

**BEFORE**

**THE HON'BLE BIHAR ELECTRICITY REGULATORY COMMISSION  
VIDYUT BHAWAN -II, PATNA**

**Petition**

**For**

**Submission of Business Plan**

**For**

**Control Period FY 2019-22**

**For**

**Bihar State Power Transmission Company Limited**

**(BSPTCL)**

**Patna**



**4<sup>th</sup> Floor, Vidyut Bhawan**

**Bailey Road**

**Patna - 800 021**

**November 01, 2018**



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BEFORE, THE BIHAR ELECTRICITY REGULATORY COMMISSION,

IN THE MATTER OF

Filing of the Petition for submission of Business Plan for control period from FY 2019-20 to FY 2021-22 under Bihar Electricity Regulatory Commission (Multiyear Transmission Tariff and SLDC Charges) Regulations, 2018 along with other governing regulations including Bihar Electricity Regulatory Commission (Conduct of Business) Regulations 2005, Bihar Electricity Regulatory Commission (Fees, Fines and Charges) Regulations 2005 and Bihar Electricity Regulatory Commission (Procedure for filing Capital investment and Capitalisation plan) Regulations, 2018

AND

IN THE MATTER OF

BIHAR STATE POWER TRANSMISSION COMPANY LIMITED (hereinafter referred to as "BSPTCL" or "Petitioner" which shall mean for the purpose of this Petition, the Licensee), having its registered office at 4rth Floor, Vidyut Bhawan, Bailey Road, Patna - 800021.

The Petitioner respectfully submits as under:

1. The petitioner is a registered entity under Companies Act, 1956 in June 2012 to which State Government through Department of Energy has vested transmission undertakings in Bihar of the erstwhile Bihar State Electricity Board and is fully own subsidiary of Bihar State Power Holding Company Limited. BSPTCL owns and operates the transmission system above 33 kV level i.e. 132 kV and 220 kV system in Bihar State.



2. Further, BSPTCL is a deemed licensee in terms of section 14 of the Electricity Act, 2003, engaged in the business of transmission of electricity in the State of Bihar.
3. Pursuant to Section 5.1 of Bihar Electricity Regulatory Commission (Multiyear Transmission Tariff and SLDC Charges) Regulations 2018, BSPTCL is filing the Business Plan for Control Period FY 2019-20 to FY 2021-22.
4. The Multi-Year Tariff (MYT)/Business plan petition on behalf of all the companies was filed on 14.11.2012 by BSPHCL for control period FY 2013-14 to FY 2015-16. The Hon'ble Commission had issued common tariff order for all the entities on March 15, 2013.
5. The Petitioner had then filed petition for Annual Performance Review for FY 2013-14 and Revised ARR for FY 2014-15 on November 14, 2013 and accordingly the Hon'ble Commission had issued tariff order dated February 28, 2014.
6. The Petitioner had then filed petition for True-up for FY 2013-14, Annual Performance Review (APR), Revised Annual Revenue Requirement (ARR) for FY 2015-16 and accordingly the Hon'ble Commission had issued tariff order dated March 12, 2015.
7. The Petitioner had then filed a petition for True-up for FY 2014-15, Annual Performance Review (APR) for FY 2015-16 and approval of the Annual Revenue Requirement (ARR) for the period FY 2016-17 to FY 2018-19 and determination of tariff for FY 2016-17 on December 28, 2015. The Hon'ble Commission had issued the Tariff Order on March 21, 2016.
8. The Petitioner had then filed a petition for True-up for FY 2015-16, Annual Performance Review (APR) for FY 2016-17 and Determination of Annual Revenue Requirement (ARR) and Tariff for FY 2017-18 and accordingly the Hon'ble Commission had issued tariff order dated March 9, 2017.
9. The petitioner had then filed a petition for True-up for FY 2016-17, Annual Performance Review (APR) for FY 2017-18, Annual Revenue Requirement (ARR) for FY 2018-19 considering the approved values of MYT order dated 21.03.2016 and accordingly the Hon'ble Commission had issued the tariff order



on 07.03.2018.

10. BSPTCL, for the first time is filing its Business Plan for Control Period FY 2019-20 to FY 2021-22.in accordance with Section 5.1 of Bihar Electricity Regulatory Commission (Multiyear Transmission Tariff and SLDC Charges) Regulations 2018 and Bihar Electricity Regulatory Commission (Procedure for filing Capital investment And Capitalization plan) Regulations, 2018.
11. As per the MYT Regulations, Business Plan should comprise but not limited to infrastructure requirement commensurate with load growth forecast and demand projections, capital investment plan, financing plan and physical targets.
12. This instant Petition is being filed before the Hon'ble Commission for approval of its Business Plan for the control period FY 2019-20 to FY 2021-22.
13. This Petition has been prepared in accordance with the directions under Sec 11.2 of Bihar Electricity Regulatory Commission (Multiyear Transmission Tariff and SLDC Charges) Regulations, 2018. Computation of Aggregate Revenue Requirement (ARR) will be based on the Business Plan.
14. As part of this petition, BSPTCL is submitting the relevant data and information to the extent applicable and would make available any further information/additional data as may be required by the Hon'ble Commission during the course of the proceedings.

**Prayers to the Commission:**

The Petitioner respectfully prays that the Hon'ble Commission may:

- a) Admit this Petition;
- b) Examine the proposal submitted by the Petitioner in the enclosed Petition for a favourable dispensation;
- c) Pass suitable orders with respect to the approval of Capital investments and capitalisation proposed during the Control Period FY 2019-20 to FY 2021-22



- d) Consider the submissions and pass suitable orders with respect to approval of performance targets of the transmission system for Control Period FY 2019-20 to FY 2021-22
- e) Pass suitable orders with respect to the approval of other related expenses as forecasted in the business plan for operating the transmission system for Control Period FY 2019-20 to FY 2021-22.
- f) Condone any inadvertent omissions, errors, short comings and permit BSPTCL to add/ change/ modify/ alter this filing and make further submissions as may be required at a future date; and
- g) Pass such Order as the Hon'ble Commission may deem fit and appropriate keeping in view the facts and circumstances of the case.

Declaration that the subject matter of the petition has not been raised by the petitioner before any other competent forum, and that no other competent forum is currently seized of the matter or has passed any orders in relation thereto

**Dated: November 1, 2018**

**Rakesh**  
**Chief Engineer**  
**(Power Management Cell)**



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## 1 Background

### 1.1 About BSPTCL

**Bihar State Power Transmission Company Limited**, a subsidiary company of Bihar State Power (Holding) Company Limited, is a wholly owned corporate entity incorporated under the Companies Act 1956 on 1st Nov, 2012 after restructuring of erstwhile Bihar State Electricity Board.

### 1.2 Formation of BSPTCL

Bihar State Electricity Board (“Board” or “BSEB”) originally constituted on 1st April 1958 under Section 5 of the Electricity (Supply) Act, 1948 and was engaged in the management of electricity generation, transmission, distribution and related activities in the State of Bihar.

Under the new „Bihar State Electricity Reforms Transfer Scheme 2012“, the BSEB has been unbundled into five companies: Bihar State Power (Holding) Company Limited (BSPHCL), Bihar State Power Transmission Company Limited (BSPTCL), Bihar State Power Generation Company Limited (BSPGCL), South Bihar Power Distribution Company Limited (SBPDCL) and North Bihar Power Distribution Company Limited (NBPDC) with effect from 1st November“ 2012 vide notification dated 30.10.2012.

- a) **“Bihar State Power (Holding) Company Limited” or “BSP(H)CL”** means the Company that will own shares of newly incorporated reorganized four companies i.e. Bihar State Power Generation Company Limited, Bihar State Power Transmission Company Limited, South Bihar Power Distribution Company Limited, and North Bihar Power Distribution Company Limited.





- b) **“Bihar State Power Generation Company Limited” or “BSPGCL”** means the Generating Company to which the Generating Undertakings of the Board are to be transferred in accordance with this Scheme
- c) **“Bihar State Power Transmission Company Limited” or “BSPTCL”** means the Transmission Company to which the Transmission Undertakings of the Board are to be transferred in accordance with this Scheme
- d) **“South Bihar Power Distribution Company Limited” or “SBPDCL” and “North Bihar Power Distribution Company Limited” or “NBPDCCL”** collectively mean the Distribution Companies, to which the Distribution Undertakings of the Board are to be transferred in accordance with this Scheme

### 1.3 Profile of BSPTCL

Primarily, the transmission of power takes place at 400 kV, 220 kV and 132 kV voltage levels. The total capacity in the transmission system as September’2018 is as provided in the table below:

**Table 1-1: Number of Grid Sub-stations**

Sub-stations	In Numbers
220/132/33 kV	15
220/132 kV	2
132/33 kV	120



**Table 1-2: Transmission Line Length (in Ckm)**

<b>Transmission Lines (in Ckm.)</b>	<b>No. of Trans.Lines</b>	<b>Total Ckt Length</b>
220 KV	63	3794.144
132 KV Double Ckt. Line	291	10063.619

**Table 1-3: Transformer Capacity in MVA**

<b>Voltage Level</b>	<b>No. Of Transformers</b>	<b>Total Capacity</b>
220/132 kV	53	6750
132/33 kV	335	12020

The power supply position in the State of Bihar is improving and Bihar Utilities are taking all required steps to strengthen and develop the electricity infrastructure in transmission and distribution. Further there is need to create infrastructure taking into consideration various central sector scheme and their set targets like power for all, UDAY, SAUBHAGYA, etc. The approvals have also been received for many projects under the 13th Plan, Backwards Region Grant Fund (BRGF)/Special Plan



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and State Plan Funds. Hence there is need to invest in the transmission sector in the State of Bihar.

#### **1.4 Main Functions and Duties of BSPTCL**

BSPTCL functions as Transmission licensee as well as STU.

The Electricity Act, 2003 prescribes the following functions of STU:

- (a) To undertake transmission of electricity through intra-State transmission system;
- (b) To discharge all functions of planning and co-ordination relating to intra-State transmission system with –
  - (i) Central Transmission Utility;
  - (ii) State Governments;
  - (iii) generating companies;
  - (iv) Regional Power Committees;
  - (v) Authority;
  - (vi) licensees;
  - (vii) any other person notified by the State Government in this behalf;
- (c) to ensure development of an efficient, co-ordinated and economical system of intra-State transmission lines for smooth flow of electricity from a generating station to the load centres;
- (d) to provide non-discriminatory open access to its transmission system for us



The Electricity Act, 2003 prescribes following duties for BSPTCL as Transmission Licensee:

- (a) To Build, maintain and operate an efficient, co-ordinated and economical inter-State transmission system or intra-State transmission system, as the case may be;
- (b) To comply with the directions of the Regional Load Despatch Centre and the State Load Despatch Centre as the case may be;
- (c) To provide non-discriminatory open access to its transmission system for use by-
  - (i) Any licensee or generating company on payment of the transmission charges; or
  - (ii) Any consumer as and when such open access is provided by the State Commission under sub-section (2) of section 42, on payment of the transmission charges and a surcharge thereon, as may be specified by the State Commission:

**Considering the above stated duties of STU and transmission licensee, the main functions of BSPTCL are as following:**

- a) To undertake planning and coordination activities in regard to intra-State Transmission, works connected with the intra-State Transmission in the State of Bihar, to introduce open access in transmission on payment of transmission charges and such other functions as may be assigned to the company by law or otherwise by Government or Government Authority concerning the operation of the Power System and to ensure development of an efficient, coordinated and economical system of intra-State Transmission lines for smooth flow of electricity from a generating station to load centers and to provide non-discriminatory open access to its transmission system as per the provisions of the Electricity Act, 2003.



b) To plan, acquire, develop, establish, construct, take over, erect, lay, operate, run, manage, hire, lease, buy, lease, buy, sell, maintain, enlarge, alter, work and use, renovate, modernize, electrical transmission lines and / or net works through various voltage lines and associated substations, including cables, wires, accumulators plants, motors, meters, apparatus, computers and materials connected with transmission, ancillary services, telecommunication and tele-metering equipment.

c) Any other function as assigned by law/ Government/ Government Authority/ Holding company, etc.



## 2 BUSINESS OVERVIEW OF BSPTCL

### 2.1 Vision & Mission

To establish BSPTCL as a model STU and transmission licensee with respect to planning, project implementation, operational capabilities, performance with emphasis on cost and quality consciousness, human resources development and corporate social responsibility.

### 2.2 Current Infrastructure Details

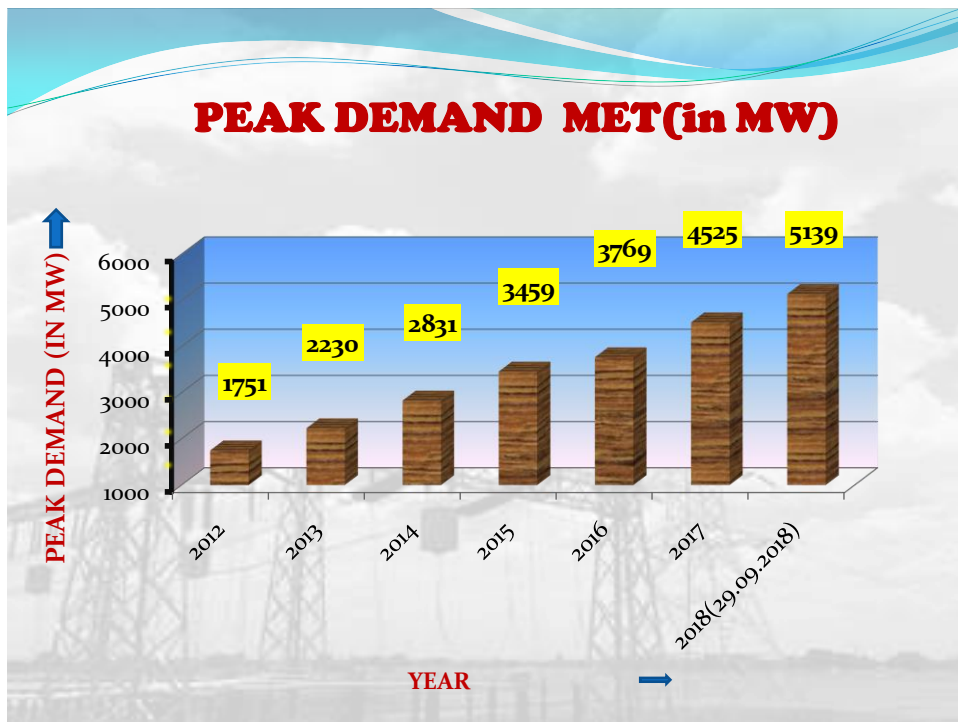
BSPTCL has a huge transmission network comprising of 137 grid sub-stations, 13,622 Ckt Kms of transmission lines and transformer capacity of 18,850 MVA. BSPTCL is in process of rapidly increasing its transmission capacity and sub-stations to cater the projected load demand.

### 2.3 Growth Profile of BSPTCL

Years	Grid Sub-Stations (Nos.)	Transmission Line Length (Ckms.)	Evacuation Capacity (MW)
2012	83	6872	2000
2013	89	7329	2600
2014	95	8394	3500
2015	97	8700	4500
2016	99	9307	5600
2017	126	11038	8000
2018 (17.07.2018)	134	13454	9456

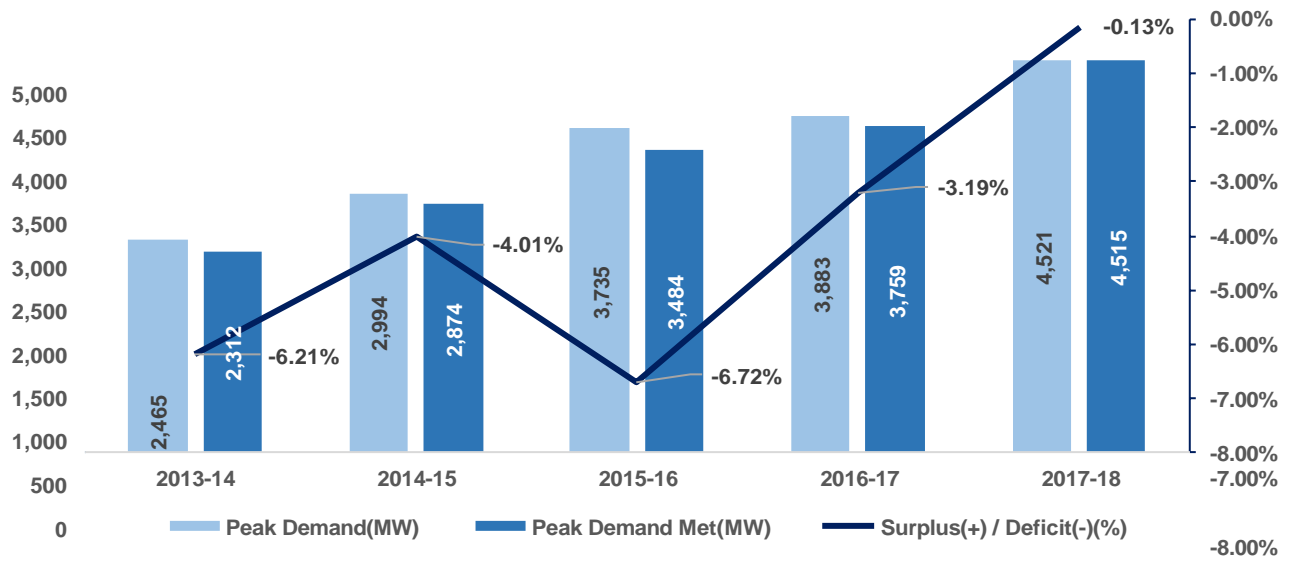
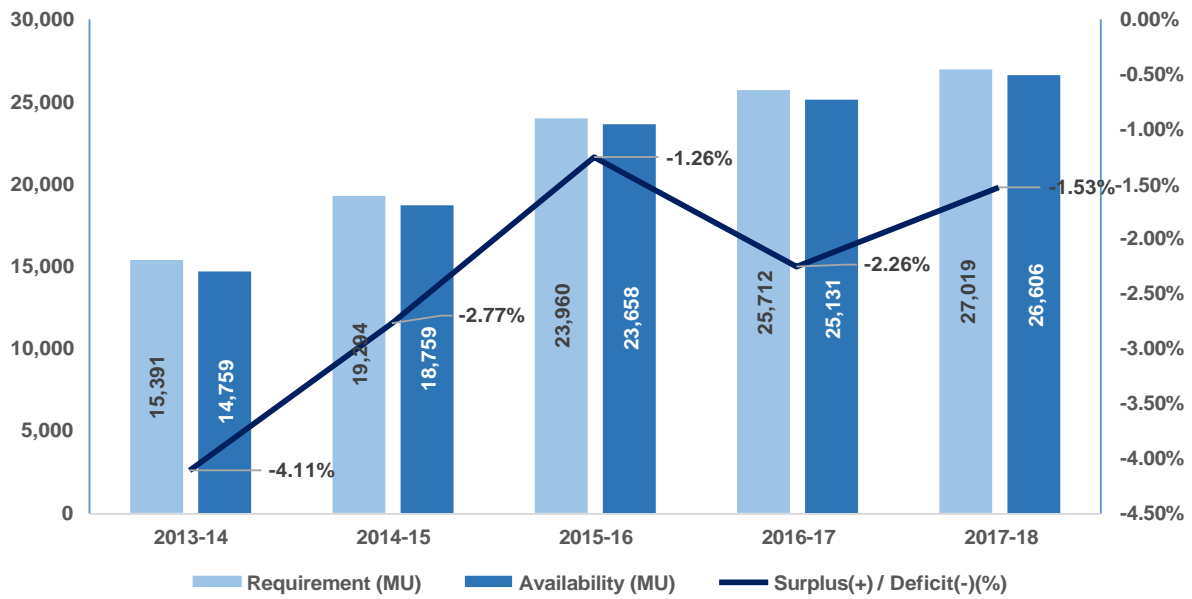
## 2.4 Current Scenario

The economy of Bihar is growing rapidly. To sustain the economic growth of the state and nation in large, growth of power sector in Bihar is mandatory. The power supply position has improved significantly in past few years. In recent years, the power demand in the states has witnessed a vertical growth. Recently, on 29.09.18, Bihar achieved a maximum peak demand of 5139 MW which is much more than what was projected in 19<sup>th</sup> EPS, i.e., 4733 MW.



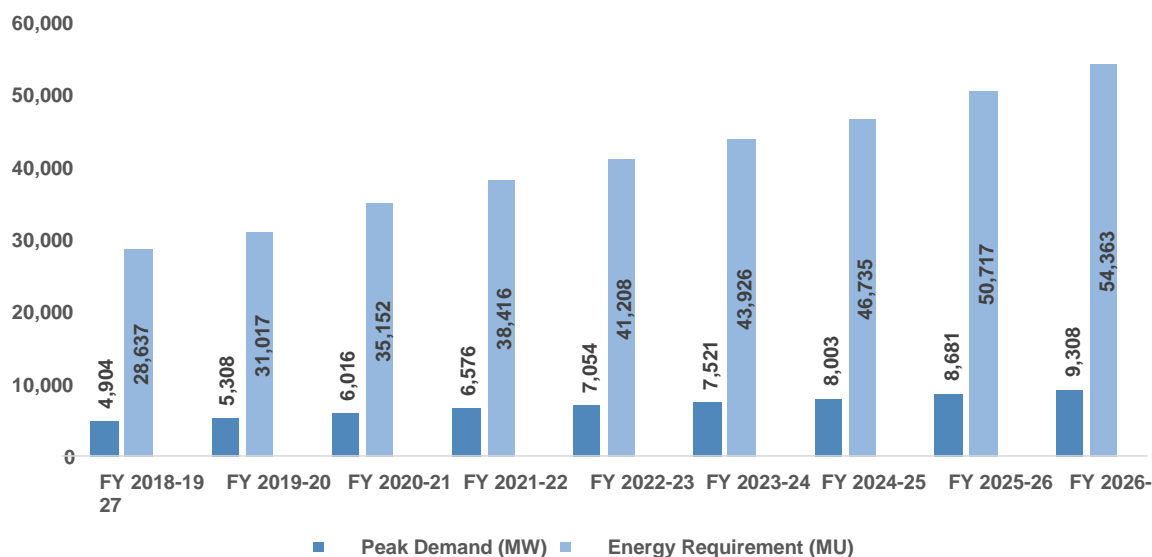
## 2.5 Power Scenario

The power supply position has improved significantly in the past ten years in the state of Bihar. The overall deficit in FY 2009-10 in terms of energy availability was ~14%, which has come down to 1.53% in FY 2017-18. Similarly, the deficit in peak demand in FY 2009-10 was ~33%, which has dropped significantly to 0.13% in FY 2017-18. The year-on-year power supply position in the state of Bihar in the past five years is provided in the chart below:





Going forward, CEA in its 19th Electric Power Survey (EPS) has projected the peak demand (MW) and Energy requirement (MU) for the upcoming years as follows:



### Generation Capacity Addition

Considering the very limited power generating capacity in the State, the Government of Bihar has taken several initiatives to bridge the demand supply position in the state. The same has been outlined in the “Power for All” report for the state. As per the report, the state is likely to witness capacity addition through Independent Power Projects (IPPs), State Sector Projects and shares from Central Projects. Accordingly, from FY 2018-19 to FY 2021-22 the total generation portfolio as per Power for all report is provided below:

Particulars	Year wise existing and Likely Capacity to be added (Cumulative) in MW				
	As on March 2018	Proposed			
		FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22
<b>State Sector</b>	510	55	55	55	55
State Thermal	455	0	0	0	0
State Small Hydro	55	55	55	55	55



<b>Central Generating Stations Share</b>	2561	3216	3631	4232	4803
CGS Thermal	2118	2773	2951	3552	4123
CGS Hydro	443	443	680	680	680
<b>IPPs projects – case1</b>	510	510	510	510	510
<b>JV / Partnership (Thermal)</b>	0	25	200	618	1653
<b>NCE / RNES</b>	201	201	266	792	1530
<b>TOTAL</b>	<b>3782</b>	<b>4007</b>	<b>4662</b>	<b>6207</b>	<b>8551</b>

The load projection of Bihar in 19<sup>th</sup> EPS, published by Central Electricity Authority, MoP, GoI is as follows:

<b>Load Projection (in MW)</b>		
Year	2021-22	2026-27
Projected Load	6576	9308

Basically, sixty percent of electricity consumption is done by the domestic consumers in Bihar. Considering the above projection and various other policy initiatives and schemes of the government like Power for All, Saubhagya, Har Ghar Bijli, etc., the load demand is expected to increase further.

The National Electricity Policy aims at laying guidelines for accelerated development of the power sector, providing supply of electricity to all areas and protecting interests of consumers and other stakeholders keeping in view availability of energy resources, technology available to exploit these resources, economics of generation using different resources, and energy security issues. It further, aims at achieving the objective of access to electricity, availability of power and Supply of Reliable and Quality Power of specified standards in an efficient manner.

The National Electricity Policy states:



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“5.3.1 The Transmission System requires adequate and timely investments and also efficient and coordinated action to develop a robust and integrated power system for the country.

5.3.2 Keeping in view the massive increase planned in generation and also for development of power market, there is need for adequately augmenting transmission capacity.

5.3.5 To facilitate orderly growth and development of the power sector and also for secure and reliable operation of the grid, adequate margins in transmission system should be created. The transmission capacity would be planned and built to cater to both the redundancy levels and margins keeping in view international standards and practices.....”

The Tariff Policy, 2016 aims to evolve a dynamic and robust electricity infrastructure for better consumer services and facilitate supply of adequate and uninterrupted power to all categories of consumers. Further, it aims to achieve following objectives with regard to Transmission:

1. Ensuring optimal development of the transmission network ahead of generation with adequate margin for reliability and to promote efficient utilization of generation and transmission assets in the country;
2. Attracting the required investments in the transmission sector and providing adequate returns.

BSPTCL is committed to supply quality, economical and reliable power to all. For supplying uninterrupted power to all and for reliable operation of the grid, adequate margins in transmission system needs be created which requires huge investment in the sector.

## **2.6 Key challenges for Transmission business**

Key challenges that the transmission business is facing are as follows:

- To ensure adequate creation of transmission infrastructure to cater the expected growth in electricity demand.



- To plan and build transmission system to cater to both the redundancy levels and margins keeping in view international standards and practices.
- Aging of network- Its replacement and strengthening
- Providing non-discriminatory access of transmission system to open access customers.
- To transmit economical, reliable and quality power.
- To manage the multiple clearances related to projects and land – right of way issues efficiently to ensure that all the schemes are approved and implemented without any time and cost overrun.
- To ensure safe operation of Grid Network.
- Reduction of transmission loss.
- To comply regulatory provisions- Electricity is a regulated sector and changes in the regulations governing transmission business is observed.
- To implement schemes and policy initiatives of the Central and State Government.



### **3 BUSINESS PLAN FOR BSPTCL FOR CONTROL PERIOD FY 2019-20 - FY 2021-22**

The Petitioner, in compliance with Section 5.1 of the Bihar Electricity Regulatory Commission (Multiyear Transmission Tariff and SLDC Charges) Regulations 2018 has prepared the Business Plan for the three-year control period beginning FY 2019-20 to FY 2021-22. The objective of the business plan is to project the capital investments, expected financing and operations and maintenance costs, other non-tariff income as well as set the performance targets for the three-year control period.

#### **3.1 BUSINESS SCOPE:**

Considering the duties and functions of STU illustrated in the Electricity Act, 2003, the business scope for BSPTCL essentially covers the following:

- Planning and development of a properly co-ordinated intra-state transmission system in its Capital Investment Plan.
- Provide access to Transmission facilities to the State distribution utilities and any other user of the Transmission system, on payment of transmission charges.
- Provide long-term and short-term open access to consumers on payment of requisite transmission and other charges approved by the State commission.
- Explore and develop the new dimensions of business from growth perspective and enhance value.

#### **3.2 Approach to Development of Business Plan:**

The Business Plan comprise of infrastructure requirement in commensurate with load growth forecast and demand projections, capital investment plan, financing plan and physical targets. The capital investment is determined based on the



analysis of projected demand growth in electricity distribution sector commensurate with the economic growth in the state, and generation capacity additions/ increased evacuation requirement vis-à-vis the available transmission capacity. Further, based on these growth projections, requirement of additional transmission lines and substations or augmentation of existing transmission capacity and replacement of transmission lines are planned.

The components of Business Plan depends upon various factors such as historical data, current and future financial estimates, growth estimates, economic, financial and business related assumptions, current operational requirements, other foreseeable changes/ requirements in future etc. The Business Plan has been developed keeping in view the current performance over the past performance with a view to develop targets that are realistic and achievable and that provide an impetus to improving performance. BSPTCL has taken a rational and scientific approach while forecasting various components of Business Plan in order to arrive at realistic forecast with minimal expected deviations. However, due to a number of uncontrollable externalities, deviations are expected and shall be brought to the notice of the Commission in accordance with the provisions of MYT Regulations. Further, there are various policy initiatives taken by the Central and State Government like Power for All, Saubhagaya, etc. which may affect the electricity demand and accordingly the Business Plan may need to be reviewed periodically. Thus, BSPTCL would like to submit that the business plan is a dynamic document which may need to be updated at various intervals in order to align it with the goals and objectives of the company and various schemes of the Central and State Government. Further, due to changing electricity market trends and various internal and external factors, the business plan may need to be updated.

BSPTCL would like to submit that till date the audited account for the FY 2017-18 is not available and hence all the data values are provisional and may change in accordance with the balance sheet.



### 3.3 Key Objectives of the business plan

The primary objectives for developing the business plan are as follows:

- Providing a tool for Strategic Planning: The Business Plan is intended to chart the Company's way forward. The key objective for developing the business plan is to analyse and anticipate the major requirements of transmission infrastructure commensurate with the expected demand growth of electricity. Business Plan may prove to be a tool to strategically plan for capital investments and its financing. Further, it may help in timely execution and monitoring of the work.
- For the regulatory compliance of submission of Business Plan as mandated by BERC MYT Regulations, 2018.
- Aid in Decision Making and better operational efficiency: The Business Plan may aid in decision making while planning and execution of the project. Further, proactive actions may be taken during the execution of the project in order to achieve the company's goal of supplying quality power to all. This may help in improving the operational efficiency by running the transmission network in accordance with the set performance target.

### 3.4 Performance Targets:

#### 3.4.1 Transmission Availability

As far as the transmission system availability is concerned, BSPTCL is consistently trying to ensure a transmission system availability of above 98% as stipulated by the MYT regulations notified by the Hon'ble Commission. In the future also BSPTCL shall continue to ensure a transmission system availability of at-least 98% despite the increasing network loading. The table below provides the target for transmission system availability for the future years:



Control Period	Target Availability
FY 2019-20	98%
FY 2020-21	98%
FY 2021-22	98%

### 3.4.2 Transmission Loss

BSPTCL submits that various initiatives like installation of ABT meter, routine maintenance, etc. have been taken up for reduction in transmission loss. BSPTCL is in the process of putting up the necessary infrastructure and systems in place which shall help in correct estimation of its transmission losses. The transmission loss trajectory for the control period is shown in the table below:

Control Period	Target Transmission Loss
FY 2019-20	3.92 %
FY 2020-21	3.92 %
FY 2021-22	3.92 %

### 3.5 Capital Investment Plan

The Petitioner submits that the due to changing business environment and the regulations governing the Transmission business, the capital investment plan may need to be updated at various intervals in accordance with the policy initiatives of the government and to align the growth path of the company with the external business environment and internal factors affecting the business / operations of the company.





3.5.1 Details of ongoing projects are as follows:

Sl. No.	Name of Element (Transmission line, Substation, Bay Extension, etc.)	Commissioning Date/LDOC)	COST(Rs.)	Mode of Finance
1	Construction of 220KV D/C transmission line from BTPS to Hajipur	07.08.2018	105.78 Cr	BRGF, Phase III Part I
2	Construction of 132/33KV GSS Maharajganj	24.05.2017	79.24 Cr	State Plan
3	Construction of 132/33KV GSS Narkatiyaganj	01.06.2017		
4	Construction of 132/33KV GSS Hathua	20.05.2017		
5	Construction of 132/33KV GSS Areraj	18.05.2017		
6	Construction of 132/33KV GSS Chakiya	29.11.2017	41.30 Cr	State Plan
7	Construction of 132/33KV GSS Jhanjharpur	24.07.2018		
8	Construction of 132/33KV GSS Pakridayal	30.10.2018		
9	Construction of 132/33KV GSS Siwan-New	30.04.2018	23.51 Cr	State Plan
10	Construction of Loop In Loop Out arrangement of 132 KV Tx. line Madhepura- Sonebarsa 132 KV S/C Tx.line on D/C Tower at Saharsa Existing (CKM-40KM) under Special Plan of Phase-III against NIT 38/2014.	<b>31.10.2018</b>	<b>17.52 Cr</b>	BRGF
11	Construction of 132/33 KV, 2 x20MVA Nirmali, 2 x 20 MVA, 2 x 20 MVA Banmankhi, 2 x 20 MVA Manihari and 2 x 10 MVA Triveniganj against NIT 63/2014(Package B)	GSS Nirmali :- 28.12.2016, GSS Bnamankhi:- 25th Jan 2017, GSS Mnaihari : 07.12.2017, GSS Triveniganj:- 14.04.2017	<b>79.04</b>	State Plan
12	Construction of 2 x20MVA , 132/33KV GSS Tarapur, Teghra and Simri Bakhtiyarpur against NIT 91/2014.	GSS Tarapur:- 27.01.2017, GSS Teghra:- 31.10.2018, Simri Bakhtiyarpur:- 02.03.2017.	<b>67.03</b>	State Plan
13	Construction of 2 x50MVA , 132/33KV GSS Araria, Barsoi, Baisi and Dhamdaha AGAINST NIT 92/2014.	GSS Araria:- 18.10.2017 , GSS Barsoi:- 16.01.2018, GSS Baisi:- 02.05.2018, GSS Dhamdaha:- 10.10.2018	<b>105.07</b>	State Plan
14	R&M of 132/33KV GSS at Kishanganj, Jamalpur and Purnea against NIT no. 07/PR/BSPTCL/2016	LDOC- December 2018	34.28 Cr	State Plan



15	Construction of 3X50 MVA, 132/33kV Grid Sub-Station, Jagdishpur (Bhagalpur New) and Korha(Katihar)against NIT no. 10 /PR/BSPTCL/2016	LDOC of Grid Sub-Station, Jagdishpur (Bhagalpur New)-10.02.2019 GSS Korha(Katihar)--land not finalized yet	57.04 Cr.	State Plan
16	Strengthening of 132 KV & 33 KV main bus and transfer bus by double moose & quad moose respectively of different GSS of BSPTCL	LDOC-31st December 2018	67.17 Cr	State Plan
17	Second circuit stringing of Existing 03 Nos. of 132 kV Double Circuit Single Strung Transmission Lines under Transmission Circle, Purnea on Turnkey Basis against NIT No. 76/PR/BSPTCL/2015	07-08-2017	16.69 Cr.	State Plan
18	Construction of 132 KV D/C T/L from Motihari (400 KV) to Motihari (BSPTCL) NIT 403/PR/BSPTCL/2013 Pkg A	25.05.2017	8.54 Cr	BRGF Phase III, part I
19	Construction of 132 KV D/C T/L from Motihari (400 KV) to Bettiah NIT 403/PR/BSPTCL/2013 Pkg B	30.06.2017	18.69 Cr	BRGF Phase III, part I
20	Construction of 132 KV D/C T/L from Motihari (400 KV) to Raxaul NIT 403/PR/BSPTCL/2013 Pkg C	31.10.2017	27.42 Cr	BRGF Phase III, part I
21	construction of two numbers of 132 KV Line bays each at Bettiah (132/33 KV) GSS and Raxaul (132/33 KV) GSS NIT 403/PR/BSPTCL/2013 Pkg D	20.10.2017	7.02 Cr	BRGF Phase III, part I
22	(i) construction of 132 KV S/C transmission lines on D/C Tower from 132/33 KV Dhaka GSS to upcoming Pakridayal GSS (ii) Construction of New 132 KV S/C Transmission line on D/C Tower from 220/132 KV Motipur GSS to upcoming Chakiya GSS (iii) LILO of 132 KV S/C of Jainagar-Phulparas Transmission Line at upcoming Jhanjharpur GSS NIT No 82/PR/BSPTCL/2014	24.02.2018	48.16 Cr	State Plan
23	Construction of 132KV D/C Udakishanganj-Sonebarsa T/L and 132KV D/C Kusheshwarsthan-Sonebarsa T/L against NIT No. 16/PR/BSPTCL/2014	Udakishanganj-Sonebarsa: 13.06.2016 Kusheshwarsthan-Sonebarsa: 08.01.2018	114.7 Cr. (with E.T)	BRGF/ Special Plan, N-1 Compliance Scheme
24	Construction of 220KV D/C Transmission line Kishanganj (New) – Kishanganj (PGCIL) & 132 KV D/C T.L. Kishanganj (New) – Kishanganj (existing GSS) against NIT No. 58/PR/BSPTCL/2014	220KV D/C Transmission line Kishanganj (New) – Kishanganj (PGCIL) charged on 5.10.2016 & 28.12.2016 and 132 KV D/C T.L. Kishanganj (New)	25.92 Cr. (with E.T)	BRGF Phase III Part II



		- Kishanganj (existing GSS) has been charged 04.01.2017.		
25	Construction of 6 nos of 132/33KV Transformer Bay at Madhubani, Muzaffarpur, Dalsingsarai, Ramnagar, Hajipur and Jandaha	Madhubani- 22.02.2016, Dalsingsarai-26.09.2016, Muzaffarpur-31.07.2015, Ramnagar- 13.01.2016, Hajipur-23.06.2016 Jandaha- 22.10.2017	12.67 Cr.(with E.T)	Special Plan (BRGF) Phase III, Part II (N-1) Compliance
26	Construction of 220 KV Kishanganj New- Madhepura D/C Tx. Line	Line Charged on 24.08.2018	129.79 Cr.	special Plan BRGF, Ph-III Part-II
27	Construction of 220 KV (D/C) Line between Madhepura to Laukhi with AL-59 Conductor(75Km)	Line Charged on 07.06.2018	103.95 Cr.	special Plan BRGF, Ph-III Part-II
28	Construction of 220 KV Purnea (PG) – Begusarai D/C Tx. Line	Charged on 06.09.2018	125.26 Cr.(with E.T)	RSVY & State Plan
29	132 KV LILO T/I on one of the CKT of 132 KV Betia--Dhanha to Ramanagar GSS against NIT No. 22/PR/BSPTCL/2015	LDOC-31.12.2018	35.24 (with E.T)	BRGF/ Special Plan, N-1 Compliance Scheme
30	Construction of 3x50MVA , 132/33KV GSS Raghapur against <b>NIT 30/PR/BSPTCL/2017.</b>	<b>04.01.2019</b>	<b>32.3</b>	State Plan
31	Construction of LILO of one circuit of 132KV Laukahi-Supaul Transmission Line at 132/33 KV GSS Raghapur against NIT No. 31/PR/BSPTCL/2017	LDOC-17.12.2018	15.28 (with GST)	State Plan
32	Construction of 132KV S/C Transmission line on D/C Tower between 132/33KV GSS Rosera and Hasanpur Sugar Mill along-with 01 no. 132KV line bay at 132/33KV GSS Rosera against NIT No.- 15/PR/BSPTCL/2017	31.12.2018	Rs.12,42,84,340.35	IRF
33	Construction of 8 Nos. 132KV line bays at Pandaul-01Nos., Madhubani-02Nos, Jainagar-02, Phulparas-01Nos, Ekma-01Nos and Kusheshwarsthan-01Nos under state plan against NIT No. 04/PR/BSPTCL/2016	Jainagar -02 no.charged on 14.10.17, Pandaul-01 no.,charged on 15.10.17 , Madhubani -02 no. charged on .01.11.17 and Ekma-01 no. charged on 02.05.2018.Kuseshwarsthan bay Likely to be charged by 30.11.2018	12.58 Cr.	State plan
34	Construction of 02 nos. 132KV line bays each at 132/33KV GSS SKMCH & Sitamarhi under Special Plan/BRGF, Phase-III,Part-I against NIT No. 07/PR/BSPTCL/2016	Sitamarhi- 01 no. bay commissioned on 11.04.2017.02 no. bay LDOC 31.11.2017.	7.44 Cr.	BRGF, Phase-III



35	Construction of New 132 KV S/C Transmission Line on D/C Tower from existing Kueshwarsthan GSS to Benipur GSS (Line length-37 Km), construction of New 132 KV S/C Transmission Line on D/C Tower from 220/132 KV Samastipur GSS to Upcoming Shahpurpatori GSS (Line Length- 31 CKM), LILO of 132 KV S/C of Muzaffarpur –Sitamarhi at Belsand GSS under State Plan on turnkey basis against NIT No.- 81/PR/BSPTCL/2014	1. Muzaffarpur –Sitamarhi: Completed &Charged on 09/08/2018 2. Samastipur – Shahpurpatori: Completed &Charged on 02/05/2018 3. Kueshwarsthan - Benipur :LDOC 31.11.2017.	39.18 Cr	State Plan
36	Construction of 132/33 KV Grid Substation, Belsand (2X10MVA), Shahpur Patori (2X20MVA) and Benipur (2X10MVA), NIT-62/BSPTCL/2014 Pkg-B under state plan on turnkey basis against NIT No.-62/PR/BSPTCL/2014 Pkg-B	LDOC 31.11.2017.	55.51 Cr	state plan
37	Construction of 2 x160+3x50 MVA GSS Musahari(New)	Commissioned on 17.01.2017	Rs. 85.07 Cr./-	BRGF, Phase-III
38	Construction of 220 KV & 132 KV D/C Transmission line for evacuation of power from upcoming Motipur GSS	Charged on-21.11.2017	193.14Cr/-	BRGF, Phase-III
39	Construction of (i) 220KV D/C Line from Darbhanga 400/200 KV GSS to (i) 220KV D/C Line from Darbhanga 400/200 KV GSS to to Laukahi (new)GSS (ii) 220KV D/C Line from Laukahi(new) GSS to Supaul (existing) Pkg-'D' GSS	DEC'18 (LDOC)	126.24	BRGF, Phase-III
40	Construction of 220 KV & 132 KV D/C Transmission line for evacuation of power from upcoming Musahari GSS	15.04.17	123.09Cr/-	BRGF, Phase-III
41	Construction of 220 /132 /33 kV Motipur GSS	commissioned on 29.03.2017	75.42 Cr/-	BRGF, Phase-III
42	Construction of 2 x160+2x50 MVA ,220/132/33KV GSS Laukahi	commissioned on 21.06.2018	67.23Cr/-	BRGF, Phase-III
43	Construction of 132/33kV GSS at Manjhaul , Ballia and Bakhari against NIT-63/PR/BSPTCL/2014, Package-(A)	GSS Bakhari LDOC- November,2018 GSS BalliaOne 10 MVA Transformer charged on 13.06.2017 and another 50 MVA Transformer charged on 30.01.18 GSS Manjhaul: 50 MVA Transformer charged on load on 12/06/2017.one	64.24 Cr	State Plan



		Nos. 10 MVA Transformer charged on 31.08.2017		
44	Construction of 132KV Transmission lines connecting the revenue GSS Bakhri, Ballia, Manjhaul, Nirmali, Triveniganj, Banmankhi, Manihari and Piro against NIT No. 35/PR/BSPTCL/2015	<p>All Lines Charged-</p> <p>19.11.17 132 KV S/C Purnea – Saharsa Lilo at Banmankhi 25.01.2017</p> <p>132 KV D/C Bikramganj – Piro TL 29.05.2017</p> <p>132 KV D/C Begusarai – Bakhari Lilo at Manjhaul TL 18.05.2017</p> <p>132 KV D/C Begusarai – Bakhari Lilo at Ballia 04.05.2017</p> <p>LILLO of 132 KV Purnea - Forbesganj line at Rajwara(Chahatapur) for 132/33 KV Triveniganj GSS 02/02/17</p> <p>132 KV S/C Purnea – Katihar Lilo at Manihari 19.11.17</p> <p>132 KV D/C Phulparas – sapoul Lilo at Nirmali TL. 25.12.2016</p> <p>132KV D/C Begusarai - Bakhari Line 15.11.2017(Manjhaul-Bakhari Line)</p> <p>16.11.17(Ballia-Bakhari Line)</p>	103.74 Cr.	State Plan
45	Construction of 220/132/33KV GSS Kishanganj (new) with bay extensions against NIT No. 03/PR/BSPTCL/2014	<p>1. 220/132/33KV Kishanganj GSS - 10.10.2016</p> <p>2. 2x132KV line bay extension at Kishanganj Remote site- 04.01.2017</p> <p>3. 2x132KV line bay extension at Forbesganj Remote site- 20.10.2016 and 10.01.2017</p> <p>4. 4x220KV line bay extension at Madhepura Remote site- 27.04.2017</p> <p>5. Laukhi Bay extension was charged upto line isolator on 05.06.2018 &amp; 06.06.2018.</p>	89.51 Cr.(with E.T)	BRGF Phase III part II



46	Capacity augmentation of 220/132/33 kV & 132/33 kV Grid Substation Madhepura, Naugachia, Vaishali, Gangwara, Jamui, Ara and Bihta	31.10.2018	48.13 Cr.	ADB
47	Procurement and construction of 33 KV line bays in form of Indoor VCB panels at 10 nos. of AIS sub-station under transmission circle, Purnea	30.11.2018	28.28 Cr.	ADB
48	Procurement and construction of 33 KV line bays in form of Indoor VCB panels at 21 nos. of AIS sub-station under transmission circle, Muzaffarpur	30.11.2018	59.09 Cr.	ADB
49	Procurement and construction of 33 KV line bays in form of Indoor VCB panels at 08 nos. of AIS sub-station under transmission circle, Biharsharif	30.11.2018	25.20 Cr.	ADB
50	Construction of 220 KV Bihta(new) - Sipara(Patna) D/C transmission line ,220 KV Bihta(new)-Bihta(existing) D/c Transmission line (charged at 132 KV ) and 33 Kv down linking lines from Bihta(new) 220/132/33 KV GSS on turnkey basis.	30.11.2018	72.03 Cr.	State Plan
51	Renovation & Up gradation of Protection and Control Systems of 220/132KV Grid Substation at Biharsharif, Fatuha, Bodhgaya, Dehri On Sone, Khagaul and 132/33KV Grid Substation Kataiya on turnkey basis	31.12.2018	69.66 Cr.	PSDF
52	Second circuit stringing of existing 04 nos of 132KV Double circuit Single strung transmission line:- 1) 132KV Biharsharif-Ekangarsarai-Hulasganj(Except LILO point to Ekangarsasari)(48.14CKM) 2)132KV Biharsharif-Nawada(48.89CKM) 3)132KV Biharsharif-Sheikhpura(38.78CKM) 4)132KV Jamui-sheikhpura(51.9CKM)	31.12.2018	20.34 cr	State Plan
53	Construction of 08 nos. 132 KV Line bays each at -Belaganj 01no. , Hulasganj-01 no., Jehanabad -01 no., Tekari-02 no., Ataula-01 no. ,Chandauti-01 no., Nawada-01 no. under Trans. Circle, Gaya for 2nd ckt. stringing of existing 132 KV DCSS transmission line against NIT No.- 01/PR/BSPTCL/16	TOC Issued for Chandauti-15.12.17 Tekari-05.01.18 Hulasganj-20.12.17 Ataullah-01.01.18 Jehanabad-18.12.17 For Belaganj & Nawada LDOC 15.11.18	12,58,84,382.60	State Plan





54	Construction of 132KV S/C Transmission Line for Solar PV Project of M/s Alfa Infracorp Pvt. Ltd. at Bhagaura from 132KV GSS Rafiganj and Construction of 01 no. 132KV line bay at GSS Rafiganj against NIT No.-02/PR/BSPTCL/17	TOC issued dated 04.07.17	9,74,27,690.84	State Plan
55	Construction of 11 Nos. of line bays at Sherghati -01, Imamganj -01, Sonenagar-02, Aurangaba-02, Ara-02, Jagdishpur-03 & 1 No. of T/F bay at Sherghati against NIT No.-68/PR/BSPTCL/14	TOC issued for Imamganj-29.08.16 For rest GSS LDOC 15.11.18	11,42,02,222.50	BRGF
56	Second Circuit Stringing of Existing 03 Nos. of 132 KV Double Circuit Single Strung Transmission Line: i) GSS Belagunj to tapping point of L-32 & L-33 Trans. Line 2.5 CKM ii) 132 KV Gaya-Tekari and 132 KV Tekari-Goh 51.8 CKM iii) 132 KV Jehanabad-Ataula (Karpi) 22.57 CKM Under Transmission Circle Gaya on Turnkey Basis under State Plan on FIRM prices against NIT No.-72/PR/BSPTCL/15	TOC issued dated 08.08.18 for line (i) & (iii) LDOC for line(ii) -30.11.18	7,40,60,775.00	State Plan
57	Construction of 3x50MVA, 132/33KV GSS Ramgarh (Kaimur dist.) and Warislaiganj (Nawada Dist.) on turnkey basis against NIT No.-84/PR/BSPTCL/15	LDOC-31.12.2018	64,96,98,737.19	State Plan
58	Procurement and Construction of 33KV line bays in form of Indoor VCB panels at 06 nos. of AIS Substation under Transmission Circle Bhagalpur against 24/Package D-1/BSPTCL/ADB/16	30.11.18	18,91,28,358.20	ADB
59	Procurement and Construction for Re-conductoring of 06 nos. 132KV Transmission lines against 31/Package K-1/BSPTCL/ADB/16	30.11.18	43,99,91,760.93	ADB
60	Procurement and Construction for Re-conductoring of 06 nos. 132KV Transmission lines against 33/Package M-1/BSPTCL/ADB/16	30.11.18	40,86,19,492.60	ADB
61	i) LILO of one ckt. At north of muthani railway station from 132KV D/C Pusouli (New) – Mohania Trans. Line to proposed 3x50 MV Ramgarh GSS (BSPTCL of route length 20Km. ii) LILO of 132KV Line Biharsharif – Nawada D/C Trans. Line – Warsaliganj (New) GSS of Route length 40Kms. iii) LILO of one Ckt. Of 132KV Chhapra	Completed on 11.08.2018	56.17 Crore	State Plan



	– Siwan Transmission Line – Siwan (New) GSS near Darauli of route length 45Kms. Turnkey basis under Under State Plan.			
62	3X50 MVA,132/33 KV GSS Kerpa	11.02.2019	Rs.31.69 Cr.	State Plan
63	Construction of 132KV Lines and 33KV Lines	30.03.2018	58.23 Crore	ADB
64	Construction of 220KV Lines	30.12.2018	41.52 Crore	ADB
65	Procurement and Construction of 33KV line bays in form of Indoor VCB panels at 14 nos. of AIS Sub-station under Transmission Circle DOS	30.11.2018	33.02 Crore	ADB
66	Procurement and Construction of 33KV line bays in form of Indoor VCB panels at 14 nos. of AIS Sub-station under Transmission Circle DOS	30.11.2018	40.25 Crore	ADB
67	Construction of 33 kV Line Bays in form of Indoor GIS Panel at 11 nos. of AIS Substation under Patna District of BSPTCL on Turnkey Basis.	30.11.2018	66.79 Crore	ADB
68	Re-conductoring of 05 nos. 220KV & 132KV Transmission lines -- 254.99 Ckm	30.11.2018	35.45 Crore	ADB
69	Supply, Installation, Implementation, Configuration and Integration of ERP system in the BSPTCL	17.05.2019	21.5 Crore	ADB
70	Construction of LILO line on both circuits of 220 KV Begusarai-Purnea (PG)Transmission line at Khagariya new 220/132/33 KV GSS against NIT 12/PR/BSPTCL/2016 Pkg-A under state plan.	31.12.2018(revised)	9.63	state plan
71	construction of LILO line on both circuits of 132 KV BTPS-Purnea D/C Transmission line at Khagariya new 220/132/33 KV GSS (CKM-10 KM) against NIT 12/PR/BSPTCL/2016 Pkg-B under state plan.	31.12.2018(revised)	11.62	state plan
72	Construction of (2x160 + 2x50) MVA, 220/132/33KV Grid Sub-Station in KHAGARIA (New) under State Plan in between 220KV D/C Purnea (PG) – Begusarai Transmission Line.	30.06.2019(revised)	70	state plan





73	construction of 132/33 KV 3x50 MVA Jamui and Banka GSS against NIT 86/PR/BSPTCL/2015	30.11.2018	52.29	state plan
74	Construction of 132 KV Transmission Lines required for the connectivity of power to upcoming new 132/33 KV Grid Sub Stations at Korha (Distt- Katihar),Nathnagar (Distt.-Bhagalpur) and Jamui(new) on turnkey basis under State Plan (R.L.=190 CKM) against NIT No.- 87/PR/BSPTCL/2015	31.12.2018	63.1	state plan
75	Construction of 132KV D/C Sonenagar (New)-Aurangabad Transmission Line.	31.12.2018	15,89,46,455.00	Special Plan(BRGF),Ph-III,N-I Compliance
76	Construction of 132KV D/C Ara-Jagdishpur Transmission Line.	05.11.2018	21,16,14,696.21	
77	Work of construction of 06 nos. of 132 KV D/C towers from Ara (PG) to tower loc. No. 1 with ACSR Panther Conductor for connectivity of 2nd circuit of 132 KV D/C Ara (PG)-Jagdishpur Transmission line on turnkey basis.	15.12.2018	14550394.42	
78	Replacement of 23 nos. 50 MVA and 01 no 20 MVA transformer by 24 nos. 132/33 KV, 80 MVA transformer along with associated bay work in existing GSS of Patna	30.06.2019	107.62	State Plan
79	Construction of (2X160 MVA+2X50 MVA),220/132/33 KV GSS at Bihta(Patna) & associated 220,132 & 33 kv bays extension at remote end on turnkey basis	31.03.2019	59.15	State Plan
80	Construction of 132 KV D/C Transmission Line between 220/132/33 KV Bihta (New) GSS and 132/33KV Upcoming Paliganj GSS NIT No.-24/PR/BSPTCL/2016	31.12.2018	19.4	State Plan

### 3.6 Details of upcoming projects & Schedule of capitalization are as follows:

#### Details of upcoming projects & Schedule of capitalisation

Sl. No	Name of Element (Transmission line, Substation, Bay Extension, etc.)	Commissi- oning Date/LDOC)	COST (Rs. In Cr)	Cost of the Land	Total project cost including cost of the land	Tentative Expenditures (Rs. In Cr)				Mode of Finan ce
						FY 2018- 19	FY 2019- 20	FY 2020- 21	FY 2021- 22	



1	Construction of (2x160MVA+3x50MVA) 220/132/33 KV GSS, Tajpur(with SAS)(District-Samastipur) and Residential Quarters (Additional scope) under State Plan on turnkey basis against NIT No.- <b>34/PR/BSPTCL/2018.</b>	FY - 2020-21	92.55	37.5	130.05	42.00	55.53	23.1375	9.3825	State Plan 80% from loan + 20% equity from GoB.
2	Augmentation of existing 132/33 KV GSS Ekma (1x20MVA + 1x50MVA) by 3x50MVA capacity against NIT No.-36/PR/BSPTCL/2018	FY - 2020-21	38.19	11	49.19	13.00	22.914	9.5475	3.7285	State Plan 80% from loan + 20% equity from GoB.
3	Construction of 132/33KV (2X50 MVA) GSS at Palasi (Dist. Araria) on turnkey basis. NIT No.-37/PR/BSPTCL/18	FY - 2020-21	<b>39.8</b>	12	51.8	14.00	23.88	9.95	3.97	State Plan 80% from loan + 20% equity from GoB.
4	Construction of 220/132/33 KV (2X160+3x50MVA) GSS at Garaul (Dist. Vaishali) on turnkey basis NIT No 39/PR/BSPTCL/2018.	FY - 2020-21	98.27	37.5	135.77	42.50	58.962	24.5675	9.7405	State Plan 80% from loan + 20% equity from GoB.
5	Construction of (2x200 MVA+ 3x50 MVA) 220/132/33 KV GSS, Raxaul (District-East Champaran) complete with SAS and Residential Quarters under State Plan on turnkey basis against NIT No. <b>40/PR/BSPTCL/2018</b>	FY - 2020-21	93.49	30	123.49	35.00	56.094	23.3725	9.0235	State Plan 80% from loan + 20% equity from GoB.
6	Capacity augmentation of GSS Hajipur, Gopalganj & Darbhanga by replacement of power transformer against NIT No.- <b>46/PR/BSPTCL/2018</b>	FY - 2020-21	67.08		67.08	6.708	46.956	13.416		State Plan 80% from loan + 20% equity from GoB.
7	Re-conductoring of following transmission lines with HTLS (equivalent to Panther) except GAP conductor on Turnkey Basis as detailed below : - 1. 132 KV S/C Kahalgaon (BSPTCL)- Kahalgaon (NTPC) trans. Line of route length 7 Km. 2. 132 KV S/C Kahalgaon (BSPTCL)- Sabour trans. Line of route length 27 Km. NIT No.- <b>113/PR/BSPTCL/2018</b>	FY - 2020-21	19.43		19.43	1.943	13.601	3.886		State Plan 80% from loan + 20% equity from GoB.
8	Re-conductoring of Barauni TPS-Begusarai 132 KV D/c Transmission lines with HTLS Conductor (Capacity -240 MVA, 1050A ) (12 RKM). NIT No.- <b>112/PR/BSPTCL/2018</b>	FY - 2020-21	13.68		13.68	1.368	9.576	2.736		State Plan 80% from loan + 20% equity from GoB.



9	Construction of 132 KV transmission line with HTLS (equivalent to Panther) conductor on turnkey basis from 132 KV GSS Phulparas to 220/132 KV GSS Laukahi (CKM-25 KM). NIT No. 111/PR/BSPTCL/2018	FY-2020-21	42.69		42.69	4.269	25.614	14.942	State Plan 80% from loan + 20% equity from GoB.
10	Construction of following associated 220KV & 132KV D/C Transmission Lines of 220/132/33KV GSS Asthawan (Dist. Nalanda) on Turnkey Basis:- 1. Construction of 220 KV D/C Transmission line from Sheikhopursarai(BGCL) to 220/132/33 KV GSS Asthawan (Line Length- 20 )RKM 2. Construction of 220 KV D/C Transmission line from 220/132/33 KV GSS Biharsharif to 220/132/33 KV GSS Asthawan (Line Length - 20 RKM). 3. Construction of 132 KV D/C Transmission line from 220/132/33 KV GSS Asthawan to 132/33 KV GSS Barh (Line Length - 40 RKM). 4. Construction of 132 KV D/C Transmission line from 220/132/33 KV GSS Asthawan to 132/33 KV GSS Rajgir (Line Length - 40 RKM). 5. Construction of 132 KV D/C Transmission line from 220/132/33 KV GSS Asthawan to 132/33 KV GSS Nalanda (Line Length - 30 RKM).NIT No.-58/PR/BSPTCL/2018	FY - 2020-21	128.33		128.33	12.833	89.831	25.666	State Plan 80% from loan + 20% equity from GoB.
11	Construction of line bays at various Grid substations on Turnkey Basis under state plan :- i. 02 Nos. 132KV line bays at GSS Harnaut, ii. 02 Nos. 132KV line bays at GSS Baripahari <b>NIT No.-83/PR/BSPTCL/2018</b>	FY - 2020-21	29		29	2.9	20.3	5.8	State Plan 80% from loan + 20% equity from GoB.
12	Construction of 132 KV D/C Bakhtiyarpur (New) to Harnaut ( BSPTCL) Transmission Line with ACSR Panther Conductor (Line Length - 15 RKM) and Construction of 132 KV D/C Bakhtiyarpur (New) to Baripahari ( BSPTCL) Transmission Line with ACSR Panther Conductor (Line Length - 38 RKM) under state plan [80:20] <b>NIT No.- 78/PR/BSPTCL/2018</b>	FY - 2020-21	39.62		39.62	3.962	27.734	7.924	State Plan 80% from loan + 20% equity from GoB.
13	1. Construction of 220kV D/c Pusauli (PG)- Sahpuri LILO Karmnasha (new) Transmission line with single moose (Line length-12 Ckm) on turnkey basis. 2. Construction of 220kV D/c Pusauli (BSPTCL)- Karmnasha (New) Transmission Line with twin moose (Line length - 80 Ckm) on turnkey basis <b>NIT No.- 56/PR/BSPTCL/2018</b>	FY - 2020-21	87.86		87.86	8.786	61.502	17.572	State Plan 80% from loan + 20% equity from GoB.
14	Construction of 220 KV D/C Saharsa( New)- Khagaria(New) Transmission line with ACSR Zebra Conductor (Approx Route Length-80KM) under State Plan against <b>NIT No. 57/PR/BSPTCL/2018</b>	FY - 2020-21	114		114	11.4	79.8	22.8	State Plan 80% from loan + 20% equity from GoB.



15	Re-conductoring of 132 KV Chandauti-Sonenagar S/C Trans. Line (L-30) and 132 KV Chandauti-Rafiganj-Sonenagar Trans. Line (L-31) with HTLS conductor (equivalent to Panther) on turnkey basis. (Route length- 78.21 KM) against <b>NIT No.-109/PR/BSPTCL/18</b>	FY - 2020-21	79.94		79.94	7.994	55.958	15.988		State Plan 80% from loan + 20% equity from GoB.
16	Construction of 132 KV D/C Transmission Line for LILO of Chandauti-Sonenagar (L-30) 132 KV S/C Transmission Line and Chandauti-Rafiganj-Sonenagar (L-31) 132 KV S/C Transmission Line at GSS Chandauti (New) with HTLS Conductor (equivalent to Panther) conductor on turnkey basis. (Route length –46 KM).against <b>NIT No.-110/PR/BSPTCL/18</b>	FY - 2020-21	67.8		67.8	6.78	47.46	13.56		State Plan 80% from loan + 20% equity from GoB.
17	1.Construction of 132KV LILO line on 132KV S/C Dehri-Banjari Tr line to new GSS Kerpa(CKM-02KM approx.) 2.Re-conductoring of existing 132KV S/c Tr Line from Dehri to Banjari with HTLS (Equivalent to Panther conductor) 40KM approx 3. Re-conductoring of existing 132KV D/C Tr line from dehri to Sonenagar with HTLS (Equivalent to Panther conductor)29KM approx. <b>NIT No.-108/PR/BSPTCL/2018</b>	FY - 2020-21	39.36		39.36	3.936	27.552	7.872		State Plan 80% from loan + 20% equity from GoB.
18	Construction of LILO of one Ckt of 132 KV D/C Kishanganj (Old)-Forbisganj Transmission line at Palasi GSS with ACSR Panther Conductor (Line Length – 20 RKM) against <b>NIT No.-69/PR/BSPTCL/2018.</b>	FY - 2020-21	17.93		17.93	1.793	12.551	3.586		State Plan 80% from loan + 20% equity from GoB.
19	1. Construction of 132Kv D/C Karmnasa (new)-Ramgarh Tr Line on single mooze. 2. Construction of 132KV D/c Karmnasa (new)-Karmnasa Tr line on single mooze. <b>NIT No.-55/PR/BSPTCL/2018</b>	FY - 2020-21	40.18		40.18	4.018	28.126	8.036		State Plan 80% from loan + 20% equity from GoB.
20	Construction of 220 KV D/C Sitamarhi (New)-Raxaul(New) Transmission Line with twin moose Conductor (Line Length - 120 RKM) on turnkey basis against <b>NIT No.-60/PR/BSPTCL/2018.</b>	FY – 2020-21	214.05		214.05	21.405	149.835	42.81		State Plan 80% from loan + 20% equity from GoB.



21	<p>(i) Construction of 220 KV D/C Transmission Line from 220/132/33 KV Samastipur (New) to proposed 220/132/33 KV GSS Tajpur (Line Length -30 KM).</p> <p>(ii) Construction of 132KV D/C Shahpurpatori - Tajpur Transmission line with ACSR Panther Conductor (Line Length-40 KM). &amp;</p> <p>(iii) Construction of 220 KV D/C Transmisin Line from proposed 220/132/33KV GSS Tajpur to proposed GSS Goraul (Line Length- 45 KM) against <b>NIT No.-66/PR/BSPTCL/2018.</b></p>	FY – 2020-21	103.6	103.6	10.36	72.52	20.72	State Plan 80% from loan + 20% equity from GoB.
22	<p>Re-conductoring of following transmission lines with HTLS (equivalent to Panther) except GAP conductor on Turnkey Basis as detailed below :</p> <p>1. 132 KV S/C Kahalgaon (BSPTCL)- Kahalgaon (NTPC) trans. Line of route length 7 Km. 2. 132 KV S/C Kahalgaon (BSPTCL)- Sabour trans. Line of route length 27 Km.<b>NIT No.- 113/PR/BSPTCL/2018</b></p>	FY - 2020-21	19.43	19.43	1.943	13.601	3.886	State Plan 80% from loan + 20% equity from GoB.
23	<p>Construction of following Transmission lines on Turnkey basis:</p> <p>i) 220 KV D/C Muzaffarpur(PG)-Garaul Transmission Line with ACSR Zebra Conductor (Line Length-20 RKM) ii) 132 KV D/C Garaul-Mahnar Transmission Line with ACSR Panther Conductor (Line Length- 45 RKM) iii) LILO of both circuit of 132 KV D/C Muzaffarpur-vaishali Transmission Line at Garaul GSS with ACSR Panther Conductor (Line Length- 2x15 RKM) iv) 132 KV D/C Transmission line from GSS Chhapra(New)-Ekma with ACSR Panther Conductor (Line Length - 45 RKM) <b>NIT No- 50/PR/BSPTCL/2018.</b></p>	FY – 2020-21	103.14	103.14	10.314	72.198	20.628	State Plan 80% from loan + 20% equity from GoB.
24	<p>Supply, installation, testing &amp; commissioning of DLMS compliant 0.2s class ABT type energy meter with implementation of 100% metering, data acquisition and online ABT monitoring for the transmission &amp; sub transmission substations up to 33 KV level, monthly energy accounting and service maintenance for a period of 5 years against <b>NIT No. 37/PR/BSPTCL/2017.</b></p>	FY 2020-21	68.11	68.11	20.00	25.00	23.11	State Plan
25	<p>Construction of 220 KV D/c transmission line from 220/132/33 KV GSS Chapra (New), Amnour to 400/220 KV GSS Muzaffarpur (PG) with Zebra conductor (line length –Approx. 65 KM) &amp; 132 KV D/c transmission line from 220/132/33 KV GSS Chapra (New), Amnour to 132/33 KV GSS Vaishali with Panther conductor (line length- Approx 40 KM on turnkey basis against <b>NIT No.- 51/PR/BSPTCL/2018.</b></p>	FY - 2019-20	84.93	84.93	8.493	59.451	16.986	State Plan 80% from loan + 20% equity from GoB.



26	Construction of (i) 132 KV D/C by making LILO arrangement of 132 KV DCSS Saharsa(OLD)-Banmankhi Transmission Line at Saharsa (New) GSS ( line length approx. 20 RKM) (ii) 132 KV D/C by making LILO arrangement of 132 KV DCSS Saharsa(OLD)-Udakishanganj Transmission Line at Saharsa (New) GSS ( line length approx. 15 RKM) and (iii) 132KV D/C by making LILO arrangement of one circuit of Madhepura- Sonebarsa 132KV D/C transmission line at Saharsa (New) GSS ( line length approx. 35 RKM) against <b>NIT No. 53/PR/BSPTCL/2018.</b>	FY - 2019-20	54.07		54.07	5.407	37.849	10.814		State Plan 80% from loan + 20% equity from GoB.
27	Construction of 220 KV D/C Saharsa(New)-Begusarai Transmission line with ACSR Zebra Conductor (Approx Route Length-100KM) under State Plan against <b>NIT No. 54/PR/BSPTCL/2018.</b>	FY - 2019-20	<b>165.64</b>		165.64	16.564	115.948	33.128		State Plan 80% from loan + 20% equity from GoB.
28	Construction of 220 KV D/C Transmission Line from GSS Sitamarhi (New) to 220/132/33 KV GSS Motipur with Twin ACSR Moose Conductor (Approx Line Length – 54RKM) and construction of 132 KV D/C Transmission Line from GSS Sitamarhi (New) to 132/33 KV GSS Runnisaipur with single ACSR Moose Conductor (Approx Line Length – 17RKM) on turnkey basis against <b>NIT No.- 61/PR/BSPTCL/2018.</b>	FY - 2019-20	119.65		119.65	11.965	83.755	23.93		State Plan 80% from loan + 20% equity from GoB.
29	Construction of 220 KV D/C Transmission Line from 220/132/33 KV GSS Raxaul (New) to 220/132/33 KV GSS Gopalganj with Twin ACSR Moose Conductor (Approx Line Length – 80RKM) on Turnkey Basis against <b>NIT No.- 62/PR/BSPTCL/2018.</b>	FY - 2019-20	150.09		150.09	15.009	105.063	30.018		State Plan 80% from loan + 20% equity from GoB.
30	Construction of 132 KV Line bays at various grid substation on turn key basis i)Construction of 132 KV line bays 02 nos. at GSS Laukahi. ii)Construction of 132 KV line bays 02 nos. at GSS Phulparas. <b>NIT No.- 63/PR/BSPTCL/2018</b>	FY - 2019-20	<b>9.1</b>		9.1	0.91	6.37	1.82		State Plan 80% from loan + 20% equity from GoB.
31	Construction of 02 Nos. 132 KV line bays each at GSS Muzaffarpur & Vaishali against <b>NIT No.-65/PR/BSPTCL/2018.</b>	FY - 2019-20	9.32		9.32	0.932	6.524	1.864		State Plan 80% from loan + 20% equity from GoB.
32	Construction of (i) 02 Nos. of 220 KV Line bay at 220/132/33 KV GSS Kishanganj (New) with SAS (ii) 02 Nos. of 132 KV Line bay at 132/33 KV GSS Araria on turnkey basis against <b>NIT No. 67/PR/BSPTCL/2018.</b>	FY - 2019-20	10.77		10.77	1.077	7.539	2.154		State Plan 80% from loan + 20% equity from GoB.



33	Construction of 220 KV D/C by making LILO arrangement of both circuits of 220 KV D/C Purnea(PG)-Begusarai Transmission line to 220/132/33 KV Korha GSS ON Turnkey basis against <b>NIT No. 70/PR/BSPTCL/2018.</b>	FY - 2019-20	14.14		14.14	1.414	9.898	2.828		State Plan 80% from loan + 20% equity from GoB.
34	Construction of LILO of 132 KV DCSS Benipatti - Pupari Transmission line at Sitamarhi (new) and LILO of both ckt. of 132 KV Raxaul - Bettiah D/C Transmission line at Raxaul (new) with ACSR Panther Conductor. <b>NIT No.-71/PR/BSPTCL/2018</b>	FY - 2019-20	<b>52.8</b>		52.8	5.28	36.96	10.56		State Plan 80% from loan + 20% equity from GoB.
35	Second circuit stringing of 220 KV DCSS Darbhanga (400/220 KV) – Samastipur (New) Transmission Line (Line Length- 47 KM) with ACSR Zebra Conductor on turnkey basis against <b>NIT No.72/PR/BSPTCL/2018</b>	FY - 2019-20	8.09		8.09	0.809	5.663	1.618		State Plan 80% from loan + 20% equity from GoB.
36	Construction of 02 Nos. 132 KV line bay at GSS Runnisaidpur & 02 Nos. 220KV line bays at GSS Motipur against <b>NIT No.-76/PR/BSPTCL/2018.</b>	FY - 2019-20	12.31		12.31	1.231	8.617	2.462		State Plan 80% from loan + 20% equity from GoB.
37	Supply, erection, testing and commissioning of Reliable communication and Data Acquisition for implementation of Integrated Communication system upto 132 KV in Bihar with AMC for 6 years under State Plan (20% Equity: 80% : Loan) against <b>NIT No. 79/PR/BSPTCL/2018.</b>	FY - 2019-20	160.4		160.4	16.04	112.28	32.08		State Plan 80% from loan + 20% equity from GoB.
38	Construction of 4 Nos of 220 KV GIS bays and 4 Nos of 132 KV GIS Bays at 220/132/33 KV GSS Chhapra(new), Amnaur on turnkey basis. <b>NIT No. 80/PR/BSPTCL/2018.</b>	FY - 2019-20	47.87		47.87	4.787	33.509	9.574		State Plan 80% from loan + 20% equity from GoB.
39	Construction of 2 Nos of 220 KV GIS Bays at 220/132/33 KV GSS Gopalganj on turnkey basis <b>NIT No 82/PR/BSPTCL/2018.</b>	FY - 2019-20	28.73		28.73	2.873	20.111	5.746		State Plan 80% from loan + 20% equity from GoB.
40	Construction of 02 nos. 132KV Line bays each at 132/33KV Grid-Substation Mahnar & Shahpurpatori and Construction of 02nos. 220KV Line bays at 220/132/33KV GSS Samastipur(New) on Turnkey basis under State Plan against <b>NIT No. 85/PR/BSPTCL/2018.</b>	FY - 2019-20	14.83		14.83	1.483	10.381	2.966		State Plan 80% from loan + 20% equity from GoB.



41	i) Construction of 220/132KV (2x100 MVA) GSS at Korha with SAS and Residential Quarters (ii) Addition/augmentation of 160MVA 220/132 Transformer at 220/132/33KV GSS Kishanganj (New) on turnkey basis under State Plan against NIT No. <b>86/PR/BSPTCL/2018.</b>	FY - 2019-20	63.09	30	93.09	33.00	37.854	15.7725	6.4635	State Plan 80% from loan + 20% equity from GoB.
42	Supply, erection, testing and commissioning of 28 Nos. of 132/33 KV 50 MVA Transformer including Transformer Foundations under State Plan against NIT No. <b>105/PR/BSPTCL/2018.</b>	FY - 2019-20	81.94		81.94	8.194	57.358	16.388		State Plan
43	Capacity augmentation by addition of 3rd 160 MVA, 220/132KV ICT along with associated transformer bays at Sonenagar (New) GSS on turnkey basis NIT No.- <b>95/PR/BSPTCL/2018</b>	FY - 2019-20	13.21		13.21	1.321	9.247	2.642		State Plan 80% from loan + 20% equity from GoB.
44	Construction of 02 Nos. of 220KV Line bays at Begusarai GSS & 2 Nos. 220KV Line bays at Khagaria(New) GSS with SAS against NIT No. <b>68/PR/BSPTCL/2018</b>	FY - 2019-20	16.25		16.25	1.625	11.375	3.25		State Plan 80% from loan + 20% equity from GoB.
45	Re-conductoring of following transmission lines with HTLS (equivalent to Panther) conductor on turnkey basis:- (1) Circuit 1 & Circuit 2 of 132 KV Biharsharif – Bariyahari D/C Transmission line. (CKM – 14 KM approx) (2) 132 KV S/C Sipara – Mithapur – Karbigahiya Transmission line (CKM – 7 KM approx) NIT No.- <b>107/PR/BSPTCL/2018</b>	FY – 2019-20	14.97		14.97	1.497	10.479	2.994		State Plan 80% from loan + 20% equity from GoB.
46	Reconductoring of (i) 132 KV Muzaffarpur - SKMCH S/C Transmission line with HTLS conductor (line length 20.5 RKM) along with involvement 01 no. of Pile foundation. (ii) 132 KV Kanti (MTPS)- SKMCH D/C transmission line with HTLS conductor (line length 14,28 RKM). NIT No. <b>114/PR/BSPTCL/2018</b>	FY - 2019-20	31.04		31.04	2.0	23.0	6.04		State Plan 80% from loan + 20% equity from GoB.
47	Installation of capacitor bank at 35 location for Bihar under PSDF Scheme against NIT No.- <b>06/PR/BSPTCL/2017.</b>	FY 2019-20	<b>21.13</b>		<b>21.13</b>	<b>12.30</b>	<b>9.00</b>			PSDF
48	Capacity augmentation of different GSS by Addition /Replacement by 200 MVA Power Transformer alongwith associated bays on Turnkey Basis at GSS Khagaul & Sipara NIT No.- <b>49/PR/BSPTCL2018</b>	FY – 2019-20	65.46		65.46	6.546	45.822	13.092		State Plan 80% from loan + 20% equity from GoB.
49	Procurement of 04 nos. 20 MVA, 132/33 KV Power Transformers against NIT No. <b>22/PR/BSPTCL/2018.</b>	FY 2019-20	<b>6.6</b>		<b>6.6</b>	<b>4.5</b>	2.1			O&M
50	Construction of 12 Nos of 132/33 KV Transformer Bays on turnkey basis under State Plan against NIT No. <b>106/PR/BSPTCL/2018.</b>	FY - 2019-20	35.19		35.19	3.519	24.633	7.038		State Plan





51	Construction of (2x50) MVA, 132/33 KV GSS Paliganj (Dist.- Patna) and 02 Nos. 132 KV Line Bay Extension at remote end on turnkey basis <b>NIT No.-03/PR/BSPTCL/2018</b>	FY - 2021-22	24.74	2	26.74	3.237	14.844	6.185	2.474	State Plan
52	Construction of 220/132/33 KV, (2x160 + 3x50) MVA, GSS Asthawan (Dist.- Nalanda) including Residential Quarters with Construction of 02 Nos. 220 KV Line Bays & 06 Nos. 132 KV Line Bays at remote end on Turnkey Basis. <b>NIT No.-41/PR/BSPTCL/2018</b>	FY - 2021-22	109.46	37.5	146.96	42.973	65.676	27.365	10.946	State Plan 80% from loan + 20% equity from GoB.
53	Construction of 220/132/33 KV (2x200 MVA + 3x50MVA) GSS Karmnasha (new) <b>NIT No.-38/PR/BSPTCL/2018</b>	FY - 2021-22	95.86	9.6	105.46	14.393	57.516	23.965	9.586	State Plan 80% from loan + 20% equity from GoB.
54	Construction of (2x200 + 2x80) MVA, 220/132/33 KV Gas Insulated Sub-station at Digha (New) and 02 nos. 220 KV GIS line bays extension at GSS Sheikhopursarai (BGCL) on turnkey basis <b>NIT No.-75/PR/BSPTCL/2018</b>	FY - 2021-22	141.03		141.03	7.0515	84.618	35.2575	14.103	State Plan 80% from loan + 20% equity from GoB.
55	Construction of (2x160 MVA+3x50MVA) 220/132/33 KV GSS, Thakurganj (with SAS) (District-Kishanganj) and Residential Quarters under State Plan on turnkey basis against <b>NIT No. 35/PR/BSPTCL/2018.</b>	FY - 2021-22	92.55	37.5	130.05	42.00	55.53	23.1375	9.3825	State Plan 80% from loan + 20% equity from GoB.
56	Construction of 02 nos 220KV GIS line bays each at 220/132/33KV GIS Sheikhpura(BGCL), Hatidah (GIS, BGCL) and 220KV Fatuha GSS(BSPTCL). <b>NIT No.-84/PR/BSPTCL/2018</b>	FY - 2021-22	72.73		72.73	7.273	50.911	14.546		State Plan 80% from loan + 20% equity from GoB.
57	Construction of (i) LILO of Barh-Patna 400 KV D/C ( QUAD) Transmission line at Bakhtiyarpur ( New) (10RKM) (ii) Bakhtiyarpur ( New) - Sheikhpura ( New) 220 KV D/C Transmission Line (51 RKM) (iii) Bakhtiyarpur (New) – Hathidah(New) 220 KV D/C Transmission Line (52 RKM) and (iv) Bakhtiyarpur ( New) – Fathua (BSPTCL) 220 KV D/C Transmission Line (28 RKM) under state plan[ 80:20] against <b>NIT No.-77/PR/BSPTC/18</b>	FY - 2021-22	153.68		153.68	15.368	107.576	30.736		State Plan 80% from loan + 20% equity from GoB.
58	Construction of 2x80 MVA, 132/33 KV Gas Insulated Sub-station at Board Colony Patna along with construction of 132 KV D/C transmission line with cable from 220/132/33 KV Gas Insulated Sub-station at Digha (new) to 132/33 KV Gas Insulated Sub-station at Board colony on cable(CKM – 14 KM) and construction of 132 KV S/C transmission line with cable from 220/132/33 KV Gas Insulated Sub-station at Digha (new) to Digha (Old) on cable (CKM – 1 KM ) <b>NIT No.-74/PR/BSPTCL/2018</b>	FY - 2021-22	135.29		135.29	13.529	94.703	27.058		State Plan 80% from loan + 20% equity from GoB.



59	Construction of 132 KV D/C Thakurganj-Araria Transmission Line with ACSR Panther Conductor (Line Length - 86 RKM) and Construction of 220 KV D/C Kishanganj (New)- Thakurganj Transmission Line with ACSR Zebra Conductor (Line Length - 52 RKM) under state plan[80:20] against NIT No. 52/PR/BSPTCL/2018.	FY – 2021-22	167.45		167.45	16.745	117.215	33.49		State Plan 80% from loan + 20% equity from GoB.
60	Construction of (2x500+2x160) MVA 400/220/132 KV GIS Grid Sub-Station Bakhtiyarpur with SAS under turnkey basis. NIT No. 73/PR/BSPTCL/2018.	FY – 2021-22	250.51	30	280.51	42.00	150.306	62.6275	25.5765	State Plan 80% from loan + 20% equity from GoB.
61	Construction of 220KV D/C Amnour (BGCL) – Digha (GIS) NIT No.-64/PR/BSPTCL/2018	FY - 2021-22	200.62		200.62	10.031	120.372	50.155	20.062	State Plan 80% from loan + 20% equity from GoB.

It is submitted that the total amount to be capitalized during the control period will be as follows:-

Particulars	FY 2019-20	FY 2020-21	FY 2021-22
Amount to be capitalized (Rs. in cr.)	1052.96	2007.58	1596.37

### 3.7 Gross Fixed Assets (GFA)

(Rs. in cr.)

Year	FY 20	FY 21	FY 22
Opening Value of Assets	8993.06	10046.02	12053.60
Addition during the year	1052.96	2007.58	1596.37
Closing value of Assets	10046.02	12053.60	13649.97

### 3.8 Mode of Financing

The petitioner submits that the above stated projects would be executed under the state policy as under:



(i) 20% of the total project cost shall be funded by the state government as equity.

(ii) 80% of the total project cost would be funded through procurement of debt from the banks/ financial institutions. The schemes not covered under the above policy shall be funded to the extent possible from the Internal Resources Fund.

**Debt:**

(Rs. in cr.)

Year	FY 20	FY 21	FY 22
Opening Value of Debt	837.22	3056.59	3779.05
Addition during the year	2219.37	722.46	105.57
Total Debt drawn	3056.59	3779.05	3884.62

**Equity:**

(Rs. in cr.)

Year	FY 20	FY 21	FY 22
Opening Value of Equity (Including Other Equity)	6740.92	7295.76	7476.38
Addition during the year	554.84	180.62	26.39
Total Equity drawn	7295.76	7476.38	7502.77

**3.9 Rate of Interest on Loan**

As per Clause 23 of BERC (Multiyear Transmission Tariff and SLDC Charges) 2018, Rate of Interest on loan is to be set as follows:

“The rate of interest shall be the weighted average rate of interest calculated on the basis of actual loan portfolio at the beginning of each year of the control period, in accordance with terms and conditions of relevant loan agreements, or bonds or non-convertible debentures:



Provided that if no actual loan is outstanding but normative loan is still outstanding, the last available weighted average rate of interest shall be applicable. Provided further that if no actual loan is outstanding but normative loan is still outstanding and the last available weighted average rate of interest is also not available, rate of interest equal to the State Bank one-year Marginal Cost of Funds-based Lending Rate ('MCLR') shall be applicable. Provided further that the interest on loan shall be calculated on the normative average loan of the year by applying the weighted average rate of interest:

Provided also that exception shall be made for the existing loans which may have different terms as per the agreements already executed if the Commission is satisfied that the loan has been contracted for and applied to identifiable and approved projects.

Interest on Loan from State Govt has been considered @ 10.5% as earlier sanctioned loan to BSPTCL. (Rs. in cr.)

Parameter	FY 2019-20	FY 2020-21	FY 2021-22
Interest on Loan	320.94	396.80	407.89

### 3.10 Rate of Return on Equity

As per Clause 22 of BERC (Multiyear Transmission Tariff and SLDC Charges) 2018, Return on Equity is to be calculated (Rs. in cr.)

Parameter	FY 2019-20	FY 2020-21	FY 2021-22
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Return on Equity	1130.84	1158.84	1162.92
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The petitioner, accordingly, has considered the rate of Return on Equity as 15.5% for the assets to be commissioned in the control period.

### **3.11 Operations and Maintenance Expenses**

The petitioner submits that the Operation and Maintenance Expenses have been further categorized under three major heads:

- (i) Employee Expenses
- (ii) Repair and Maintenance
- (iii) Administrative and General Expenses

#### **3.11.1 Employee Expenses**

The employee expenses primarily comprise of Salaries and Wages, Dearness Allowances, perks, performance related pay, bonus, staff welfare and medical benefits, leave travel allowance, earned leave encashment and retirement benefits such as provident fund, gratuity, pension etc.

The commission, as per the Clause 21.1 of BERC (Multiyear Transmission Tariff and SLDC Charges) 2018 has directed the Employee Costs to be forecasted as follows:

As per the aforesaid regulations, the CPI index for the preceding three years has been shown in the table below:

CPI index



Parameter	FY 2015-16	FY 2016-17	FY 2017-18
Average Annual CPI Index (Mar 31')	126.0	130.9	136.5
Y-to Y Increase		3.89%	4.28%
Average Increase		4.08%	

The Petitioner submits that the actual employee expenses in the year FY 18 have been Rs. 136.5 Crore. Considering the average increase in CPI (4.08%), the overall employee expenses over the control period are summarized below:

Rs Crore

Parameter	FY2019-20 (Projected)	FY2020-21 (Projected)	FY2021-22 (Projected)
Employee Expense	148.79	154.68	160.91

In this regard, the petitioner submits that the overall projected employee expenses are yet to stabilize since many of the transmission assets are currently under development phase. The Petitioner will therefore approach the Hon'ble Commission to consider the actual employee expenses pursuant to completion of the projects/true-up petitions based on audited accounts.

The Petitioner further pleads that before the Hon'ble Commission that although O&M expenses are classified as controllable under CI 8.2 of BERC (Multiyear Transmission Tariff and SLDC Charges) 2018, the same needs to be considered as uncontrollable due to the following reasons:

- Increase in the salaries of employees including dearness allowance,
- Increase in salaries due to recruitment of new employees and



contractual appointments; and

- Provision of retirement dues on the basis of actuarial valuation from current financial year.

The petitioner would, thus, request the Hon'ble Commission to consider the impact of aforesaid parameters as uncontrollable and provide favorable dispensation at the time of trueing up based on actual cost as per audited accounts.

### 3.11.2 Repair and Maintenance Expenses(R&M)

The Repair and Maintenance Activities are primarily directed towards the upkeep of the transmission system and related office works

As per Clause 21.2 of the BERC (Multiyear Transmission Tariff and SLDC Charges) 2018, R&M is calculated below:

Considering the R&M Expenses to be 2.5% of Gross Fixed Assets, the petitioner would like to submit the R&M expenses as follows:

Rs Crore

Parameter	FY2019-20 (Projected)	FY2020-21 (Projected)	FY2021-22 (Projected)
R&M Expense	251.15	301.34	341.25

In this regard, the petitioner submits that the overall projected Repair and Maintenance Expenses are yet to stabilize since many of the transmission assets are currently under development phase. The Petitioner will therefore approach the Hon'ble Commission to consider the actual Repair and Maintenance expenses pursuant to completion of the projects/true-up petitions based on audited accounts.

### 3.11.3 Administrative and General Expenses (A&G)



Administration and General expenses mainly comprise costs towards insurance charges, security expenses, professional charges, conveyance and travelling allowances, holding charges and other debits.

As per Clause 21.3 of the BERC (Multiyear Transmission Tariff and SLDC Charges) 2018, A&G will be calculated as follows:

As per the aforesaid regulations, the WPI and CPI index for the preceding three years has been shown in the table below:

Parameter	FY 2015-16	FY 2016-17	FY 2017-18
Average Annual CPI Index (Mar 31)	126.00	130.90	136.50
Average Annual WPI Index (Mar 31)	107.70	113.20	116.30
Indexed (60: 40)	115.02	120.28	124.38
Increase		4.6%	3.4%
Average Increase			3.99%

Accordingly, the petitioner would like to submit the A&G Expenses as follows:

Rs Crore

Parameter	FY2019-20 (Projected)	FY2020-21 (Projected)	FY2021-22 (Projected)
A&G Expense	38.79	40.33	41.94

Petitioner submits that the overall projected Administrative and General Expenses are yet to stabilize since many of the transmission assets are currently under development phase. The Petitioner will therefore approach the Hon'ble Commission to consider the actual Administrative and General Expenses pursuant to completion of the projects/true-up petitions based on audited accounts.





### 3.12 The Summarized O&M Expenses are as follows:

Rs Crore

<b>Parameter</b>	<b>FY2019-20 (Projected)</b>	<b>FY2020-21 (Projected)</b>	<b>FY2021-22 (Projected)</b>
Employee Expenses	148.79	154.68	160.91
R&M Expense	251.15	301.34	341.25
A&G Expenses	38.79	40.33	41.94
<b>Total</b>	<b>438.73</b>	<b>496.35</b>	<b>544.10</b>



### 3.13 Depreciation

The petitioner submits to the Hon'ble Commission that the Depreciation has been estimated in accordance with the Cl 23 of BERC (Multiyear Transmission Tariff and SLDC Charges) 2018,

Accordingly, the petitioner submits the Depreciation schedule as follows:

Rs Crore

Parameter	FY 2019-20	FY 2020-21	FY 2021-22
Average GFA	10046.02	12053.6	13649.97
Less			
Freehold Land*	1435.30	1630.8	1679.9
Available for Depreciation	8610.72	10422.8	11970.07
Rate of Depreciation	5.28%		
Depreciation	454.65	550.32	632.02

The petitioner submits to the Hon'ble Commission that the above figures are based on the estimated commissioning schedule and may vary depending on the commissioning of assets.

### 3.14 Interest on Working Capital

The Interest on working capital has been calculated considering followings:

Sr. No.	Particulars	Norm
1.	Operation & Maintenance Expenses	One month
2.	Maintenance spares	@ 15% of O & M Expenses for one month
3.	Receivables	Two months of transmission charges calculated on target availability level



Sr. No.	Particulars	Norm
4.	Less	Depreciation Equivalent to two months
5.	Rate of Interest on Working Capital	Rate of interest on working capital will be computed at 150 basis point over and above the SBI MCLR base rate of 8.45%.

Calculation of Interest on Working Capital is as follows:

Sl. No.	Particulars	FY 2019-20	FY 2020-21	FY 2021-22
1	O&M Expenses for 1 Month (Rs Crs.)	36.56	41.36	45.34
2	Maintenance Spares @15% of O&M Expenses for 1 Month (Rs Crs)	5.48	6.20	6.80
3	Receivables 2 Months (Rs Crs)	314.31	452.55	592.97
4	<b>Less:-Depreciation</b>	<b>75.77</b>	<b>91.72</b>	<b>105.34</b>
5	<b>Total Working Capital (Rs Crs)</b>	<b>280.58</b>	<b>408.40</b>	<b>539.78</b>
6	<b>Rate of Interest (%)</b>	<b>9.95%</b>	<b>9.95%</b>	<b>9.95%</b>
7	<b>Interest on Working Capital (Rs Crs)</b>	<b>27.92</b>	<b>40.64</b>	<b>53.71</b>

- (i) The rate of interest on working capital has been considered as 9.95% which has been calculated from SBI MCLR of 8.45 % as on 1<sup>st</sup>Sep 2018 and 150 bps as per the regulation mentioned above. The SBI MCLR has been considered from the link provided as follows: <https://www.sbi.co.in/portal/web/interest-rates/mclr-historical-data>

#### 4 Non-Tariff Income



The petitioner submits that, at present, non-tariff income includes sale of scrap which is mentioned as below for three successive years:

Non-Tariff Income	FY 2019-20	FY 2020-21	FY 2021-22
Sale of Scrap (Rs Crs)	9.085	9.539	10.02

## 5 Annual Revenue Requirement

Accordingly, ARR for the control period from 2019-20 to 2021-22 is calculated as follows:

SL No.	Parameter (Rs Crs)	FY 2019-20	FY 2020-21	FY 2021-22
1	Depreciation	454.65	550.32	632.02
2	Interest on Loan	320.94	396.80	407.89
3	O&M Expenses			
	1. Employee Expenses	148.79	154.68	160.91
	2. R&M	251.15	301.34	341.25
	3. A&G	38.79	40.33	41.94
4	Interest on WC	27.92	40.64	53.71
5	Return on Equity	1130.84	1158.84	1162.92
6	<b>Total ARR</b>	<b>2373.08</b>	<b>2642.94</b>	<b>2800.64</b>
7	Less:-Non-Tariff Income	9.08	9.54	10.02
8	<b>Net ARR</b>	<b>2364</b>	<b>2633.41</b>	<b>2790.62</b>

The petitioner submits that the above mentioned ARR figures are indicative. The ARR for the relevant year will be submitted in accordance with applicable regulations as part of the MYT petition.