FY 2016-17 to FY 2020-21 (Rs Cr)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Employee Expenses without terminal benefits	33.77	34.90	36.07	37.28	38.52
Terminal Benefits	3.85	3.85	3.85	3.85	3.85

Administrative & General cost

6.41 The Commission has determined the A&G cost for the MYT control period by increasing the A&G cost as per the Tariff Order dated 14th December 2015, by the inflation factor of 3.35%. The A&G cost approved by the Commission is summarized in the following table:

Table 46: A&G cost as approved by the Commission for the control period FY 2016-17 to FY 2020-21 (Rs Cr)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
A&G Expenses	8.47	8.75	9.04	9.35	9.66

Repair & Maintenance cost

6.42 The K-factor considered by the Commission for estimating R&M cost for the MYT control period is as per Tariff Order dated 14th December 2015 which comes out to be 2.23%.

6.43 The R&M cost for each year of the control period has been computed by multiplying the 'K' factor with the approved opening GFA of the respective year

6.44 Thus, the R&M cost as approved by the Commission for the MYT control period is summarised in the following table:

Table 47: R&M cost as approved by the Commission for the Control period FY17-21 (Rs Cr)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Opening GFA	1190.76	1317.90	2286.91	3209.49	4190.27
% of R&M	2.23%	2.23%	2.23%	2.23%	2.23%
R&M expenses	26.51	29.34	50.92	71.46	93.30

6.45 Accordingly, the O&M cost submitted by the Petitioner and approved by the Commission is summarized in the following table:

Table 48: O&M cost as approved by the Commission for the Control Period FY 2016-17 to FY 2020-21 (Rs Cr)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Employee Expenses	37.61	38.74	39.91	41.12	42.37
A&G expenses	8.47	8.75	9.04	9.35	9.66
R&M Expenses	26.51	29.34	50.92	71.46	93.30
Total O&M charges	**72.59**	**76.84**	**99.88**	**121.93**	**145.33**

Interest on Working Capital

Petitioner's Submission

6.46 The Petitioner has submitted that the JSERC (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2015 has been considered for calculating interest on working capital. Petitioner submits that the interest rate on working capital of 12.8% is considered for the purpose of the interest calculations. The year wise estimation of working capital and interest on working capital for the 2nd control period FY 2016-17 to FY 2020-21 are as follows:

Table 49: Interest on Working capital for the control period FY 2016-17 to 2020-21 (Rs. Cr)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
O&M Expenses for one Month	10.57	11.50	18.98	25.09	35.67
15% of O&M expense as Maintenance Spares	19.03	20.70	34.17	45.15	64.21
2 months receivables of Annual Fixed Charges	108.16	110.85	168.23	226.55	300.29
Total Working Capital	137.75	143.05	221.38	296.79	400.16
Interest on Working Capital (%)	12.80%	12.80%	12.80%	12.80%	12.80%
Interest on Working Capital	**17.63**	**18.31**	**28.34**	**37.99**	**51.22**

Commission's Analysis

6.47 The Commission has considered the interest on working capital as per the norms specified in the JSERC (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2015.

6.48 As per Transmission Tariff Regulations, 2015, the working capital requirements shall be determined as per the following norms:-

a) Operation & Maintenance expenses for one month.

b) Maintenance spares @ 15% of operation and maintenance expenses

c) Receivables equivalent to two months of fixed cost

6.49 Rate of interest on working capital shall be on normative basis and shall be considered equal to the base rate of State Bank of India as on 30th September of the financial year in which the Petition is filed plus 350 basis points.

6.50 The interest on working capital approved by the Commission for the control period is summarized in the following table:

Table 50: Interest on working capital as approved by the Commission for the control period FY 2016-17 to FY 2020-21 (Rs Cr)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
O&M Expenses for one Month	6.05	6.40	8.32	10.16	12.11
15% of O&M expense as Maintenance Spares	10.89	11.53	14.98	18.29	21.80
2 months receivables of Annual Fixed Charges	43.85	60.02	65.47	84.66	118.78
Total Working capital	60.79	77.94	88.78	113.11	152.69
Interest rate (%)	12.80%	12.80%	12.80%	12.80%	12.80%
Interest on working capital	**7.78**	**9.98**	**11.36**	**14.48**	**19.54**

Depreciation

Petitioner's Submission

6.51 The Petitioner submitted that the depreciation for the 2nd control period has been estimated considering the following regulations of Transmission Tariff Regulations 2015. Closing value of gross block for 2015-16 i.e. INR 1,365 Cr. has been considered as the opening value for the 2nd control period.

6.52 The Petitioner submitted that depreciation for the control period has been computed on opening gross fixed assets and the depreciation rate is assumed at 5.28% on average basis. Thus, the depreciation cost for the control period has been projected to be as follows:

Table 51: Depreciation for the control period FY 2016-17 to 2020-21 (Rs. Cr)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Opening Balance of GFA	1,365.43	1,492.57	3,025.71	4,255.68	6,444.33
Depreciation	**72.09**	**78.81**	**159.76**	**224.70**	**340.26**

Commission's Analysis

6.53 The Commission determined asset-wise depreciation with additions in asset during the year considered as per the approved capitalization for the year. The depreciation rates for the various asset classes have been considered as per the Transmission Tariff Regulations, 2015. Accordingly, the depreciation cost approved by the Commission for the control period is summarized in the following table:

Table 52: Depreciation cost as approved by the Commission for the control period FY 2016-17 to FY 2020-21 (Rs Cr)

Particulars	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Opening GFA	1190.76	1317.9	2286.91	3209.48	4190.26
Additions	127.14	969.01	922.57	980.78	2187.4
Closing GFA	1317.9	2286.91	3209.48	4190.26	6377.66
Depreciation	**54.03**	**82.16**	**132.09**	**182.34**	**265.98**

Non-Tariff Income (NTI)

Petitioner's Submission

6.54 The petitioner submitted that for estimating the Non-Tariff Income, the petitioner has used the metric of 8% escalation rate. The Non-Tariff Income for JUSNL is based on audited accounts of 2014-15, the figures were then escalated by 8% to get the projections for 2015-16 and then these 2014-15 figures were escalated to get the projections for 2nd control period. The details of the Non-tariff income for the 2nd control period are as follows:

Table 53: Non –Tariff for the Control period FY 2016-17 to 2020-21 (Rs. Cr.)

Non-Tariff Income	2016-17	2017-18	2018-19	2019-20	2020-21
Interest from Banks other than Fixed Deposits	2.04	2.21	2.38	2.57	2.78
Miscellaneous receipts	4.32	4.67	5.04	5.44	5.88
TOTAL	**6.37**	**6.87**	**7.42**	**8.02**	**8.66**

Commission's Analysis

6.55 The Commission has considered the Non-Tariff income for FY 2016-17 considering 5% escalation every year to the Non-Tariff income approved for the FY 2015-16 as per the Tariff Order dated 14th December 2015 Accordingly, the non-tariff income approved by the Commission for the control period is summarized in the following table:

Table 54: Non-tariff income as approved by the Commission for FY 2016-17 to FY 2020-21 (Rs Cr)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Non-Tariff income	**5.90**	**6.20**	**6.51**	**6.83**	**7.17**

Treatment of Unfunded gap from the Transmission Tariff order of FY 2015-16

Petitioner's Submission

6.56 The petitioner has claimed unaccounted approved gap of Rs. 100 Crore as per previous tariff order.

Commission's Analysis

6.57 The Commission in its tariff order for JUSNL dated 14th December 2015 had provisionally approved Revenue gap of Rs. 100.72 Cr. Since the last Order was issued on provisional basis in the absence of Transfer Scheme and audited annual accounts for the period FY 2013-14 to FY 2015-16, the Commission does not find it prudent to carry forward any unfunded gap from the last Tariff Order. Once the Commission has carried out the True-up of the relevant years, only then the accumulated gap or the surplus, as the case may be, ought to be considered for adjustment in the tariffs.

Summary of ARR for the Control Period FY 2016-17 to FY 20120-21

6.58 The following table contains a summary of ARR for FY 2016-17 to FY 2020-21 as submitted by the Petitioner:

Table 55: Aggregate Revenue Requirement for the Control Period proposed by the Petitioner (Rs Cr)

Particulars	FY17	FY18	FY19	FY20	FY21
Operation & Maintenance Expenses	127	138	228	301	428
Employee Expenses	*44*	*48*	*52*	*56*	*60*
A&G Expenses	*6*	*7*	*8*	*8*	*9*
R&M Expenses	*76*	*83*	*169*	*237*	*359*
Depreciation Expenses	72	79	160	225	340
Interest and Finance Charges	188	286	450	619	747
Interest on Working Capital	18	18	28	38	51
Return on Equity Capital	150	150	150	184	244
Aggregate Revenue Requirement	**554**	**671**	**1016**	**1367**	**1810**
Less: Non-Tariff Income	6	7	7	8	9

Aggregate Revenue Requirement	**548**	**664**	**1009**	**1359**	**1801**
Un-accounted approved Gap of previous tariff order	100				
Aggregate Revenue Requirement including past gaps	**648**	**664**	**1009**	**1359**	**1801**

6.59 The following table contains a summary of ARR for the control period as approved by the Commission:

Table 56: Aggregate Revenue Requirement as approved by the Commission for the Control Period FY 2016-17 to FY 2020-21 (Rs Cr)

Particulars (Rs. Cr.)	2016-17	2017-18	2018-19	2019-20	2020-21
Operation & Maintenance Expenses	72.59	76.84	99.88	121.93	145.33
Depreciation Expenses	54.03	82.16	132.09	182.34	265.98
Interest and Finance Charges	73.35	135.75	94.14	133.87	190.14
Interest on Working Capital	7.78	9.98	11.36	14.48	19.54
Return on Equity Capital	55.37	55.37	55.37	55.37	91.70
Aggregate Revenue Requirement	**263.13**	**360.09**	**392.85**	**507.99**	**712.70**
Less: Non-Tariff Income	5.90	6.20	6.51	6.83	7.17
Revenue Gap of previous tariff order	0.00	0.00	0.00	0.00	0.00
Aggregate Revenue Requirement from Transmission	**257.22**	**353.89**	**386.34**	**501.16**	**705.53**

Transmission Tariff for FY 2016-17

Petitioner's Submission

6.60 The Petitioner submits that Transmission tariff regulations 2015 states that:

"8.6 The fixed cost of the Transmission System shall be computed on annual basis, in accordance with norms contained in these Regulations, aggregated as appropriate, and recovered on monthly basis as transmission charge from the users.

8.9 The Annual Transmission Charge (ATC) shall be divided between Beneficiaries of the Transmission System on monthly basis based on the Allotted Transmission Capacity or contracted capacity, as the case may be."

6.61 The petitioner submits that JBVNL is the sole beneficiary of the JUSNL's transmission system, and hence, the entire transmission charges proposed in this petition are to be recovered from JBVNL.

6.62 The summary of monthly transmission charges for FY 2016-17 to 2020-21 for the transmission business as filed by licensee in the Petition has been summarized in table below:

Table 57: Proposed Monthly Charges (Rs. Cr.)

Particulars	FY17	FY18	FY19	FY20	FY21
ARR	648	664	1009	1359	1801
Monthly Transmission charges	**54.00**	**55.33**	**84.08**	**113.25**	**150.08**
Projected Transmission (MUs)	13,175	16,475	20,901	21,958	23,130

Commission's Analysis

6.63 The summary of monthly transmission charges for FY 2016-17 to FY 2020-21 for the transmission business as approved by the Commission has been summarized in table below which shall remain applicable till amended or modified or extended by an Order of this Commission:

Table 58: Monthly charges as approved by the Commission (Rs. Cr)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
ARR	257.22	353.89	540.26	635.40	795.03
Projected Transmission (MUs)	10,142*	16,475	20,901	21,958	23,130

**Based on revised submission for FY 2016-17*

6.64 The Commission approves transmission tariff of Rs 0.25 per kWh for FY 2016-17, which shall remain applicable till amended or modified or extended by an Order of this Commission.

6.65 The Commission, during the course of scrutiny of the Petition, public hearings and discussions with the Petitioner, observed that various assets of the Petitioner are designed for higher voltages while they are being used for transmitting at lower voltages. Moreover, inspite of repeated directions of the Commission, the Petitioner failed to clearly establish the need of various infrastructure proposed by it and how the Petitioner plans to ensure that networks are not built in isolation and upstream and downstream networks are also built for every network. In view of above, it is not prudent to allow recovery of charges on the basis of monthly fixed charge basis as it shall unduly burden the consumers due to lack of proper planning of the Petitioner. The Commission continues with the approach adopted in previous Tariff Orders and approves a per unit tariff, which shall also incentivise the Petitioner to improve its efficiency, build synchronous networks and ensure transmission of energy at designed voltages.

A7: AGGREGATE REVENUE REQUIREMENT FOR MYT CONTROL PERIOD FY 2016-17 TO FY 2020-21 FOR SLDC BUSINESS

Petitioner Submission

Renovation & Modernization

7.1 The Petitioner submitted that the projected capitalization towards the Renovation, modernization and augmentation of the SLDC is expected to be Rs. 0.65 Crore during the 2nd control period. Year wise details of capitalization are as follows:

Table 59: Capitalization (R&M and augmentation) of SLDC for the 2nd control period (Rs. Cr)

Particular	2016-17	2017-18	2018-19	2019-20	2020-21
Capitalization (R&M and augmentation)	0.13	0.13	0.13	0.13	0.13

Return on equity

7.2 The petitioner submitted that return on equity has been calculated as per Regulation 7.12 and 7.13 of the JSERC (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2015

7.3 The Petitioner submitted that return on equity for the control period FY 2016-17 to FY 2020-21 is as follows:

Table 60: Return on equity of SLDC for the control period FY 2016-17 to 2020-21 (Rs. Cr)

Particular	2016-17	2017-18	2018-19	2019-20	2020-21
Regulatory Equity at the beginning of the year	0.99	0.99	0.99	0.99	0.99
Capitalization during the year					
Equity portion of capitalization during the year					
Regulatory Equity at the end of the year	0.99	0.99	0.99	0.99	0.99
Return on Regulatory Equity at the beginning of the year	0.23	0.23	0.23	0.23	0.23
Return on Equity portion of capitalization during the year					
Return on equity	**0.23**	**0.23**	**0.23**	**0.23**	**0.23**

Interest and Finance Charges

7.4 The petitioner submitted that return on equity has been calculated as per JSERC (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2015.

7.5 The weighted average interest rate of the loan portfolio has been considered as 11.3% (SBI Base rate of 9.3% + 200 basis points). The projected interest and finance charges for the control period FY 2016-17 to FY 2020-21 is as follows:

Table 61: Interest & Finance charges of SLDC for the control period FY 2016-17 to 2020-21 (Rs. Cr)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Opening balance	2.31	2.13	1.95	1.78	1.60
Asset Addition					
Less :Depreciation	0.18	0.18	0.18	0.18	0.18
Closing balance	**2.13**	**1.95**	**1.78**	**1.60**	**1.42**
Interest	**0.25**	**0.23**	**0.21**	**0.19**	**0.17**

Depreciation

7.6 The Petitioner submitted that depreciation has been estimated considering the following regulations of Transmission Tariff Regulations 2015. Depreciation for the control period is as follows:

Table 62: Depreciation of SLDC for the control period FY 2016-17 to 2020-21 (Rs. Cr)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Depreciation	0.18	0.18	0.18	0.18	0.18

Interest on Working Capital

7.7 The Petitioner submitted that Interest on working capital has been calculated based on the JSERC (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2015

7.8 Petitioner submitted that the interest rate on working capital of 12.8%, has been considered for the purpose of the interest calculations. Interest on working capital for the control period is as follows:

Table 63: Interest on Working capital of SLDC for the control period FY 2016-17 to FY 20120-21 (Rs. Cr.)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Working Capital	0.81	0.86	0.91	0.97	1.03
Interest	**0.10**	**0.11**	**0.12**	**0.12**	**0.13**

Operation & Maintenance Expenses (O&M)

7.9 The Petitioner submitted that O&M expenses has been calculated based on the JSERC (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2015

7.10 The O&M expenses for the state load dispatch centre (SLDC) projected for the 2nd control period are as follows:

Table 64: O&M expenses of SLDC for the 2nd control period FY 2016-17 to 2020-21 (Rs. Cr)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Employee expenses	1.30	1.40	1.52	1.64	1.77
Administration & General (A&G) Expenses	0.31	0.33	0.36	0.39	0.42
R&M expenses	0.13	0.13	0.13	0.13	0.13
Total O&M expenses	**1.74**	**1.87**	**2.01**	**2.16**	**2.32**

Summary of SLDC ARR for the Control Period FY 2016-17 to FY 20120-21

7.11 The petitioner submitted the year wise ARR of SLDC for the 2nd control period (FY 2016-17 to 2020-21) as follows:

Table 65: ARR Summary of SLDC for the control period FY 2016-17 to 2020-21 (Rs. Cr)

ARR	Control Period				
	2016-17	2017-18	2018-19	2019-20	2020-21
Operation & Maintenance Expenses	1.74	1.87	2.01	2.16	2.32
Employee Expenses	*1.30*	*1.40*	*1.52*	*1.64*	*1.77*
A&G Expenses	*0.31*	*0.33*	*0.36*	*0.39*	*0.42*
R&M Expenses	*0.13*	*0.13*	*0.13*	*0.13*	*0.13*
Depreciation Expenses	0.18	0.18	0.18	0.18	0.18
Interest and Finance Charges	0.25	0.23	0.21	0.19	0.17
Interest on Working Capital	0.10	0.11	0.12	0.12	0.13
Return on Equity Capital	0.23	0.23	0.23	0.23	0.23
Aggregate Revenue Requirement	**2.50**	**2.62**	**2.74**	**2.88**	**3.03**

Proposal of SLDC Charges

7.12 The Petitioner submitted that it has proposed recovery of SLDC charges based on CERC (Fees and Charges on regional Load Despatch Center and other related matters) regulations, 2015.

7.13 The petitioner has proposed that Annual charges for SLDC be recovered through a mix of System Operation charges and Market Operation charges. Annual Charges shall comprise of:

a) System Operation charges : 80% of Annual charge

b) Market Operation charge : 20% of Annual charge

7.14 System Operation Charges (SOC) shall be collected from the users in the following ratio

a) Intra State Transmission Licensee - 10% on the basis of ckt-kms

b) Generating Company & Sellers - 45% in the basis of Installed capacity

c) Distribution Licensee & Buyers - 45% in the basis of allocation

7.15 Market Operation Charges (MOC) shall be collected equally from the Discoms and Generating Companies apportioning to the entitlement and Installed Capacity respectively.

7.16 SLDC charges for the 2nd control period are proposed to be recovered in the following manner:

Table 66: Proposal of SLDC Charges as submitted by the petitioner (Rs. Cr.)

Particulars	2016-17	2017-18	2018-19	2019-20	2020-21
Annual Fixed Charges (AFC)	**2.50**	**2.62**	**2.74**	**2.88**	**3.03**
SOC (80% of AFC)	**2.00**	**2.10**	**2.19**	**2.30**	**2.42**
Intra state transmission licensee @10% of SOC	0.20	0.21	0.22	0.23	0.24
Generating company @45% of SOC	0.90	0.94	0.99	1.04	1.09
Distribution licensee @45% of SOC	0.90	0.94	0.99	1.04	1.09
MOC (20% of AFC)	**0.50**	**0.52**	**0.55**	**0.58**	**0.61**
Generating company @50% of SOC	0.25	0.26	0.27	0.29	0.30
Distribution licensee @50% of SOC	0.25	0.26	0.27	0.29	0.30

Commission Analysis

7.17 The Commission had directed the Petitioner to submit audited accounts of SLDC business for FY 2015-16. The Petitioner failed to submit the same.

7.18 The Commission then directed the Petitioner to submit basis of calculation of SLDC charges. The Petitioner submitted that it had projected the ARR of SLDC business for the second control period based on the actual records of trial balance of FY 2013-14. The Commission directed the petitioner to submit such Trial balance recordings. The Petitioner failed to submit such details of trial balance of SLDC business.

7.19 The Commission then directed the petitioner to submit account for SLDC business from December 2016 to March 2017 as the Petitioner had mentioned that it has started to maintain accounts from December 2016. The petitioner failed to submit the accounts for this period as well.

7.20 The Petitioner has repeatedly not only failed to submit any basis for projecting the ARR of its SLDC business but also any documentary evidence of such charges which shall enable the Commission to justify approval of ARR of SLDC business. Hence, at present Commission does not approve any ARR for SLDC business without any accounts and directs the Petitioner to submit accounts of SLDC business for the relevant years along with the next Tariff Petition.

DIRECTIVES

True up petition for FY 2015-16, FY 2016-17 and Tariff Petitions for FY 2017-18, FY 2018-19

7.21 The Commission directs the Petitioner to file True up Petition for FY 2015-16, FY 2016-17 and ARR petition for FY 2017-18 and FY 2018-19 in next two months from the issue of this order. The Commission directs the Petitioner to submit CAG report of accounts of FY 2015-16 and FY 2016-17 along with the True up petition of FY 2015-16 and FY 2016-17.

7.22 The Commission directs the Petitioner to address the exceptions raised by the Auditor in Accounts of FY 2015-16 in an appropriate manner so that reliable data is available and submit the steps taken to rectify these exceptions in the true up petition of FY 2015-16 and FY 2016-17.

7.23 The Commission directs the JUSNL to maintain asset/ property register showing details of nature of equipment, value of equipment, details of land, extent of land, buildings, etc. and shall submit the details along with tariff petition to be filed every year from FY 2018-19 onwards.

Detailed Project Reports (DPRs)

7.24 The Commission directs the Petitioner to submit remaining DPRs of World Bank scheme with cost benefit analysis in the subsequent tariff petition failing which the Commission shall be compelled to disallow the entire capitalization of World Bank funded schemes.

Strengthening of transmission network

7.25 The Commission directs the Petitioner to make all out efforts to ensure that for every network, upstream and downstream network is also built in synchronization and there is no stranded asset as the transmission infrastructure cannot operate in isolation. Moreover, the Petitioner should ensure that before taking up any project/ capital expenditure, prior approval of the Commission should be sought in accordance with the Tariff Regulations and Regulatory Accounting principles, failing which penal action may be taken.

7.26 The Commission also directs the petitioner to submit status of meters available and operational at various locations in the JUSNL grid as on 1st April 2017 in the format as under within next two months from issue of this order:

Voltage Level	Number of feeders/ bays and interface points where meters are required	Number of meters Provided	Number of meters in working conditions
440 kV			

Voltage Level	Number of feeders/ bays and interface points where meters are required	Number of meters Provided	Number of meters in working conditions
220 kV			
132 kV			
33 kV			

7.27 The Commission directs JUSNL to conduct energy accounting and audit of its transmission system based on the energy meters presently installed on monthly basis and submit copy of the report to the Commission by 20th of succeeding month. Such report for the month of April 2018 shall be sent to the Commission by 20th May, 2018.

7.28 The Commission also directs the Petitioner to submit the status/ value of power transformer earthing every six (6) months to the Commission. The Petitioner should also submit the status of bus coupler bays at various voltage levels every six (6) months.

Projects under PPP mode

7.29 The Petitioner, in its Petition, had submitted that projects under PPP mode shall be selected through tariff based competitive bidding and the tariff shall be recovered directly by the agency from JBVNL. The Commission, at the moment, has not considered project under PPP mode as part of capital expenditure. Moreover, the submission of the Petitioner is vague and ambiguous. The Petitioner has not mentioned whether the infrastructure to be built under the PPP mode would be built by the private player on behalf of JUSNL or whether it would be built on behalf of JBVNL. In case it is to be built on behalf of JUSNL, which is the transmission licensee and caters to consumers other than JBVNL such as Open Access consumers, railways etc., then contention of the recovery of charges directly by the private party from JBVNL is erroneous. Moreover, JUSNL should independently assess the requirement of the infrastructure backed by detailed studies besides assessing the business model to be adopted for entering into a PPP arrangement. In case the infrastructure is to be built as per requirement of JBVNL, the Commission observes that there is no mention of such infrastructure (and consequent payment of transmission charges) in the business plan of JBVNL for the period FY 2016-17 to FY 2020-21. Moreover, the role of JUSNL in such a case is also not clear. Due to lack of clarity, the Commission does not approve the submission of the Petitioner at this stage and directs it to submit to the Commission the requisite details as elucidated above, before chalking out any plan for such PPP participation.

Re-financing of State Government Loans

7.30 The Commission observes that most of the schemes of the Petitioner are financed at 13% rate of interest which is higher than the rates currently prevailing in the market. The Commission also notes that the Petitioner has not taken any step to get these schemes financed from the cheapest source at the first place. The Commission thus directs the petitioner to make all efforts to re-finance the loan for such schemes from the cheapest source available. The Petitioner may approach the State Government to convert the loans into grant or equity. The Petitioner may also look for Viability Gap Funding for schemes which may be developed for social cause. The Petitioner is directed to submit along with the next tariff petition, the steps taken towards refinancing of these schemes and efforts made with the State Government to convert the loans from them to a viability gap funding/ soft loan/grant/ equity.

Segregation of SLDC

7.31 The Commission observes that the Petitioner has failed to submit segregated information for SLDC backed by documentary evidence/ accounts etc. The Commission directs the Petitioner to strictly segregate the SLDC function from its transmission business and maintain segregated audited accounts for the same. The Petitioner should submit a report on the same within two months of issuance of this Order.

This Order is signed and issued by the Jharkhand State Electricity Regulatory Commission on this the 24th day of February, 2018.

Date: 24 February 2018
Place: Ranchi

Sd/-	**Sd/-**
(R.N. Singh)	**(Dr. Arbind Prasad)**
MEMBER (Engg.)	**CHAIRPERSON**

ANNEXURES

Annexure-I: List of participating members of public in the public hearing

Sl. No.	Name	Address / Organization if any
Public Hearing at Ranchi		
1.	Sunil Kumar Thakur	CE (E&R), JBVNL
2.	Niranjan Kumar	MD, JUSNL
3.	K.R. Sinha	ESE, JUSNL
4.	Vidya Sagar Singh	ESE, Trans, JUSNL
5.	P R R Singh	GM cum CE/TZI, Ranchi , JUSNL
6.	Ajay Prasad	CE (Tr. O&M), JUSNL
7.	Jay Prkash	ESE (TR)
8.	Jayant Prasad	DGM (F&A), JUSNL
9.	S. K. Singh	ESE, JUSNL
10.	C. M. Sharma	CE, (SLDC/ULDC)
11.	Shailesh Prakash	ESE, SLDC
12.	Thiophil Kullu	F.C, JUSNL
13.	Rajesh Kumar Pandey	EEE/SLDC
14.	Avinash Alda	EEE, Trans (O&M), JUSNL
15.	R.P. Choudhary	EEE Trans. Aon- I, Ranchi
16.	Doman Ram Mahto	A.EX.E Trans (O&M) H/Qtr.
17.	Shipra Sinani	Medhaj Technoconcept Pvt. Ltd.
18.	Vivek Pandey	Medhaj Technoconcept Pvt. Ltd.
19.	Anita Prasad	JBVNL
20.	Ravishankar Kumar	JBVNL
21.	I. K. Guna	JBVNL, (C&R)
22.	Bindu Kumari	JUSNL, Zone - I
23.	Kanchan Kumari	JUSNL, Noze - I
24.	Rishi Nandan	ESE, JBVNL
25.	C. S. Pandey	JUSNL, Zone - I
Public Hearing at Deogarh		
1.	Pawan Kumar	Deoghar Circle
2.	Pravin Kumar	Deoghar Circle
3.	Ravi Pandey	Deoghar Circle
4.	Sanjeev Kumar	Deoghar Circle
5.	Jay Kumar	Deoghar Circle
6.	Pradeep Kumar	Deoghar
7.	R.V. Mishra	GM-cum-CE, Dumka
8.	Subhanker Jha	ESE, Deoghar
9.	Kavan Swan	EJ
10.	Sanjay Kumar Singh	EIE (Tran.)
11.	Sanjeev Kumar Burnwal	ESE Tr. Circle, Deoghar
12.	Basuder Mahato	A.Ex. E. Trans (O&M)
13.	Atul Kumar	Director (P), JUSNL
14.	R.L. Paswan	ESE/TC/Dumka
15.	P. Oraon	ESE/TC/Dumka
16.	Ajay Prasad	CE (Tr. O&M)
17.	Jayant Prasad	DGM, JUSNL
18.	Jay Prakash	Eink (Trans), JUSNL
19.	Vdya Sagar Singh	ESE/Trans, JUSNL

Sl. No.	Name	Address / Organization if any
20.	Jai Prakash Pandey	C/Deoghar IB
21.	Kamlesh Kumeen	EEE Deoghar
22.	Kumar Sambhav	EEE/Tr. (O&M)
23.	Atilesh Gautam	EEE/TD/Deoghar-I
24.	Raj Kumar Jha	AO/TC/Dumka
25.	R.N. Sharma	Deoghar
26.	Jai Prakash	B. Deoghar
27.	S.K. Singh	M/s Prakash Iron & Steel
28.	Omprakash Chhabaria	Member SPSIA
29.	P.R. Bhagat	JUSNL
30.	Rajiv	DBA Advocate
31.	C. Marandi	Trans, Dumka
32.	A. Ekka	Trans div. lalmatia
33.	Shri Binod Kumar Mandal	Dumka, Trans. Circle
34.	Shivam	Lalmatia
35.	Bhup Narayan Jha	Jaridih
36.	Rohit	Deoghar
37.	Manoj Kumar	S. News