PUNJAB STATE ELECTRICITY REGULATORY COMMISSION

BUSINESS PLAN INCLUDING CAPITAL INVESTMENT PLAN ORDER FOR MYT CONTROL PERIOD FROM FY 2020-21 TO FY 2022-23 FOR PSTCL

PUNJAB STATE ELECTRICITY REGULATORY COMMISSION
SITE NO. 3, BLOCK B, SECTOR 18-A MADHYA MARG, CHANDIGARH

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PUNJAB STATE ELECTRICITY REGULATORY COMMISSION
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PETITION NO. 19 OF 2019 FILED BY PSTCL FOR BUSINESS PLAN INCLUDING CAPITAL INVESTMENT PLAN FOR MYT CONTROL PERIOD FROM FY 2020-21 TO FY 2022-23 FILED BY PUNJAB STATE TRANSMISSION COMMISSION LIMITED BEFORE PUNJAB STATE ELECTRICITY REGULATORY COMMISSION

PRESENT: Ms. Kusumjit Sidhu, Chairperson
Sh. S.S. Sarna, Member
Ms. Anjuli Chandra, Member

Date of Order: 03rd December, 2019

ORDER

The Punjab State Electricity Regulatory Commission (Commission), in exercise of powers vested in it under the Electricity Act, 2003 (Act), passes this order fortheBusiness Plan including Capital Investment Planfor MYT Control Period from FY 2020-21 to FY 2022-23 for Transmission and State Load Despatch Centre (SLDC) businesses of Punjab State Transmission Corporation Limited (PSTCL). The petition filed by PSTCL and the facts presented in its various submissions have been considered.

1.1 Background

PSTCL is vested with the function of intra-State transmission of electricity in the State of Punjab and the operation of SLDC as notified by the Government of Punjab vide Notification No. 1/9/08-EB(PR) 196 dated April 16, 2010. Further, in terms of Section 39 of the Act, the Government of Punjab declared PSTCL as the State Transmission Utility (STU). PSTCL is operating under the aegis of Electricity Act 2003 and the regulations notified by the Punjab State Electricity Regulatory Commission (PSERC). The Commission has issued the PSERC (Terms and Conditions of Determination of Generation, Transmission, Wheeling and Retail Supply Tariff) Regulations, 2019 (hereinafter referred to as "PSERC MYT Regulations, 2019") in exercise of powers conferred on it by Section 61 read with Section 181(2) of the Electricity Act 2003 (No. 36 of 2003) wherein tariff is being determined on yearly basis.

1.2 Business Plan including Capital Investment Plan for MYT Control Period from FY2020-21 to FY 2022-23 for Transmission and State Load Despatch Centre (SLDC) businesses of PSTCL

As per the PSERC MYT Regulations – 2019, PSTCL has filed its Petition for Approval of Business Plan along with its Capital Investment Plan for the MYT control period i.e. FY

2020-21 to FY 2022-23. PSTCL has submitted separate Capital Investment Plans for Transmission and SLDC Business. For Transmission business, some of the capital works approved and started in 1st Control Period have spilled over to the 2nd Control Period and PSTCL has included these in the Capital Investment Plan. PSTCL has also conducted load flow analysis and proposed new schemes to avoid overloading and for strengthening of the system. Similarly, for SLDC business, PSTCL has included both Spillover and New Schemes in the Petition. The Petitioner has prayed to:

a)admit the Petition seeking approval of Business Plan along with its Capital Investment Plan for FY 2020-21 to FY 2022-23 in accordance with Regulation 9 of the PSERC MYT Regulations, 2019;

b)approve the Business Plan along with the Capital Investment Plan for Transmission and SLDC Business for FY 2020-21 to FY 2022-23 as proposed by the Petitioner in the above-said Petition;

c)pass any other order/s as theCommission may deem fit and appropriate under the circumstances of the case and in the interest of justice;

d)condone any error/ omission and to give opportunity to rectify the same;

e)permit to make further submissions, addition and alteration to this Petition as may be necessary from time to time as the filing is being done based on the best available information.

On scrutiny of the petition, it was noticed that the petition was deficient in some respects. The deficiencies were conveyed to PSTCL vide letter no. PSERC/Tariff/Pet. 19 of 2019/ 1337 dated 11.09.2019 and letter no. PSERC/Tariff/Petition No. 19 of 2019/1679 dated 23.10.2019. The reply to deficiencies were furnished by PSTCL vide memo no. 3081/FA/Comml.-803dated 25.09.2019 andmemo no. 3531/FA/Comml.-803 dated 05.11.2019.The Commission vide Order dated 01.10.2019 directed PSTCL to submit the other standing Formats as annexed with the MYT Regulations and revised list of schemes under separate headings and alternate schemes to be clubbed under one scheme containing cost estimate of the scheme with financial justification. The petition was admitted vide Order dated 11.10.2019 and taken on record. PSTCL, vide memo no. 3265/FA/Comml.803 dated 09.10.2019, filed its submissions to the queries raised by the Commission vide Order dated 01.10.2019. Various meetings were held with PSTCL to discuss their submissions.

1.3 Objections & Public Hearing:

The Commission directed PSTCL vide Order dated 11.10.2019 to publish a public notice inviting objections from the public. A public notice inviting the objections from the public was published in various newspapers i.e. The Indian Express (English), Hindustan Times (English), Punjabi Tribune, Ajit (Punjabi) and Punjab Kesari (Hindi) on 18.10.2019. The relevant correspondence between the Commission and PSTCL was also uploaded on the website of the Commission. The Public Hearing was held on 06.11.2019 at 11 AM in the office complex of the Commission however, nobody appeared in the public hearing from the public.

The Commission received one comment through e-mail dated 22.11.2019from Sh. L.K. Dham. It has been submitted in the objection that detailed break up of other works related expenditure are not given for works more than Rs. 10 lakhs. PSTCL submitted its comments on the objection that all requisite details of the schemes proposed under “Other Capex” have been submitted. It is just to avoid repetition of the name of all such schemes in the petition that the details have been provided in relevant formats/annexures and all such schemes were clubbed under the head “Other Works”. The Commission observes that the MYT Regulation 2019 provides for submission of DPRs for the Schemes over Rs. 10 Cr. for Transmission Business. Further, requisite details of Other Works related expenditure have been submitted by PSTCL which has been taken on record.

The Commission has thus taken the necessary steps to ensure that due process, as contemplated under the Act and Regulations framed by the Commission, is followed and adequate opportunity is given to all stakeholders to present their views.

Chapter 2–Business Plan

2.1 Transmission Availability Trajectory

PSTCL's submission:

As per historical trends, the availability of transmission network of PSTCL has always remained higher than 99%. The MYT Regulations 2019, prescribe that the normative transmission availability for recovery of fixed cost (NATAF) should be 98.5% for AC system and incentives shall be payable for availability above 99%. Further, no incentive shall be payable for availability beyond 99.75%.

Considering the above, PSTCL has submitted that the availability of the network will be aligned to the normative limits set as per Regulation 52.1 of Tariff Regulations as mentioned above.

Commission's Analysis:

The Commission notes PSTCL's submission that the availability of transmission network of PSTCL has remained higher than 99% and shall be aligned to normative limits as per tariff Regulations. The Commission expects PSTCL to improve the availability further under the performance-based incentive regime.

2.2 Transmission Loss Trajectory for the Control Period

PSTCL's Submissions:

The actual transmission losses incurred by PSTCL in the first 2 years of the 1st Control Period is as given below:

Table 1: Actual Transmission Losses submitted by PSTCL for FY 2017-18 and FY 2018-19

FY 2017-18	FY 2018-19
3.12%	2.86%

PSTCL has submitted that, in its Petition for True-up for FY 2017-18, the transmission loss was 2.50% for FY 2017-18. However, the transmission loss level was revised upward to 3.12% based on actual data. Further, transmission loss is projected to be 2.86% for FY 2018-19 based on provisional data. With the addition in the proposed network, the overall losses in the system are likely to remain in the range of 3-3.50% as the transmission system is being developed for n-1 compliance in accordance with the CEA standards. Accordingly, some lines will remain underutilized which may lead to increase in no load losses thereby

increasing transmission losses. Accordingly, PSTCL has proposed the transmission loss trajectory for 2nd Control Period based on the actual transmission loss incurred in FY 2017-18 and FY 2018-19:

Table 2: Transmission loss trajectory submitted by PSTCL for the 2nd Control Period

FY 2020-21	FY 2021-22	FY 2022-23
3.00%	3.00%	3.00%

Commission's Analysis:

In the Tariff Order for 1stMYT Control period of FY 2017-18 to FY 2019-20 for PSTCL, the Commission had noted that PSTCL has completed Intra-State Boundary Metering cum Transmission Level Energy Scheme. However, the data from the same is yet to be stabilized. As such, the Commission decided to approve the Transmission losses at 2.5%, 2.40% and 2.30% for FY 2017-18, FY 2018-19 and FY 2019-20 respectively with the observation that, the Commission would revisit the Transmission losses during review/true up for FY 2017-18, FY 2018-19 and FY 2019-20, on the basis of stabilized transmission loss data for entire year.

Since the data was yet to be stabilised, the Commission in the Tariff Order for FY 2018-19,provisionally retained the transmission loss level at 2.50% for FY 2017-18 and 2.40% for FY 2018-19, as approved in the Tariff Order for FY 2017-18.

However, in the Tariff Order for FY 2019-20, the Commission observed that although PSTCL has completed the Intra-State Boundary metering cum Transmission Level Energy Scheme, but the data is yet to be stabilised. Thus, since the baseline figure of transmission loss of PSTCL was yet to be ascertained, the Commission was of the view that it would not be fair to fix any trajectory for reduction of transmission loss. As such, the Commission approved the transmission loss level of 2.50% for FY 2018-19 and for FY 2019-20 with observation that it would re-visit the transmission losses on the basis of stabilized transmission loss data for the entire year during true up for these years.

The Commission notes that PSTCL has now submitted the Transmission losses of 3.12% for FY 2017-18 and 2.86% for FY 2018-19 and is projecting 3.00% for FY 2021-23.

The Commission is of the view that actual losses for the year FY 2019-20 should form the basis for setting of target loss figures for the 2nd control period. But actual losses for FY 2019-20 shall be available only upon completion of True-up of FY 2019-20 (to be carried out in FY 2021-22).

With the stabilisation of data, PSTCL has now reported a loss of 2.86% for the year FY 2018-19. Thus, the Commission cannot consider higher loss i.e. 3.00% for FY 2020-21 particularly when the Commission is allowing higher capital investment for the provision of higher voltage substations, addition of reactors, augmentation of conductors, etc. However, the Commission notes PSTCL's submission that with the development of the network to n-1 compliant system, significant reduction of losses would be difficult to achieve. **Accordingly, the Commission approves the Transmission loss trajectory of reduction of 0.02% every year for 2nd Control Period. Transmission losses for the Control Period shall be specified accordingly on the basis the actual losses for FY 2019-20.**

Table 3: Transmission loss trajectory provisionally approved by the Commission for the 2nd Control Period

	Provisionally Approved by Commission*		
	FY 2020-21	**FY 2021-22**	**FY 2022-23**
Transmission loss trajectory (%)	2.86%	2.84%	2.82%
*The opening targeted losses shall be reviewed as per the actual losses of FY 2019-20			

Chapter 3 - Capital Investment Plan

3.1 Background

PSTCL has filed separate Capital Investment Plans for its Transmission & SLDC Businesses as per Regulation 9 of the Punjab State Electricity Regulatory Commission (Terms and Conditions for Determination of Generation, Transmission, Wheeling and Retail Supply Tariff) Regulations, 2019 (PSERC MYT Regulations 2019). It has further categorized the proposed schemes into Ongoing/ Spillover and New Schemes for its Transmission Business in accordance with Regulation 9.7 of the MYT Regulations 2019 stipulates the following in respect of Ongoing and New Schemes:

"The Capital Investment Plan covering the entire MYT Control Period will be submitted in the following two parts:

a) Ongoing schemes of the previous MYT Control Period (i.e. works / schemes which are under construction or where full payments have not yet been made). All spillover works will be included in this;

b)Schemes to be taken up in the order of priority giving the schedule over the full MYT Control Period. In case it is likely to take more than 3 years, the likely date of completion should also be given. This will also include such schemes which were part of the Capital Investment Plan of the previous MYT Control Period but could not be started and which the Applicant considers necessary to take up during the present Control Period."

PSTCL has conducted a load flow study based on peak load requirements for current and FY 2022-23 scenarios. As per SLDC data, the peak demand handled in FY 2018-19 is ~12638MW. The actual demand handled over the years FY 2015-16 to FY 2018-19 has increased at a CAGR of ~5.62%. As per the 19th Electric Power Survey, the peak load is projected to be 15654 MW by FY 2022-23. The existing system was found to be inadequate to handle this anticipated demand. PSTCL also conducted the load flow study under various scenarios as follows:

a. For system as on June 2019 under FY 2022-23 load conditions and without the GGSSTP generation plant
b. for system as on June 2019 under FY 2022-23 load conditions with addition of all pending works of MYT 2017-20 and works added through amendments
c. For system as on June 2019 including the proposed transmission works for FY 2020-23 with GGSSTP generation plant.

d. For system as on June 2019 including the proposed transmission works for FY 2020-23 without GGSSTP generation plant

As per CEA guidelines, all new works are planned as per N-1 contingency scenarios.

3.2 Transmission Business

The Commission vide letter no. 1337 dated 11.09.2019, inter alia, directed PSTCL to revise its Capital Investment Plan based on deficiencies observed and to provide scheme-wise technical and financial justification for each new scheme proposed.

The summary of the revised Capital Investment Plan is provided in the following table:

Table 4: Summary of Capital Investment submitted by PSTCL for the 2nd Control Period

Rs. Cr.

Sl. No.	Particulars	FY 2020-21	FY 2021-22	FY 2022-23	Total MYT
1	Spill Over schemes	317.78	256.51	201.15	775.44
2	New Schemes	390.46	478.47	481.11	1350.04
	Total	708.24	734.98	682.26	2125.48

3.2.1 Ongoing/ Spillover Schemes

3.2.1.1. Schemes Approved in 1st Control Period

PSTCL's Submission:

The Commission had approved 182 schemes in the 1st Control Period. The capital works for 53 of these schemes have spilled over to the next Control Period. PSTCL has submitted capital investment for the ongoing schemes. A summary of this capital investment is as shown in the table below:

Table 5: Capital Investment claimed by PSTCL for 2nd Control Period

Rs. Cr.

Sl. No.	Particulars	FY 2020-21	FY 2021-22	FY 2022-23	Total MYT
1	Spill Over schemes approved in 1st Control Period	216.48	182.43	136.82	535.73

Details of the schemes are provided in Table 31 in Annexure 1

Commission's Analysis:

The Commission had initially approved Rs.328.29 Cr., Rs.248.01 Cr. and Rs.202.64 Cr. in its Tariff Order dated 23.10.2017 for FY 2017-18, FY 2018-19 & FY 2019-20 respectively i.e.

a total of Rs.778.79 Cr. for 182 schemes. In the Petition no. 03 of 2019 dated 27.05.2019, the Commission provisionally approved Rs.321.48 Cr., Rs.251.403 Cr. & Rs.227.28 Cr. for FY 2017-18, FY 2018-19 and FY 2019-20 respectively. Therefore, a total of Rs.800.163 Cr., (which included only Hard Cost), was approved by the Commission over the 1st Control Period for 182 Schemes.

As discussed during the meetings held on 24.10.2019 and 25.10.2019, PSTCL informed the Commission that out of the 182 schemes approved in 1st Control Period,53 schemes could not be completed due to various issues. The initially approved Capital Investment of Rs.341.57 Cr. (Hard Cost)for these 53 schemes have spilled over to the 2nd Control Period. Since thisinitially approved capital investment consisted only of Hard Cost, the Commission has assumed IEDC and IDC of 6.45% and 8.82% respectively which is IEDC and IDC of 53 spillover schemes proposed by PSTCL for 2nd Control Period. The estimated total capital investment approved in 1st Control Period for the 53 Spillover schemes is as mentioned in the following table.

Table 6: Estimated total capital investment approved in 1st Control Period for the 53 spillover schemes

Rs. Cr.

Sl. No.	Particulars	Approved in 1st MYT (Hard Cost)	Estimated IEDC (6.45%)	Estimated IDC (8.82%)	Total Cost
1	53 Spillover Schemes	341.57	22.01	30.13	393.71

On analysing these 53 Spillover schemes, the Commission observes the following:

1) No capital expenditure has been incurred for 8 schemes in the 1st Control Period. The initially approved capital investment for these 8 schemes was Rs. 43.80Cr. PSTCL has proposed a total capital investment of Rs.121.47 Cr.for the 2nd Control Period which amounts to an escalation of Rs.77.67Cr. from the initially approved Cost. A summary of these 8 schemes is mentioned in the following table.

Table 7: Summary of 8 spillover schemes with no capital expenditure in 1st MYT

Rs. Cr.

Sl. No.	Particulars	Approved in 1st MYT (Estimated Total Cost)(a)	Expenditure in 1st MYT (b)	Proposed in 2nd MYT (c)	Escalation (c+b-a)	Escalation (%)
1	8 Spillover Schemes with no capital expenditure in 1st MYT	43.80	0.00	121.47	77.67	177%

2) For 27 schemes out of the 53 spillover schemes, no capital expenditure has been incurred in FY 2017-18 and FY 2018-19. The initially approved capital investment for these 27 schemes was Rs. 246.97Cr. PSTCL has estimated capital investment of Rs.104.36 Cr. in FY 2019-20 and Rs.382.18Cr. for 2nd Control Period. However, details of the estimated spending in the 1st Control Period have not been submitted by PSTCL.This amounts to an escalation of Rs. 239.57Cr. for these 27 schemes. A summary of the same is mentioned in the following table.

Table 8: Summary of 27 spillover schemes with no capital expenditure incurred in FY 2017-18 and FY 2018-19

Rs. Cr.

Sl. No.	Particulars	Approved in 1st MYT	Expenditure in 1st MYT				Proposed in 2nd MYT	Escalation	
		Estimated Total Cost (a)	FY 2017-18	FY 2018-19	FY 2019-20 (est.)	Total (b)	Total Cost (c)	Total Cost (c+b-a)	Total Cost (%)
1	27 schemes with no capital expenditure in FY 2017-18 and FY 2018-19	246.97	0.00	0.00	104.36	104.36	382.18	239.57	97%

3) For the remaining 18 schemes, the initially approved capital investment was Rs. 102.94 Cr. PSTCL has spent a total of Rs. 143.30Cr. over the 1st Control Period and proposed for a capital investment of Rs. 32.11Cr. in the 2nd Control Period for these 18 schemes. This amounts to an escalation of Rs. 72.47Cr. A summary of these 18 schemes is mentioned in the following table.

Table 9: Summary of 18 spillover schemes with actual capital expenditure in 1st MYT

Rs. Cr.

Sl. No.	Particulars	Approved in 1st MYT	Expenditure in 1st MYT				Proposed in 2nd MYT	Escalation	
		Estimated total Cost	FY 2017-18	FY 2018-19	FY 2019-20 (est.)	Total	Total Cost	Total Cost	Total Cost (%)
1	18 schemes with actual capital expenditure in 1st Control Period	102.94	37.86	33.73	71.71	143.30	32.11	72.47	70%

As per the above analysis, the Commission had initially approved an estimated capital investment of Rs.393.71Cr. for 53 schemes in the 1st Control Period and PSTCL has spent Rs. 247.66Cr. for the 53 spillover schemes. For the 2nd Control Period, PSTCL has proposed a capital investment of Rs.535.73Cr. which amounts to an escalation of Rs. 389.71Cr.A summary of estimated cost of the scheme as per 1st Control Period and an estimated cost of the schemes in 2nd Control Period is mentioned in the following table.

Table 10: Summary of estimated cost of 53 Spillover schemes as per 1st MYT Period and estimated cost of the same in 2nd MYT Period

Rs. Cr.

Sl. No.	Particulars	Estimated Cost as per 1st MYT *	Estimated Cost as per 2nd MYT	Escalation	
		Total Cost	Total Cost	Total Cost	Total Cost (%)
1	8 schemes with no capital expenditure in 1st Control Period	43.80	121.47	77.67	177%
2	27 schemes with no capital expenditure in FY 2017-18 and FY 2018-19 and estimated capital expenditure in FY 2019-20	246.97	486.54	239.57	97%
3	18 schemes with actual capital expenditure in 1st Control Period	102.94	175.41	72.47	70%
	Total 53 Spillover schemes	**393.71**	**783.42**	**389.71**	**99%**

***** including estimated IDC & IEDC

The details of the approved Capital Investment Plan and scheme wiseescalation of total cost are provided in the Table 11 which shows that there are 37 schemes with an escalation of 20% and above.

During the various discussions and meetings conducted with PSTCL, reasons for the cost escalation and delay were sought. However, no satisfactory reply was submitted to the Commission.**Therefore, the Commission provisionally approves the Capital Investment Plan amounting to Rs. 535.73 Cr. for the spillover schemes of Transmission Business subject to PSTCL furnishing justification of the escalated cost of 37 schemes which have an escalation of greater than or equal to 20% within 30 days of issuance of this order.**

Table 11 : Capital Investment for 53 Spillover Schemes as provisionally Approved by the Commission

Rs. Cr.

Sl. No.	Sl. No. (as per petition)	Particulars	Capital Investment Approved in 1st Control Period*	Actual Capital Expenditure in 1st MYT				Capital Investment provisionally Approved for 2nd Control Period				Escalation
				FY 2017-18	FY 2018-19	FY 2019-20 (Estimated)	Total	FY 2020-21	FY 2021-22	FY 2022-23	Total	(%)
8 schemes with no capital expenditure in 1st Control Period												
1	102	New Civil Works in respect of 5 no. stores such as sheds, plinths and Boundry walls etc.	5.76	0.00	0.00	0.00	0.00	4.23	0.00	0.00	4.23	-27%
2	131	220 kV Banur-Mohali (GMADA) DC line	1.61	0.00	0.00	0.00	0.00	2.30	1.18	0.00	3.48	115%
2	132	220 kV DC line from 400 kV Grid near Doraha to 220 kV Kohara	8.30	0.00	0.00	0.00	0.00	2.23	4.71	3.76	10.70	29%
4	133	220 kV DC line from 400 kV Grid near Doraha to 220 kV Doraha	8.30	0.00	0.00	0.00	0.00	2.23	4.71	1.94	8.88	7%
5	134	220 kV DC line from 400 kV Grid near Doraha to 220 kV Ikolaha	8.30	0.00	0.00	0.00	0.00	2.23	4.71	1.94	8.88	7%
6	135	220 kV Bays (2Nos. at 220 kV Ikolaha, 2 Nos. at Doraha, 2Nos. at Kohara (220 kV bus)and 2 no. ICT bays	4.61	0.00	0.00	0.00	0.00	2.23	5.36	4.74	12.33	168%

Rs. Cr.

Sl. No.	Sl. No. (as per petition)	Particulars	Capital Investment Approved in 1st Control Period*	Actual Capital Expenditure in 1st MYT				Capital Investment provisionally Approved for 2nd Control Period				Escalation
				FY 2017-18	FY 2018-19	FY 2019-20 (Estimated)	Total	FY 2020-21	FY 2021-22	FY 2022-23	Total	(%)
7	176	Replacement of Existing conductor of 220 kV Mohali-I - Mohali-II line	1.15	0.00	0.00	0.00	0.00	11.14	12.89	7.11	31.14	2602%
8	180	220 kV DC line from 400 kV Jalandhar (PGCIL) to 220 kV Kartarpur	5.78	0.00	0.00	0.00	0.00	11.14	18.82	11.87	41.83	624%
Subtotal 1 - 8 schemes with no capital expenditure in 1st Control Period			43.80	0.00	0.00	0.00	0.00	37.73	52.37	31.37	121.47	177%
27 schemes with no capital expenditure in FY 2017-18 and FY 2018-19												
1	A	Unforeseen Expenditure on works on 2018-19	0.00	0.00	0.00	4.80	4.80	3.34	2.35	1.19	6.88	0%
2	39	Bus Bar Protection scheme for 45 no S/Stns. (90% funding Under Power System Development Fund (PSDF), 10% amount accounted for in FY 2017-18	2.10	0.00	0.00	0.98	0.98	1.11	0.00	0.00	1.11	0%
3	62	400 kV S/Stn. Makhu	19.60	0.00	0.00	3.12	3.12	24.51	5.88	0.00	30.39	71%
4	89	220 kV S/S Dhandhari Kalan 1 and 2	10.64	0.00	0.00	5.08	5.08	5.01	0.00	0.00	5.01	-5%
5	104	Procurement of	3.15	0.00	0.00	3.63	3.63	1.28	0.65	0.65	2.58	97%

Rs. Cr.

Sl. No.	Sl. No. (as per petition)	Particulars	Capital Investment Approved in 1st Control Period*	Actual Capital Expenditure in 1st MYT				Capital Investment provisionally Approved for 2nd Control Period				Escalation
				FY 2017-18	FY 2018-19	FY 2019-20 (Estimated)	Total	FY 2020-21	FY 2021-22	FY 2022-23	Total	(%)
		Hardwares, Server, Furniture, IT Space renovation (Civil Works) & Unforeseen Capital Investment										
6	107	220 kV S/Stn Sadiq	10.16	0.00	0.00	10.21	10.21	0.35	0.00	0.00	0.35	4%
7	108	220 kV S/StnBajakhana	10.16	0.00	0.00	10.27	10.27	0.35	0.00	0.00	0.35	4%
8	110	220 kV S/StnGhubaya	10.16	0.00	0.00	10.21	10.21	0.35	0.00	0.00	0.35	4%
9	119	220 kV Line bays at 220 kV S/StnBanga (Proposed)	1.50	0.00	0.00	1.20	1.20	0.33	0.00	0.00	0.33	2%
10	120	220 kV S/StnSherpur (Focal Point) (U/G from 66 kV grid with 220 kV side GIS and 66 kV side Conventional)	11.76	0.00	0.00	11.89	11.89	4.79	0.00	0.00	4.79	42%
11	121	LILO of both ckts of 220 kV S/Stn Jamalpur - 220 kV S/StnDhandari Kalan-I line at 220 kV S/StnSherpur	4.84	0.00	0.00	2.40	2.40	1.11	0.00	0.00	1.11	-27%

Rs. Cr.

Sl. No.	Sl. No. (as per petition)	Particulars	Capital Investment Approved in 1st Control Period*	Actual Capital Expenditure in 1st MYT				Capital Investment provisionally Approved for 2nd Control Period				Escalation
				FY 2017-18	FY 2018-19	FY 2019-20 (Estimated)	Total	FY 2020-21	FY 2021-22	FY 2022-23	Total	(%)
		(Focal Point)										
12	123	220 kV S/StnBudhlada (U/G from 66 kV)	9.72	0.00	0.00	6.00	6.00	9.00	12.94	0.00	21.94	188%
13	124	220 kV S/Stn Mansa - 220 kV S/StnBudhlada DC Line	21.00	0.00	0.00	3.00	3.00	7.49	10.59	0.00	18.08	0%
14	128	400 kV S/StnDoraha (New at Village Dhanansu)	38.80	0.00	0.00	7.95	7.95	8.91	14.12	14.23	37.26	17%
15	129	LILO of one ckt. of 400 kVJalandhar-Kurukshetra D/C line f at 400 kV Dhanansu(Quad Moose)	8.60	0.00	0.00	2.40	2.40	5.57	5.88	0.59	12.04	68%
16	130	(i) 400 kV Bays (ii) 220 kV Bays at 400 kV S/StnDoraha	7.53	0.00	0.00	2.40	2.40	7.80	9.41	7.02	24.23	254%
17	136	LILO of 220 kV S/Stn Mansa - Sunam (SC) at 400 kV S/StnPatran (220 kV bus).	25.91	0.00	0.00	6.00	6.00	11.14	11.76	6.59	29.49	37%
18	142	Replacement of Disc Insulators of 400 kV PSTCL lines with	28.82	0.00	0.00	2.40	2.40	16.71	23.53	65.21	105.45	274%

Rs. Cr.

Sl. No.	Sl. No. (as per petition)	Particulars	Capital Investment Approved in 1st Control Period*	Actual Capital Expenditure in 1st MYT				Capital Investment provisionally Approved for 2nd Control Period				Escalation
				FY 2017-18	FY 2018-19	FY 2019-20 (Estimated)	Total	FY 2020-21	FY 2021-22	FY 2022-23	Total	(%)
		Polymer Insulators										
19	163	132 kV Samadh Bhai	1.33	0.00	0.00	0.72	0.72	0.67	0.00	0.00	0.67	5%
20	164	132 kV Pathankot	1.33	0.00	0.00	1.56	1.56	0.22	0.00	0.00	0.22	35%
21	167	220 kV S/StnJadla	4.99	0.00	0.00	1.73	1.73	6.69	0.00	0.00	6.69	69%
22	168	220 kV S/StnBotianwala (Thatha Sahib)	6.80	0.00	0.00	2.58	2.58	9.03	0.00	0.00	9.03	71%
23	169	220 kV S/StnMajitha	4.99	0.00	0.00	1.91	1.91	6.69	0.00	0.00	6.69	72%
24	170	132 kV S/Stn Pathankot	0.24	0.00	0.00	0.06	0.06	0.23	0.00	0.00	0.23	21%
25	177	220 kV S/StnFazilka (U/G from 66 kV)	1.15	0.00	0.00	1.20	1.20	6.46	11.76	7.11	25.33	2202%
26	178	400 kV S/StnMukatsar - 220 kV S/StnFazilka 220 kV DC line	1.15	0.00	0.00	0.06	0.06	5.57	17.65	2.87	26.09	2168%
27	179	220 kV Bays	0.58	0.00	0.00	0.60	0.60	3.10	2.35	0.00	5.45	950%
Subtotal 2 - 27 schemes with no capital expenditure in FY 2017-18 and FY 2018-19			246.97	0.00	0.00	104.36	104.36	147.83	128.88	105.46	382.18	97%
18 schemes with actual capital expenditure in 1st Control Period												
1	60	220 kV S/S Derabassi	10.37	6.75	0.00	3.90	10.65	1.11	0.00	0.00	1.11	13%
2	90	220 kV S/S Sahnewal	2.54	0.38	0.48	2.21	3.07	0.20	0.00	0.00	0.20	29%
3	116	220 kV S/StnBanga (U/G from 132 kV)	9.44	0.46	0.98	10.43	11.87	2.79	0.00	0.00	2.79	55%

Rs. Cr.

Sl. No.	Sl. No. (as per petition)	Particulars	Capital Investment Approved in 1st Control Period*	Actual Capital Expenditure in 1st MYT				Capital Investment provisionally Approved for 2nd Control Period				Escalation
				FY 2017-18	FY 2018-19	FY 2019-20 (Estimated)	Total	FY 2020-21	FY 2021-22	FY 2022-23	Total	(%)
4 – 7	137-140	1. Aug/Strengthening of bus bars 2. Extension in Switchyard buildings, Provision for AC etc. 3. Provision for Reactive Compensation 4. Addition of bays/system strengthening required on account of RE generation	19.60	11.73	7.66	1.02	20.41	2.23	1.18	0.00	3.41	22%
8	143	220 kV DC line from 220 kV S/StnGaunsgarh to 220 kV S/StnLadhowal.	16.60	0.00	4.86	9.82	14.68	1.11	0.00	0.00	1.11	-5%
9 – 12	152-155	1. Aug/Strengthening of bus bars 2. Extension in Switchyard buildings, Provision for AC etc. 3. Provision for Reactive Compensation 4. Addition of	19.60	18.54	6.14	11.37	36.05	4.87	0.00	0.00	4.87	109%

Rs. Cr.

Sl. No.	Sl. No. (as per petition)	Particulars	Capital Investment Approved in 1st Control Period*	Actual Capital Expenditure in 1st MYT				Capital Investment provisionally Approved for 2nd Control Period				Escalation
				FY 2017-18	FY 2018-19	FY 2019-20 (Estimated)	Total	FY 2020-21	FY 2021-22	FY 2022-23	Total	(%)
		bays/system strengthening required on account of RE generation										
13	166	220 kV S/StnBhawanigarh	4.99	0.00	0.03	1.73	1.75	6.69	0.00	0.00	6.69	69%
14	171	132 kV IGC, Bathinda	0.21	0.00	4.03	0.28	4.31	0.00	0.00	0.00	0.00	1975%
15 – 18	172-175	1. Aug/Strengthening of bus bars 2. Extension in Switchyard buildings, Provision for AC etc. 3. Provision for Reactive Compensation 4. Addition of bays/system strengthening required on account of RE generation	19.60	0.00	9.55	30.96	40.51	11.94	0.00	0.00	11.94	168%
Subtotal 3- 18 schemes with actual capital expenditure in 1st Control Period			**102.94**	**37.86**	**33.73**	**71.72**	**143.30**	**30.94**	**1.18**	**0.00**	**32.11**	**70%**
Total (Subtotal 1+Subtotal 2+Subtotal 3)			**393.71**	**37.86**	**33.72**	**176.09**	**247.67**	**216.48**	**182.43**	**136.82**	**535.73**	**99%**
***** including estimated IDC & IEDC												

3.2.1.2. Scheme approved by the Boardin FY 2019-20outside the first MYT approval

PSTCL's Submission:

During the course of 1st Control Period, PSTCL had proposed certain changes based on system requirements in the Capital Investment plan approved in the Order dated 13.12.2017 for Petition No. 44 of 2016. PSTCL is undertaking these additional works pursuant to approval of the Board.

The summary of the Capital Investment proposed is provided in the following table:

Table 12: Capital Investment claimed by PSTCL for 2nd Control Period

Rs. Cr.

Sl. No.	Particulars	Est. expenditure in FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	Total MYT
1	Scheme approved by the Board in FY 2019-20 outside the first MYT approval	11.58	101.30	74.08	64.33	239.71

The details of these schemes are provided in Table 29 of Annexure 1.

Commission's Analysis:

PSTCL had filed Petition No.14 of 2019 seeking approval for system improvement initiatives for 400kV Transmission network for FY 2019-20 as emergent works. The Commission granted approval to these 3 schemes in the Order dated 18.10.2019. The Commission has observed that PSTCL has included these 3 schemes for approval in the Capital Investment Plan for 2nd Control Period. PSTCL has incurred the capital expenditure in FY 2019-20 only for 1 scheme i.e. 4000kV substation Nakodar. Therefore, the remaining 2 schemes have been considered as new schemes in the subsequent sections.

1) For scheme no. 1a, 1b, 2a and 2b, PSTCL has submitted justification mentioning that these works are necessary to convert the current radial stations to ring main system. These schemes have also been approved by the Board as additional schemes Therefore, after examining PSTCL's submission, the Commission allows the proposed capital investment for this scheme for 2nd Control Period.

2) For scheme no. 3a and 3b, the Commission has already approved this scheme in the Order dated 18.10.2019.

3) For Scheme no. 4, during the meeting held on 24.10.2019 and 25.10.2019, it was apprised that PSTCL has planned this scheme in view of the free land being provided by Dera Beas. PSTCL was directed to review the technical feasibility of this scheme. PSTCLsubmitted a justification vide letter no. 3531dtd 05.11.2019. However, the Commission observes that load growth considered by PSTCL issignificantly higher than average load growth. As such, sincethis is not a priority scheme and may be required to be initiated only at the end of the 2nd Control Period, t**he Commission allows a provision of Rs. 1 Cr.to initiate works for this scheme for 2nd Control Period.**

4) For scheme no. 5, PSTCL has submitted justification mentioning that this scheme is proposed to avoid overloading of Rajpura-Gobindgarh link. Therefore, after considering the justification, the Commission allows the proposed capital investment for this scheme for 2nd Control Period.

5) For scheme no. 6, i.e. for installation of solar panels for rooftops, the capital investment claimed by PSTCL has been disallowed. Although the Commission appreciates the initiative taken by PSTCL, the installation of solar panels on rooftops is for PSTCL's own use. Accordingly, the cost of this scheme cannot be passed on to the consumers. Therefore, PSTCL may conduct this work from their own budget.

6) Remaining Schemes No. 7 to 12 are approved as per PSTCL's submissions. Therefore, the Commission allows the proposed capital investment for these schemes for 2nd Control Period.

After analysing the schemes, the Commission approves the Capital Investment as mentioned in the following table:

Table 13 : Scheme approved by the Board in FY 2019-20 outside the first MYT approval(Rs Cr.)

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
1a	132 kV Faridkot – Kotkapur-2 SC link (Amendment no. 16 / 2018-19)	30		3.40	5.98	2.41	11.79
1b			2no. 132 kV line bays (one at each end)	0.54	0.34	0.23	1.11
2a	132 kV Sihora-132 kV Seh SC line	31		3.51	6.18	2.49	12.18
2b			2no. 132 kV line bays (one at each end)	0.54	0.34	0.23	1.11
3a	400 kV S/StnNakodar		Replacement of	7.85	4.98	3.34	16.17

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
	(2x315 MVA, 400/220 kV) (Amendment no. 43 /2018-19)		1x315 MVA, 400/220 kV ICT with 1x500 MVA, 400/220 kV ICT				
3b	Cost of dismantlement of 1x315 MVA, 400/220 kV ICT at 400 kV Nakodar		Cost of dismantlement of 1x315 MVA, 400/220 kV ICT at 400 kV Nakodar	0.28	0.18	0.12	0.58
4	220 kV S/S Beas (new)	-	-	0.00	0.00	1.00	1.00
5	400 kV Rajpura–220 kV Bassi Pathana DC Link. (Amendment no. 13 /2019-20)	220kV DC Line from 400 kV Rajpura to 220 kV Bassi-Pathana (Line length 2 X 20 km)		8.28	5.25	3.53	17.06
	4no. 220 kV Bays			2.86	1.81	1.22	5.89
	220 kV Side bus extension arrangement to be made at 400 kV Rajpura for providing suitable space for 2 Nos 220 kV Bays			0.05	0.03	0.02	0.10
6	Solar system on roof top.	-	-	-	-	-	
7	OPGW			14.49	11.76	10.80	37.05
8	220 kV Patti		Replacement of 1x100 MVA, 220/66 kV to 1x160 MVA, 220/66 kV T/F.	7.80	0.64	0.00	8.44
9	220 kV Ferozepur road Ludhaiana		Replacement of 1x100 MVA, 220/66 kV to 1x160 MVA, 220/66 kV T/F.	7.80	0.64	0.00	8.44

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
10	220 kV Dhandari Kalan - 2		2x160 MVA, 220/66 kV T/F at new location to be added (with complete newICT bays	15.67	4.87	0.00	20.54
11			dismantlement of 2x100 MVA T/F for creating space for double bus bar	0.45	0.35	0.00	0.80
12			interconnecting 66 kV double bus bar of dhandarikalan 1-dhandarikalan 2	0.89	0.71	0.00	1.60
	Total			**74.41**	**44.06**	**25.39**	**143.86**

3.2.2 New Schemes

3.2.2.1. Works already planned for FY 2020-23

PSTCL's Submission:

PSTCL has proposed some new works to begin in the 2nd Control Period.

Table 14: Capital Investment as submitted by PSTCL

Rs. Cr.

Sl. No.	Particulars	FY 2020-21	FY 2021-22	FY 2022-23	Total (MYT)
1	Works already planned for FY 2020-23	37.98	51.53	59.06	148.57

The details of these schemes are provided in Table 33 of Annexure 1.

Commission's Analysis:

During the meetings held on 24.10.2019 and 25.10.2019, PSTCL has submitted justification for the new schemes These were discussed in detail with PSTCL and the Commission approves the capital investment as given in the following table.

1) For scheme no. 1, the Commission has already approved this scheme in the Order dated 18.10.2019 the details of which have been mentioned in "Scheme approved by the Board in FY 2019-20 outside the first MYT approval".

2) For scheme No. 2 - Termination of direct link 220 kV between Lalton Kalan Sahnewal has also been approved by the Board as additional schemes. Therefore, after examining PSTCL's submission, the Commission allows the proposed capital investment for this scheme for 2nd Control Period.

7) For scheme no. 3 i.e. 400kV, 200MW Permanent Power to Guru Gobind Singh Polymer Addition Project- HPCL Mittal Energy Limited, PSTCL has mentioned in the meetings conducted on 24.10.2019 and 25.10.2019 that this scheme is of low priority for the transmission system in the upcoming Control Period and may be required to be initiated only at the end of the 2nd Control Period. Accordingly, t**he Commission allows a provision of Rs. 1 Cr.to initiate works for this scheme for 2nd Control Period.**

Table 15 : Capital Investment for Schemes as Approved by the Commission

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
1	1 No. 400kV ICT bay, 1 No. 400 kV Tie bay, 1 No. 400 kV Future bay, 1 No. 220 kV ICT bay at 400 kV Rajpura. Amendment No. 20/ 2018-19	0.00	0.00	13.37	9.41	9.49	32.27
2	Termination of direct link 220 kV between Lalton Kalan Sahnewal (Amendment no. 18 / 2018-19)	0.00	0.00	0.02	0.00	0.00	0.02
3	400kV, 200MW Permanent Power to Guru Gobind Singh Polymer Addition Project- HPCL Mittal Energy Limited. (Amendment no. 21 (ii,iii& iv) / 2018-19)	-	-	0.00	0.00	1.00	1.00
Total				**13.39**	**9.41**	**10.49**	**33.29**

3.2.2.2. New Works planned for MYT plan 2020-23

PSTCL's Submission:

PSTCL conducted a load flow study based on peak load requirements in FY 2022-23 after considering the impact of implementing the spill over schemes. Overloading of lines as well as transformers was observed. In order to control this overloading and for strengthening the system, PSTCL has submitted capital investment for the New Works planned for MYT plan 2020-23 as given in the following table.

Table 16: Capital Investment as submitted by PSTCL

Rs. Cr.

Sl. No.	Particulars	FY 2020-21	FY 2021-22	FY 2022-23	Total MYT
1	New Works planned for MYT plan 2020-23	311.83	399.26	396.24	1107.33

The details of these schemes are provided in Table 34 of Annexure 1.

Commission's Analysis:

All the schemes submitted by PSTCL were discussed with the Commission and PSTCL presented scheme-wise load flow analysis and justification to the Commission.

1) For scheme no. 1 to 8, PSTCL has submitted the technical justification of these schemes and mentioned them as high priority schemes in the meetings conducted on 24.10.2019 and 25.10.2019. Therefore, the Commission allows the proposed capital investment for these schemes for 2nd Control Period.

2) For scheme no. 9-10, the Commission has already approved this scheme in the Order dated 18.10.2019 the details of which have been mentioned in "Scheme approved by the Board in FY 2019-20 outside the first MYT approval".

3) For scheme no. 11 to 13, PSTCL has submitted the justification mentioning that the system fed on 132kV is being shifted to 220 kV for feeding 66kV load. Therefore, the Commission allows the proposed capital investment for these schemes.

4) For scheme no. 14 to 17, PSTCL has submitted the justification mentioning that this scheme has been proposed to avoid overloading & further augmentation of existing grid is not possible. Therefore, the Commission allows the proposed capital investment for these schemes.

5) For scheme no. 18 to 22, PSTCL has submitted the justification mentioning that this scheme has been proposed due to the heavy concentration of industrial load in the area, & current substation is functioning at capacity limit. Hence, a new substation is proposed. Therefore, the Commission allows the proposed capital investment for these schemes.

6) For scheme no. 23 to 26, PSTCL has submitted the justification mentioning that 657.5 MVA, 132 kV grid lines are present in the area taking power from 220kV lines with max capacity limit of 500MVA. Hence there is a requirement of a new 220kV grid to supply to 132kV. Therefore, the Commission allows the proposed capital investment for these schemes.

7) For scheme no. 27 to 29, PSTCL has mentioned that the schemes are to be considered for providing reliable supply. Therefore, the Commission allows the proposed capital investment for these schemes.

8) For scheme no. 30, PSTCL has mentioned in the memo no. 3265 dated 09/10/2019 the scheme no. 15,16, & 17 are to be considered as a substitute for this scheme.

Therefore, the scheme no. 30 220kV Giaspura amounting to Rs. 23.38 Cr. is considered withdrawn by PSTCL.

9) For scheme no. 31, PSTCL has mentioned during the meeting with the Commission conducted on 24.10.2019 and 25.10.2019 that this scheme is proposed to provide relief to overloading of 220 kV Ferozepur line. Therefore, the Commission allows the proposed capital investment for this scheme.

10) For scheme no. 32 & 33, PSTCL has submitted justification mentioning that the system is to be upgraded from 132 kV to 220 kV since augmentation of the current 132 kV system is not possible. On studying the details, the Commission allows the proposed capital investment for these schemes.

11) For scheme no. 34, 35 & 36, PSTCL has submitted justification mentioning that all the Transformers in the current substation in Moga area are at par with installed capacity and there is no other substation present to cater to Moga area under fault conditions. After detailed study of the scheme, the Commission allows the proposed capital investment for these schemes.

12) For scheme no. 37 and 38, PSTCL has submitted justification mentioning that the scheme has been proposed to reduce the length of Jamalpur-Moga line.Afterconsidering the operational requirement of the scheme, the Commission allows the proposed capital investment for the same.

13) For scheme no. 39 to 81, the Commission has noted that the schemes are proposed as remedies for overloading as determined in the load flow study conducted by PSTCL or for operational requirement. After detailed study of the schemes, the Commission allows the proposed capital investment for the same.

14) For scheme no. 82 (132kV Baluana estimated at Rs.2.74 Cr.), PSTCL has submitted in its replies that the scheme may be deferred. Therefore, the Commission has decided to defer the scheme.

15) For scheme no. 83 to 92,the Commission has noted that the schemes are proposed as remedies for overloading as determined in the load flow study conducted by PSTCL or for operational requirement. After detailed study of the schemes, the Commission allows the proposed capital investment for these schemes for 2nd Control Period

The Capital Investment approved by the Commission is provided in the following table.

Table 17 : Capital Investment approved by the commission for New Schemes for the 2nd Control Period

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
1	400 kV S/s Ropar New Grid (in the premises of GGSSTP)		Establishment of 400 kV AIS station along with auxiliary, control room building, Gantry structure, extension provision etc.	9.23	9.96	10.04	29.23
2			400 kV S/s with 2x500 MVA, 400/220 kV ICTs	3.12	21.88	11.38	36.38
3			400 kV bays = 4 Nos	2.23	6.47	8.89	17.59
4			220 kV bays = 10 Nos	2.23	4.66	4.70	11.59
5			Connectivity of 220 kV bus of 400 kV Ropar with existing 220 kV bus of GGSTP Ropar with 4 Nos. twin Moose ckts. (Approx. Length 1 km)	0.00	2.82	2.13	4.95
6		LILO of one ckt of 400 kV Ludhina PGCIL–Koldam at proposed 400 kV S/s Ropar, LILO Length = 15 km (approx.), Triple Conductor (Snowbird)		6.13	11.91	12.00	30.04
7		LILO of 2nd ckt of 400 kV Ludhina PGCIL–Koldam at proposed 400 kV S/s Ropar, LILO Length = 15 km (approx.), Triple Conductor (Snowbird)		0.00	15.88	12.00	27.88

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
8			400 kV bays = 2 Nos	3.34	2.65	2.67	8.66
9	400 kV Dhanansu(already planned) its additional 400 kV link required	LILO of 2nd ckt of 400 kV Jallandhar–Kurukshetra D/c line at Dhanansu. (Quad Moose), LILO length = 5 km (approx.)		0.00	0.00	2.37	2.37
10		400 kV bays 2 no.		0.00	0.00	1.19	1.19
11	220 kV Kharar		Replacement of 2x20MVA, 132/11 kV with 2x20MVA, 66/11kV T/F	3.65	0.00	0.00	3.65
12	220 kV Banga		a) Addl. 1x100 MVA, 220/66 kV T/F.	4.46	4.05	0.00	8.51
13			b) Replacement of 2x20MVA, 132/11 kV T/F with 2x20 MVA, 66/11kV T/F.	2.23	1.51	0.00	3.74
14	220kV G.T. Road Ludhiana (New GIS) or (in Ludhiana area)Includind SAS for RS 1cr.		220 kV S/s G.T. Road Ludhiana (New GIS Grid in the premises of existing 66 kV S/s G.T. Road Ludhiana) or (in Ludhiana area) with 2x160MVA, 220/66 kV T/F	11.14	11.76	13.68	36.58
15		LILO of 220 kV Ladowal - Gaunsgarh (DC) lines both ckts. at 220 kV G.T. Road Ludhiana. LILO Length = 7KM (appx.), conductor size 0.4sq" (2xDC lines).	0	3.90	4.12	4.39	12.41

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
16		0	220 kV bays = 4 Nos.	3.34	3.53	5.41	12.28
17		0	66 kV bays = 4 Nos.	0.56	0.59	0.66	1.81
18	220 kV Gobindgarh S/s (New Grid in the near by area of existing 220 kV S/s Gobindgarh-I). Includind SAS for RS 1cr.	0	220 kV S/s Gobindgarh (New) with 2x160MVA, 220/66 kV T/F.	11.14	11.76	13.68	36.58
19		LILO of 220 kV Gobindgarh-I - Bassi Pathana at 220 kV Gobindgarh, LILO length appx. 7KM (DC on DC) with 0.4sq" conductor.	0	2.23	2.35	1.60	6.18
20		LILO of 220 kV GGSSTP - Gobindgarh-I at 220 kV Gobindgarh (new), LILO length 7 KM (appx.) 0.4sq" conductor, DC on DC.	0	2.23	2.35	1.60	6.18
21		0	220 kV bays = 4 No.	1.11	1.18	0.76	3.05
22		0	66 kV bays = 6 No.	1.11	1.18	0.40	2.69
23	220 kV Nawanpind (new grid in the premises of 66 kV S/s Nawanpind)Includind SAS for RS 1cr.	LILO of both ckts of 220 kV Verpal – Wadalagranthian DC line at proposed 220 kV S/s Nawanpind. 2xDC, conductor size 0.4sq", LILO length 1 KM.	2x100 MVA, 220/132 kV auto T/F.	11.14	11.76	13.60	36.50
24		0	0	0.56	0.59	0.63	1.78
25		0	220 kV bays = 4 Nos.	2.23	2.35	1.52	6.10

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
26		0	132 kV bays = 2 Nos	0.33	0.42	0.36	1.11
27	Additional link	Stringing of IIndckt. Of 220kV Mukatsar-Ghubayaline,conductor size 0.4sq", Line length 40.3 KM	0	1.11	1.18	5.44	7.73
28		0	220 kV double bus bar at 220 kV Ghubaya	0.11	0.06	0.00	0.17
29	Augmentation/additions of transformers at 220/132 kV level.	(L.S. provision)	For augmentation and addition of 220 kV as well as 132 kV transformers, as per the unforeseen/emergent loading requirements, an approximate provision of 5 Cr..s per year (i.e. 3 transformers per year) has been made.	5.57	5.88	26.08	37.53
30	New 220 kV Giaspura including SAS of RS 1 cr.	0	Under study	-	-	-	-
31	New 220 kVJhokeHarike including SAS of RS 1 cr.	0	under study	5.57	8.82	8.89	23.28
32	220 kV Gurdaspur including SAS of RS 1 cr	LILO of one ckt of 220 kV wadalagranthian-sarna line DC on DC 2xDC, conductor size 0.4sq", LILO length 5 km(approx)	0	1.70	1.35	1.36	4.41
33		0	2x100 MVA, 220/66 kV T/F. including 2 no. 220 kVbays	5.65	8.88	8.95	23.48

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
34	220 kVDhaleke(GIS)) including SAS of RS 1 cr	LILO of both ckts of 220 kV Talwandi Bhai Dharmkot ,conductor size 0.4sq", LILO length 10 km(approx)	0	2.35	5.39	5.43	13.17
35		0	2x100 MVA, 220/132 kV T/F. including 4 no. 220 kV bays	6.01	13.58	13.68	33.27
36		132 kVMoga I - Dhaleke DC link arrangement by making use of existing network,conductor size 0.2sq", LILO length 7 km(approx)	0	0.95	0.76	0.76	2.47
37	132 kVSwadi Kalan	0.41	LILO of one ckt of 132kV Jamalpur-Moga 1 at 220 kVswadikalan DC on DC ,conductor size 0.2sq", LILO length 1 km(approx)	0.18	0.14	0.15	0.47
38		0.96	2 no. 132 kV bays	0.33	0.35	0.43	1.11
39	i) 220 kV Sighawal	0	Addl. 1x100 MVA, 220/66 kV T/F.	42.30	33.49	33.71	109.50
40	ii) 220 kV Abohar	0	Addl. 12.5 MVA, 66/11 kV T/F.				
41	iii) 220 kV Passiana	0	Addl. 12.5 MVA, 66/11 kV T/F.				
42	iv) 220 kV Dhuri	0	Aug. of 12.5 MVA, 66/11 kV to 20 MVA, 66/11 kV T/F.				
43	v) 220 kV Mohali - I	0	Replacement of 1x100				

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
			MVA, 220/66 kV to 1x160 MVA, 220/66 kV T/F.				
44	vi) 220 kV Banur	0	Addl. 20 MVA, 66/11 kV T/F.				
45	vii) 220 kV Khassa	0	Aug. of 12.5 MVA, 66/11 kV to 20 MVA, 66/11 kV T/F.				
46	viii) 220 kV Algon	0	Aug. of 12.5 MVA, 66/11 kV to 20 MVA, 66/11 kV T/F.				
47	ix) 220 kV Mahilpur	0	Addl. 12.5 MVA, 66/11 kV T/F.				
48	x) 220 kV Kartarpur	0	Addl. 12.5 MVA, 66/11 kV T/F.				
49	xi) 220 kV Badsahpur	0	Addl. 1x100 MVA, 220/66 kV T/F.				
50	xii) 220 kV Butari	0	Addl. 12.5 MVA, 66/11 kV T/F.				
51	xiii) 220 kV Udhoke	0	Addl. 1x100 MVA, 220/66 kV T/F.				
52	xiv) 220 kV Pakhowal	0	Replacement of 1x100 MVA, 220/66 kV to 1x160 MVA, 220/66 kV T/F.				
53	xv) 220 kV Jagraon	0	Aug. of 12.5 MVA, 66/11 kV to 20 MVA, 66/11 kV T/F.				
54	xvi) 220 kV Himmatpura	0	Aug. of 12.5 MVA, 66/11 kV to 20 MVA, 66/11 kV T/F.				
55	xvii) 220 kV Kohara	0	Addl. 12.5 MVA, 66/11 kV T/F.				
56	xviii) 220 kV Doraha	0	Addl. 12.5 MVA, 66/11 kV T/F.				
57	xix) 220 kV Baghapurana	0	Addl. 12.5 MVA, 66/11 kV T/F.				

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
58	xx) 132kV SmadhBhai	0	Addl. 12.5 MVA, 132/11 kV T/F.				
59	xxi) 132kV Faridkot	0	Aug. of 12.5 MVA, 132/11 kV to 20 MVA, 132/11 kV T/F.				
60	xxii) 132kV Ferozshah	0	Aug. of 12.5 MVA, 132/11 kV to 20 MVA, 132/11 kV T/F.				
61	xxiii) 132kV Manasingh Wala	0	Aug. of 12.5 MVA, 132/11 kV to 20 MVA, 132/11 kV T/F.				
62	xxiv) 132kV Jallalabad	0	Aug. of 12.5 MVA, 66/11 kV to 20 MVA, 66/11 kV T/F.				
63	xxvi) 132kV Kathunangal	0	Aug. of 12.5 MVA, 132/11 kV to 20 MVA, 132/11 kV T/F.				
64	xxvii) 132kV Bhikhiwind	0	Aug. of 12.5 MVA, 132/11 kV to 20 MVA, 132/11 kV T/F.				
65	xxviii) 132kV Shri Hargobindpur	0	Addl. 20 MVA, 132/11 kV T/F.				
66	xxx) 132kV Phillour	0	Aug. of 12.5 MVA, 132/11 kV to 20 MVA, 132/11 kV T/F.				
67	xxxi) 132kV Bilaspur	0	Aug. of 12.5 MVA, 132/11 kV to 20 MVA, 132/11 kV T/F.				
68	xxxii) 132kV Tangra	0	Addl. 12.5 MVA, 132/11 kV T/F.				
69	Augmentation of bus bars, extension in control room	0	For strengthening of bus – bar arrangement, extension	7.80	8.24	7.11	23.15

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
	building, providing room for second source for station battery etc.		in control room building for the existing 220/132 kV grids of PSTCL, as per the requirement of P&M from time to time, a provision of about 20 Cr..s (i.e. 7,7,6 Cr..s per year) has been made.				
70	Additional 220/132/66 kV line bays related with feasibility cases or as per PSPCL. requirement.	0	As per the requirement of PSPCL, for the load released through feasibility cases, a provision of about 25 Cr..s per year has been made for erection of 66/132/220 kV bays at various grids of PSTCL. (i.e. 8,8,9 Cr..s per year)	11.14	9.41	8.30	28.85
71	Second source of battery at various 220/132 kV S/s of PSTCL	0	Balance work for 49 Nos grids (out of these 31 Nos are 220 kV & remaining 18 Nos are 132 kV S/s) Total cost = 15 Cr..s (with 70% PSDF funding & remaining to be arranged through capital investment)	1.67	1.76	1.78	5.21
72	90 nos PSTCL grids (220 kV) to be provided with SAS. Report already sent for PSDF funding if approved, these stations will be upgraded.	0	Cost of one station for SAS provision is Rs 4 Cr..s out of this 70% is PSDF funding & balance 30% shall be through capital investment.	22.28	41.18	39.13	102.59

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
73	Digitization of existing 220 kV S/s Passiana.	0	Case already approved. PSDF funding have been applied. Total cost = 11 Cr..s, out of which 90% PSDF funding & remaining 10% through capital investment.	0.56	0.71	0.00	1.27
74	Replacement of existing conductor of 220 kV Gobindgarh - 400kV Rajpura (DC), 220 kV Kohara - 400 kV Dhanansu (DC), 220 kV Kohara - Sahnewal (B) (SC) with HTLS of suitable capacity.	0	L.S. Provision in @ Rs. 40 Cr.. per year	22.28	47.06	47.43	116.77
75	Additional of 14 No T/f on account of making (N-1) complaint system for those grids where only one T/f existing (Annexure-C).	0	.A provision of Rs. 25 Cr.. for 2020-21, Rs 25 Cr.. for 2021-22 & Rs 20 Cr.. For 2022-23 have been made. Augmentation shall be made for grid stations as per the space availability & loading conditions.	27.86	29.41	23.71	80.98
76	132 kV S/s Kotkapura-I	0	Addl. 1x20 MVA, 132/11kV T/F	3.69	0.00	0.00	3.69
77	132 kV works Bilaspur.	0	Replacement of 1x12.5 MVA, 132/11 kV with 1x20 MVA, 132/11 kV T/F	2.74	0.00	0.00	2.74
78	132 kV Nawanshahar.	0	Addl. 1x20 MVA, 132/11 kV T/F	3.69	0.00	0.00	3.69
79	132 kV Kapurthala.	0	Addl. 1x20 MVA, 132/11 kV	3.69	0.00	0.00	3.69

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
			T/F				
80	132 kV Susan.	0	Replacement of 1x12.5 MVA, 132/11 kV with 1x20 MVA, 132/11 kV T/F	2.74	0.00	0.00	2.74
81	132 kV Panjgraian.	0	Replacement of 1x12.5 MVA, 132/11 kV with 1x20 MVA, 132/11 kV T/F	2.74	0.00	0.00	2.74
82	132 Baluana.	0	Replacement of 1x12.5 MVA, 132/11 kV with 1x20 MVA, 132/11 kV	-	-	-	-
83	IGC Bathinda (Aug)	0	Replacement of 2x12.5 MVA, 132/11 kV with 2x20 MVA, 132/11 kV	5.48	0.00	0.00	5.48
84	132 kV Gholian Kalan.	0	Addl. 1x20 MVA, 132/11 kV T/F	3.69	0.00	0.00	3.69
85	LILO of 132 kV Verka – Mal mandi SC line at 220 kV S/s Nawanpind (132 kV bus) LILO length = 1 KM appx. DC on DC.	Replacement of existing conductor of 0.25sq" with equivalent HTLS conductor (on the same supporting structure), having a minimum capacity of at least 800A.	0	0.28	0.59	0.30	1.17
86	Augmentation of 132 kV Nawanpind - Verka, 5 KM (0.2sq") and 132 kV Nawanpind - Malmandi (5KM 0.2sq") with suitable HTLS conductor.	0	0	1.11	2.35	2.37	5.83
87	Augmentation of 132 kV GGSSTP - Asron) 6 KM	Replacement of existing conductor of	0	1.67	8.24	8.89	18.80

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
	0.2sq") and 132 kV GGSSTP - Ropar (19.76 KM) 0.2sq".	line with suitable HTLS conductor (on same towers) having a capacity of at least 800A.					
88	CE/ P&M Agenda No. 145/2017-18 dtd 20.09.17. Best Practices recommended by Protection Sub Committee of NRPC in operation & construction of Sub Stations	0	Installation of 999 Nos. CVTs at various 220 kV lines for Distance Relay protection	5.57	5.88	5.93	17.38
89	132 kV GT Road Amritsar & 132 kV Sakatari Bagh Asr	132 kV link between 132 kV Gt Road- 132 kV Sakatri Bagh through 132 kV underground cable	0	3.34	9.41	5.93	18.68
90		0	132 kV Bays= 2 Nos.	0.56	0.59	0.00	1.15
91	OPGW link between SKPP-RSD- 220 kV Sarna & SKPP- 220 kV Sarna			3.90	4.12	0.00	8.02
92	Unforeseen emergency works			5.57	5.88	5.93	17.38
	Total			**303.52**	**390.44**	**387.35**	**1081.31**

3.2.2.3. Protection &Maintenance (P&M) Works

PSTCL's Submissions:

PSTCL has submitted capital investment for the P&M Works planned for MYT 2020-23 as given in following table.

Table 18: Capital Investment as submitted by PSTCL for P&M Works

Rs. Cr.

Sl. No.	Particulars	FY 2020-21	FY 2021-22	FY 2022-23	Total MYT
1	P&M Works	40.65	27.68	25.81	94.14

The details of these schemes are provided in Table 35 of Annexure 1.

Commission's Analysis:

All the schemes under P&M works were discussed with the Commission during the meeting conducted on 24.10.2019 and 25.10.2019.

For scheme no. 1 to 14and 20, the Commission noted that all these schemes are essential and approves the capital investment for the 2nd Control Period and directs PSTCL to submit justification for the same. Thesalient features of the remaining schemes are mentioned below.

1) For Scheme No. 15, PSTCL has submitted a justification stating that out of the 166 No. of / 220 kV/132kV substations under PSTCL, Security huts are required at 133 substations for PESCO security staff during the 2nd Control Period. PSTCL has also submitted the list of these 133 substations. Therefore, the Commission approves the capital investment for the same.
2) For Scheme No. 16, PSTCL has submitted a justification stating that height of Brick toe wall under UC fencing outside switchyard area is to be raised at 113 No. of / 220 kV/132kV substations as per design issued by Civil Designs of PSTCL to avoid fire spreading into the switchyards. PSTCL has also submitted the list of these 113 substations. Therefore, the Commission approves the capital investment for the same.
3) For scheme No. 17, PSTCL has submitted justification stating that ERS towers are required at three substations in case of falling down of transmission line. Therefore, the Commission approves the capital investment for the same.

4) For Scheme No. 18, PSTCL has submitted a justification stating that out of the 166 No. of / 220 kV/132kV substations under PSTCL, 19.6 km (running) of RCC roads are to be re-laid at 53 substations during the 2nd Control Period. PSTCL has also submitted the list of these 53 substations. Therefore, the Commission approves the capital investment for the same.

5) For Scheme No. 19, PSTCL has submitted a justification stating that out of the 166 No. of / 220 kV/132kV substations under PSTCL, 26062.43 cubic meter (cumt) of PCC flooring is to be provided in yard area of 31 No. substations during the FY 2021-23. PSTCL has also submitted the list of these 31 substations. Therefore, the Commission approves the capital investment for the same.

Therefore, the Commission allows the proposed Capital Investment for 2nd Control Period as mentioned in the following table.

Table 19: Capital Investment approved by the Commission for P&M works for the 2nd Control Period

Rs. Cr.

Sl. No.	Particulars	FY 2020-21	FY 2021-22	FY 2022-23	Total	Remarks
1	To Modernise the hotline work by use of Diagnostic techniques to decrease the outage in transmission system of PSTCL.	11.14	0.00	0.00	11.14	Scheme is already approved by BOD/PSTCL and spillover from last MYT
2	To provide SAS based DRs and ELs at six 220kV S/stns as per requirements of IEGC and SGC and comply with 3rd party protection audit by CPRI.	1.11	2.94	0.00	4.05	Scheme is already approved by BOD/PSTCL and spillover from last MYT
3	To provide DRs and ELs in 220kV S/stns of PSTCL to comply with IEGC, SGC and 3rd party protection audit by CPRI.	1.67	5.88	11.86	19.41	Proposed as New Scheme
4	To procure testing Equipment to check healthiness of OPGW	0.28	0.00	0.00	0.28	Proposed as New Scheme

Rs. Cr.

Sl. No.	Particulars	FY 2020-21	FY 2021-22	FY 2022-23	Total	Remarks
	channels and Ethernet Switch Network in Substation automation.					
5	Tan-Delta Measurement Set (7 No.)	2.51	0.00	0.00	2.51	Proposed as New Scheme
6	Tan Delta and Resistive kit for testing of Transformer oil.	0.45	0.00	0.00	0.45	Proposed as New Scheme
7	PT/CVT testing kit for ODTL	0.39	0.00	0.00	0.39	Proposed as New Scheme
8	Remote Control Operation of 400kV S/StnsMukhtsar, Nakodar and Makhu	0.00	1.76	0.00	1.76	Proposed as New Scheme
9	Insulation Tester for new Substations (25 No.)	0.00	1.47	0.00	1.47	Proposed as New Scheme
10	Online partially discharge monitaring kit equipment for 400 kV ICT at 400kV S/s.(14 No.)	5.57	5.88	4.74	16.19	Proposed as New Scheme
11	CRM- Contact Resistance measurement meter for maintenance gang	1.00	0.00	0.00	1.00	Proposed as New Scheme
12	Upgrading of 2 No. 3 Phase Relay testing kits of 400kV protection Hub and SAP Hub with CMGPS (testing kit synchronising equipment and software) for end to end testing as per recommendation of 3rd party protection audit alongwith advance teas play software.	0.00	0.00	0.00	0.00	Proposed as New Scheme
13	Loader cum Crane for Amritsar Circle	0.56	0.00	0.00	0.56	Proposed as New Scheme
14	Mobile oil filtration sets under P&M Circle (4 No., 6KL/H)	1.11	0.00	0.00	1.11	Proposed as New Scheme
15	Construction of Security Huts at 220/132kV Sub	3.09	0.00	0.00	3.09	Proposed as New Scheme

Rs. Cr.

Sl. No.	Particulars	FY 2020-21	FY 2021-22	FY 2022-23	Total	Remarks
	stations.					
16	Refixing of UC Fencing at top toe wall to safeguard yard area from fire.	2.69	2.69	2.69	8.07	Proposed as New Scheme
17	Providing Plinths for 2 sets (20 No.) of ERS-Emergency Restoration System Towers at 400kV S/S Rajpura,Nakodar and 220kV Muktsar	0.56	0.00	0.00	0.56	Proposed as New Scheme
18	Providing RCC Roads in 220kV S/S to facilitate movement of heavy vehicle loaded with equipment.	5.01	2.94	2.96	10.91	Proposed as New Scheme
19	Providing PCC in the yard area in 220kV S/s	3.34	4.12	3.56	11.02	Proposed as New Scheme
20	Providing AC and Furniture at kangra Rest House	0.17	0.00	0.00	0.17	Proposed as New Scheme
Total		**40.65**	**27.68**	**25.81**	**94.14**	

3.2.2.4. Others

1) Creation of Corpus amount towards deviation charges:

PSTCL's Submission:

In the memo number 3265 dated 09.10.2019, PSTCL has asked for creation of Corpus amount towards deviation charges in respect of large IPPs (NPL, TSPL & GVK) and has asked for approval of Rs. 16.13 Cr. after considering the charges paid by PSPCL from Feb-19 to Aug-19.

Commission's Analysis:

Since Deviation Charges are not part of the Capital Investment Plan, they shall be considered as part of the ARR.

3.2.3 Summary ofTransmission Business

PSTCL has proposed augmentation of many transformers in the system. During the meetings held on 24.10.2019 and 25.10.2019, the Commission had suggested PSTCL to reuse the dismantled transformers. PSTCL has submitted the list of these transformers and their cost details vide memo no. 1008 dated 04.11.2019. Since PSTCL has failed to provide the reuse of these transformers in specific schemes, which are being upgraded with higher ratings which otherwise are healthy, the Commission has decided to deduct the total capital investment that will be saved by PSTCL i.e. Rs.107 Cr. by reusing these dismantled transformers. The cost of the schemes where these dismantled transformers will be used shall reduce by the cost of acquisition of new transformer.

The Summary of Capital Investment claimed by the Petitioner and Approved by the Commission is as follows:

Table 20: Summary of Capital Investment claimed by the Petitioner and Approved by the Commission

Rs. Cr.

Particulars	Proposed by PSTCL				Approved by the Commission			
	FY 2020-21	**FY 2021-22**	**FY 2022-23**	**Total**	**FY 2020-21**	**FY 2021-22**	**FY 2022-23**	**Total**
Schemes Approved in 1st Control Period	216.48	182.43	136.82	535.73	216.48	182.43	136.82	535.73
Scheme approved by the Board in FY 2019-20 outside the first MYT approval	101.30	74.08	64.33	239.71	74.41	44.06	25.39	143.86
Total Spillover	**317.78**	**256.51**	**201.15**	**775.44**	**290.89**	**226.49**	**162.21**	**679.59**
Works already planned for FY 2020-23	37.98	51.53	59.06	148.57	13.39	9.41	10.49	33.29
New works planned for MYT plan 2020-23	311.83	399.26	396.24	1107.33	303.52	390.44	387.35	1081.31
P&M Works	40.65	27.68	25.81	94.14	40.65	27.68	25.81	94.14
Total New Works	**390.46**	**478.47**	**481.11**	**1350.04**	**357.56**	**427.53**	**423.65**	**1208.74**
Total	708.24	734.98	682.26	2125.48	648.45	654.02	585.86	1888.33
less: Cost of dismantled transformers being reused	**-**	**-**	**-**	-	35.67	35.67	35.66	107.00
Total Capital Investment	**708.24**	**734.98**	**682.26**	**2125.48**	**612.78**	**618.35**	**550.20**	**1781.33**

3.3 SLDC Business

3.3.1 Summary of SLDC Business

PSTCL's Submissions:

The Commission vide letter no. 1337 dated 11.09.2019 observed deficiencies and directed PSTCLto provide bifurcation of Spillover & New Schemes. PSTCL submitted the revised Capital Investment Plan.

The summary of the Capital Investment Plan is provided in the following table:

Table 21: Summary of Capital Investment proposed by PSTCL for the 2nd Control Period

Rs. Cr.

Sl. No.	Particulars	FY 2020-21	FY 2021-22	FY 2022-23	Total MYT
1	Spill Over schemes	2.19	0.21	0.23	2.63
2	New Development Schemes	23.03	17.58	13.19	53.82
	Total	**25.22**	**17.79**	**13.42**	**56.45**

Details of the capital investment for the SLDC Business as proposed by PSTCL is given in Table 36 of Annexure 1.

Commission's Analysis:

The Commission has initially approved Rs.10 Cr. for every year in its Tariff Order dated 23.10.2017 for the 1st Control Period. In the Petition no. 03 of 2019 dated 27.05.2019, the Commission provisionally approved Rs. 1.59 Cr. 6.79 Cr. & 10 Cr. for FY 2017-18, FY 2018-19 and FY 2019-20 respectively i.e. a total of Rs. 18.38 Cr.

The Commission noted that PSTCL has submitted only hard costs in the revised Capital Investment Plan. The Commission has considered the IDC & IEDC as per the proportions submitted by PSTCL submitted by PSTCL.

Capital works from scheme no. 1, 2 and 3 have spilled over to next Control Period and the remaining schemes are proposed as new schemes and the capital expenditure till FY 2019-20 is mentioned in the following table. The Commission noted that all these schemes are essential and therefore the Commission allows the proposed capital investment for these schemes for 2nd Control Period.

Details of the capital investment approved by the Commission for SLDC business are provided in the following table.

Table 22: Capital Investment approved by the Commission for SLDC Business for the 2nd Control Period

Rs. Cr.

Sl. No.	Particulars	Capital Expenditure till FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	Total MYT	Remarks
1	Scheme for providing 45 nos. Remote Terminal Units for SCADA/EMS system at 220 & 132 kV Substations of PSTCL in Punjab	7.38	0.48	0.00	0.00	0.48	Spillover
2	Centralised AC system, Furniture & Fixtures (including office ACs)	0.14	1.46	0.14	0.16	1.76	Spillover
3	IT equipment including Server, computer, Displays, software etc. for SLDC, Web site and its offices	0.13	0.24	0.07	0.07	0.38	Spillover
4	Implementation of SAMAST scheme in Punjab (Procurement of meters, communication equipment and Hardware and software for Scheduling, Accounting, Metering and settlement of transaction of Electricity)	-	12.17	11.33	8.75	32.26	New
5	Procurement/Replacement of 66 nos. RTUs for various substations of PSTCL	-	7.81	3.41	2.40	13.64	New
6	Extension of SLDC Building	-	1.22	0.71	0.00	1.93	New
7	OPGW laid by PGCIL under package V on turnkey basis	-	1.83	2.13	2.04	5.99	New
	Total	**7.65**	**25.22**	**17.79**	**13.42**	**56.43**	

3.4 Breakup of Approved Capital Investment and Capitalisation

The breakup of Capital Investment Plan approved by the Commission is provided in the following table:

Table 23: Summary of Capital Investment approved by the Commission for Transmission Business in the 2nd Control Period

xRs. Cr.

Particulars	FY 2020-21				FY 2021-22				FY 2022-23				Total MYT			
	Hard Cost	IEDC	IDC	Total	Hard Cost	IEDC	IDC	Total	Hard Cost	IEDC	IDC	Total	Hard Cost	IEDC	IDC	Total
Schemes Approved in 1st Control Period	194.30	12.16	10.05	216.48	155.07	9.86	17.50	182.43	115.41	7.98	13.45	136.82	464.78	30.00	40.99	535.73
Scheme approved by the Board in FY 2019-20 outside the first MYT approval	66.78	4.18	3.45	74.41	37.44	2.38	4.22	44.06	21.57	1.42	2.40	25.39	125.79	7.98	10.07	143.86
Total Spillover	**261.08**	**16.34**	**13.49**	**290.89**	**192.51**	**12.25**	**21.71**	**226.49**	**136.98**	**9.39**	**15.85**	**162.21**	**590.57**	**37.98**	**51.05**	**679.59**
Works already planned for FY 2020-23	12.02	0.75	0.62	13.39	8.00	0.51	0.90	9.41	9.00	0.55	0.93	10.49	29.02	1.81	2.46	33.29
New works planned for MYT plan 2020-23	272.44	17.05	14.08	303.52	331.89	21.12	37.43	390.44	326.70	22.56	38.08	387.35	931.03	60.73	89.59	1081.31
P&M Works	36.07	2.51	2.07	40.65	23.25	1.73	2.71	27.68	21.50	1.72	2.58	25.81	80.82	5.96	7.36	94.14
Total New Works	**320.53**	**20.31**	**16.77**	**357.56**	**363.14**	**23.36**	**41.04**	**427.53**	**357.20**	**24.83**	**41.59**	**423.65**	**1040.87**	**68.50**	**99.41**	**1208.74**
Total	581.61	36.65	30.26	648.45	555.65	35.61	62.75	654.02	494.18	34.22	57.44	585.86	1631.44	106.48	150.46	1888.33
less: Cost of dismantled transformers being reused	35.67	-	-	35.67	35.67	-	-	35.67	35.66	-	-	35.66	107.00	-	-	107
Total Capital Investment	**545.94**	**36.65**	**30.26**	**612.78**	**519.98**	**35.61**	**62.75**	**618.35**	**458.52**	**34.22**	**57.44**	**550.20**	**1524.44**	**106.48**	**150.46**	**1781.33**

Table 24: Summary of Capital Investment approved by the Commission for SLDC Business in the 2nd Control Period

Rs. Cr.

Particulars	FY 2020-21				FY 2021-22				FY 2022-23				Total MYT			
	Hard Cost	IEDC	IDC	Total	Hard Cost	IEDC	IDC	Total	Hard Cost	IEDC	IDC	Total	Hard Cost	IEDC	IDC	Total
Spillover	1.80	0.20	0.19	2.19	0.15	0.02	0.05	0.21	0.17	0.02	0.04	0.23	2.12	0.22	0.28	2.62
New Schemes	18.92	2.08	2.03	23.03	12.41	1.37	3.81	17.59	9.71	1.07	2.41	13.19	41.04	4.53	8.25	53.81
Total	20.72	2.28	2.22	25.22	12.56	1.38	3.85	17.80	9.88	1.08	2.46	13.42	43.16	4.74	8.53	56.43

Table 25: Summary of Capitalisation approved by the Commission for Transmission Business in the 2nd Control Period

Rs. Cr.

Particulars	FY 2020-21				FY 2021-22				FY 2022-23				Total MYT			
	Hard Cost	IEDC	IDC	Total	Hard Cost	IEDC	IDC	Total	Hard Cost	IEDC	IDC	Total	Hard Cost	IEDC	IDC	Total
Schemes Approved in 1st Control Period	213.43	24.84	14.34	252.59	101.87	8.46	7.92	118.25	346.12	24.07	33.30	403.49	661.42	57.37	55.56	774.33
Scheme approved by the Board in FY 2019-20 outside the first MYT approval	0.00	0.00	0.00	0.00	40.28	2.87	2.53	45.68	91.89	6.09	8.04	106.02	132.17	8.96	10.57	151.70
Total Spillover	**213.43**	**24.84**	**14.34**	**252.61**	**142.15**	**11.33**	**10.44**	**163.92**	**438.01**	**30.16**	**41.34**	**509.51**	**793.59**	**66.33**	**66.12**	**926.04**
Works already planned for FY 2020-23	0.02	0.00	0.00	0.02	0.00	0.00	0.00	0.00	28.00	1.81	2.45	32.27	28.02	1.81	2.46	32.29
New works planned for MYT plan 2020-23	28.82	1.80	1.49	32.11	19.97	1.26	1.60	22.83	430.13	28.05	40.54	498.71	478.92	31.11	43.63	553.66
P&M Works	22.17	1.61	1.19	24.97	6.25	0.40	0.64	7.29	55.50	4.37	5.73	65.60	83.92	6.37	7.57	97.86

Rs. Cr.

Particulars	FY 2020-21				FY 2021-22				FY 2022-23				Total MYT			
	Hard Cost	IEDC	IDC	Total	Hard Cost	IEDC	IDC	Total	Hard Cost	IEDC	IDC	Total	Hard Cost	IEDC	IDC	Total
Total New Works	51.01	3.41	2.68	57.10	26.22	1.66	2.24	30.12	513.63	34.23	48.72	596.58	590.86	39.29	53.66	683.81
Total	264.44	28.25	17.02	309.71	168.37	12.99	12.68	194.04	951.64	64.39	90.06	1106.09	1384.45	105.62	119.78	1609.85
less: Cost of dismantled transformers being reused	35.67	-	-	35.67	35.67	-	-	35.67	35.66	-	-	35.66	107.00	-	-	107.00
Total Capital Investment	**228.77**	**28.25**	**17.02**	**274.04**	**132.70**	**12.99**	**12.68**	**158.37**	**915.98**	**64.39**	**90.06**	**1070.43**	**1277.45**	**105.62**	**119.78**	**1502.84**

Table 26: Summary of Capitalisation approved by the Commission for SLDC Business in the 2nd Control Period

Rs. Cr.

Particulars	FY 2020-21				FY 2021-22				FY 2022-23				Total MYT			
	Hard Cost	IEDC	IDC	Total	Hard Cost	IEDC	IDC	Total	Hard Cost	IEDC	IDC	Total	Hard Cost	IEDC	IDC	Total
Spillover	7.32	0.32	0.23	7.87	0.00	0.00	0.00	0.00	1.95	0.48	0.43	2.42	9.27	0.79	0.67	10.29
New Schemes	0.00	0.00	0.00	0.00	1.50	0.17	0.26	1.93	39.54	4.35	7.99	51.88	41.04	4.51	8.25	53.80
Total	7.32	0.32	0.23	7.87	1.50	0.17	0.26	1.93	41.49	4.82	8.42	54.29	50.31	5.31	8.91	64.09

Detailed list of all schemes and the Capitalisation approved by the Commission for Transmission and SLDC Business are provided in Annexure 2.

3.5 De-Capitalisation

In case of de-capitalisation of assets, the original cost of such asset as on the date of decapitalisation shall be deducted from the value of GFA. The corresponding loan as well as equity shall be deducted from outstanding loan and the equity respectively in the year such de-capitalisation takes place. Corresponding adjustments shall be made in cumulative depreciation and cumulative repayment of loan, duly taking into consideration the year in which it was capitalised.

3.6 Financing Plan

Financing has been considered as per the breakup provided by PSTCL. The summary of financing plan for the approved capital investment is given in the following table:

Table 27 : Summary of Financing Plan approved by the Commission for Transmission Business

Rs. Cr.

Source of Funding	FY 2020-21	FY 2021-22	FY 2022-23	Total MYT
Loan	369.15	350.03	310.77	1029.94
Equity	158.21	150.01	133.19	441.40
Consumer Contribution	-	-	-	-
Govt. Grants/ Subsidies	85.43	118.31	106.25	309.99
Total	**612.78**	**618.35**	**550.20**	**1781.33**

The summary of financing plan approved by the Commission for 2nd Control Period is given in the following table:

Table 28 : Summary of Financing Plan approved by the Commission for SLDC Business

Rs. Cr.

Source of Funding	FY 2020-21	FY 2021-22	FY 2022-23	Total MYT
Loan	5.51	1.35	38.00	44.86
Equity	2.36	0.58	16.29	19.23
Consumer Contribution	-	-	-	-
Govt. Grants/ Subsidies	-	-	-	-
Total	**7.87**	**1.93**	**54.29**	**64.09**

Summary

The Commission examined the list of works submitted by PSTCL to be executed during FY 2020-21 to FY 2022-23. Based on various submissions made by PSTCL, clarifications provided, and presentations made during various meetings, the Commission hereby approves the Capital Investment and Capitalisation for FY 2020-21 to FY 2022-23as mentioned in the tables below.

Table 29 : Summary of Capital Investment approved by the Commission

Rs. Cr.

Particulars	Approved by the Commission			
	FY 2020-21	FY 2021-22	FY 2022-23	Total
Transmission Business	612.78	618.35	550.20	1781.33
SLDC Business	25.22	17.79	13.42	56.43
Total Capital Investment	**638.00**	**636.14**	**563.62**	**1837.77**

Table 30 : Summary of Capitalisation approved by the Commission

Rs. Cr.

Particulars	Approved by the Commission			
	FY 2020-21	FY 2021-22	FY 2022-23	Total
Transmission Business	274.04	158.37	1070.43	1502.84
SLDC Business	7.87	1.93	54.29	64.09
Total Capital Investment	**281.91**	**160.30**	**1124.72**	**1566.93**

The Order is signed and issued by the Punjab State Electricity Regulatory Commission on this day 03rd day of December, 2019.

Date: December 03, 2019

Place: CHANDIGARH

Sd/-	**Sd/-**	**Sd/-**
(Anjuli Chandra)	**(S.S. Sarna)**	**(Kusumjit Sidhu)**
MEMBER	**MEMBER**	**CHAIRPERSON**

Certified

Sd/-

Secretary

Punjab State Electricity Regulatory Commission,

Chandigarh

Annexures

Annexure 1 – Capital Investment Plan submitted by PSTCL

Table 31: Capital Investment submitted by PSTCL for Schemes Approved in 1st Control Period

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
A	Unforeseen Expenditure on works on 2018-19			3.34	2.35	1.19	6.88
39	Bus Bar Protection scheme for 45 no S/Stns. (90% funding Under Power System Development Fund (PSDF), 10% amount accounted for in FY 2017-18			1.11	0.00	0.00	1.11
60	220 kV S/S Derabassi		Addl. 100MVA, 220/66 kV T/F	1.11	0.00	0.00	1.11
62	400 kV S/Stn. Makhu		Addl 500MVA 400/220 kV T/F	24.51	5.88	0.00	30.39
89	220 kV S/S Dhandhari Kalan 1 and 2	Provision of 220 kV Double bus bar arrangement		5.01	0.00	0.00	5.01
90	220 kV S/S Sahnewal		Provision of making 66 kV double bus arrangement including dismantlement & erection of new towers	0.20	0.00	0.00	0.20
102	New Civil Works in respect of 5 no. stores such as sheds, plinths and Boundry walls etc.		HR, IT, S&D Organization work	4.23	0.00	0.00	4.23
104	Procurement of Hardwares,		HR, IT, S&D	1.28	0.65	0.65	2.58

	Server, Furniture, IT Space renovation (Civil Works) & Unforeseen Capital Investment		Organization work				
107	220 kV S/Stn Sadiq		Repl. of 100 MVA with 160 MVA, 220/66 kV T/F	0.35	0.00	0.00	0.35
108	220 kV S/StnBajakhana		Repl. of 100 MVA with 160 MVA, 220/66 kV T/F	0.35	0.00	0.00	0.35
110	220 kV S/StnGhubaya		Repl. of 100 MVA with 160 MVA, 220/66 kV T/F	0.35	0.00	0.00	0.35
116	220 kV S/StnBanga (U/G from 132 kV)		1x100 MVA, 220/132 kV T/F as spared from 220 kV S/StnMahilpur	2.79	0.00	0.00	2.79
119	220 kV Line bays at 220 kV S/StnBanga (Proposed)		2 Nos. (cost of 1no. Line bay already included in s/stn.	0.33	0.00	0.00	0.33
120	220 kV S/StnSherpur (Focal Point) (U/G from 66 kV grid with 220 kV side GIS and 66 kV side Conventional)		1x160 MVA, 220/66 kV T/F	4.79	0.00	0.00	4.79
121	LILO of both ckts of 220 kV S/Stn Jamalpur - 220 kV S/StnDhandari Kalan-I line at 220 kV S/StnSherpur (Focal Point)			1.11	0.00	0.00	1.11
123	220 kV S/StnBudhlada (U/G from 66 kV)		1x160 MVA, 220/66 kV T/F	9.00	12.94	0.00	21.94
124	220 kV S/StnMansa - 220			7.49	10.59	0.00	18.08

	kV S/StnBudhlada DC Line						
128	400 kV S/StnDoraha (New at Village Dhanansu)	0	2x315 MVA, 400/220 kV T/Fs	8.91	14.12	14.23	37.26
129	LILO of one ckt. of 400 kVJalandhar-Kurukshetra D/C line f at 400 kV Dhanansu(Quad Moose)	LILO length =5 km(approx)	0	5.57	5.88	0.59	12.04
130	(i) 400 kV Bays (ii) 220 kV Bays at 400 kV S/StnDoraha	0	(i) 4 Nos. (ii) 6 Nos.	7.80	9.41	7.02	24.23
131	220 kV Banur-Mohali (GMADA) DC line	4 km Line Length ACSR ZEBRA Conductor	0	2.30	1.18	0.00	3.48
132	220 kV DC line from 400 kV Grid near Doraha to 220 kV Kohara	12 km (approx.) Line Length / 420 sq mm DC ACSR Zebra	0	2.23	4.71	3.76	10.70
133	220 kV DC line from 400 kV Grid near Doraha to 220 kV Doraha	10 km (approx.)/ 420 sq mm DC ACSR Zebra	0	2.23	4.71	1.94	8.88
134	220 kV DC line from 400 kV Grid near Doraha to 220 kV Ikolaha	10 km (approx.)/ 420 sq mm DC ACSR Zebra	0	2.23	4.71	1.94	8.88
135	220 kV Bays (2Nos. at 220 kV Ikolaha, 2 Nos. at Doraha, 2Nos. at Kohara (220 kV bus)and 2 no. ICT bays	0	8 Nos.	2.23	5.36	4.74	12.33
136	LILO of 220 kV S/Stn Mansa -	40 km	0	11.14	11.76	6.59	29.49

	Sunam (SC) at 400 kV S/StnPatran (220 kV bus).	(approx.) Line Length / 1xDC with 420 sq mm ACSR (Zebra)					
137-140	1. Aug/Strengthening of bus bars 2. Extension in Switchyard buildings, Provision for AC etc. 3. Provision for Reactive Compensation 4. Addition of bays/system strengthening required on account of RE generation	0	0	2.23	1.18	0.00	3.41
142	Replacement of Disc Insulators of 400 kV PSTCL lines with Polymer Insulators			16.71	23.53	65.21	105.45
143	220 kV DC line from 220 kV S/StnGaunsgarh to 220 kV S/StnLadhowal.			1.11	0.00	0.00	1.11
152-155	1. Aug/Strengthening of bus bars 2. Extension in Switchyard buildings, Provision for AC etc. 3. Provision for Reactive Compensation 4. Addition of bays/system strengthening required on account of RE			4.87	0.00	0.00	4.87

	generation						
163	132 kV Samadh Bhai		Construction of a new Switch House Building at a new raised level	0.67	0.00	0.00	0.67
164	132 kV Pathankot		Construction of a new control- room building by replacing old control - room building	0.22	0.00	0.00	0.22
166	220 kV S/StnBhawanigarh	0	Addl. 2nd 100 MVA, 220/66 kV T/F	6.69	0.00	0.00	6.69
167	220 kV S/StnJadla	0	Addl. 2nd 100MVA, 220/66 kV T/F	6.69	0.00	0.00	6.69
168	220 kV S/StnBotianwala (Thatha Sahib)	0	Addl. 3rd 160 MVA, 220/66 kV T/F	9.03	0.00	0.00	9.03
169	220 kV S/StnMajitha	0	Addl. 2nd 100 MVA, 220/66 kV T/F	6.69	0.00	0.00	6.69
170	132 kV S/Stn Pathankot	0	Repl. of 1x12.5/16 MVA, 132/66-33 kV T/F with 1x20/25 MVA, 132/66 kV T/F	0.23	0.00	0.00	0.23
171	132 kV IGC, Bathinda	0	Repl. of 1x25 MVA, 132/66 kV T/F with 1x50 MVA,	0.00	0.00	0.00	0.00

			132/66 kV T/F				
172-175	1. Aug/Strengthening of bus bars 2. Extension in Switchyard buildings, Provision for AC etc. 3. Provision for Reactive Compensation 4. Addition of bays/system strengthening required on account of RE generation	0	0	11.94	0.00	0.00	11.94
176	Replacement of Existing conductor of 220 kV Mohali-I - Mohali-II line	13	0	11.14	12.89	7.11	31.14
177	220 kV S/StnFazilka (U/G from 66 kV)	0	0	6.46	11.76	7.11	25.33
178	400 kV S/StnMukatsar - 220 kV S/StnFazilka 220 kV DC line	0	0	5.57	17.65	2.87	26.09
179	220 kV Bays	0	0	3.10	2.35	0.00	5.45
180	220 kV DC line from 400 kV Jalandhar (PGCIL) to 220 kV Kartarpur	Augmentation of existing conductor of both circuits with HTLS conductor of min 1200 A capacity	0	11.14	18.82	11.87	41.83
	Total			**216.48**	**182.43**	**136.82**	**535.73**

Table 32 : Capital Investment submitted by PSTCL for Scheme approved by the Board in FY 2019-20 outside the first MYT approval (Rs Cr.)

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
1a	132 kV Faridkot – Kotkapur-2 SC link (Amendment no. 16 / 2018-19)	30		3.40	5.98	2.41	11.79
1b			2no. 132 kV line bays (one at each end)	0.54	0.34	0.23	1.11
2a	132 kV Sihora-132 kV Seh SC line	31		3.51	6.18	2.49	12.18
2b			2no. 132 kV line bays (one at each end)	0.54	0.34	0.23	1.11
3a	400 kV S/StnNakodar (2x315 MVA, 400/220 kV) (Amendment no. 43 /2018-19)		Replacement of 1x315 MVA, 400/220 kV ICT with 1x500 MVA, 400/220 kV ICT	7.85	4.98	3.34	16.17
3b	Cost of dismantlement of 1x315 MVA, 400/220 kV ICT at 400 kV Nakodar		Cost of dismantlement of 1x315 MVA, 400/220 kV ICT at 400 kV Nakodar	0.28	0.18	0.12	0.58
4a	1 (i) 220 kV S/S Beas (new) in the premises of Radha Soami Satsang Beas.		2 x 100 MVA, 220/132 kV Auto T/f.	8.60	9.25	12.03	29.88
4b	(ii) 220 kV line bays		2 Nos. ** 2 Nos. 220 kV bays at 400 kV PGCIL Jalandhar fall	1.43	0.91	0.61	2.95

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
			in the preview of PGCIL.				
4c	(iii) 132 kV Bays		5 Nos. considering Ekalgadda T-off conversion to LILO.	1.30	0.82	0.55	2.67
4d	2. 400 kV PGCIL Jalandhar – 220 kV Beas (New) line.	33 Kms (approx)		5.87	8.66	14.12	28.65
4e	3. 220 kV Beas (New) – 220 kV Butari line.	14 Kms (approx)		2.64	3.09	4.45	10.18
4f	4. 132 kV Beas – 132 kV Ekalgada line	28 Kms (approx) size.		3.05	3.35	4.62	11.02
4g	5 (i) 2 Nos. 132kV towers dismantlement & 3 Nos. towers to be erected.		For making connectivity of 132kV bus of newly created 220kV S/S Beas to existing 132 kV S/s Beas.	0.27	0.17	0.12	0.56
4h	(ii) Conversion of 132kV Tarn Taran – Butari T-off at Ekalgada into 132 kV Tarn Taran – Butari LILO at 132kV Ekalgada.	Stringing of 2nd Ckt from 132kV Ekalgada to T-off point (~11 km)		0.39	0.24	0.16	0.79
5	400 kV	220kV		8.28	5.25	3.53	17.06

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
	Rajpura–220 kV Bassi Pathana DC Link. (Amendment no. 13 /2019-20)	DC Line from 400 kV Rajpura to 220 kV Bassi-Pathana (Line length 2 X 20 km)					
	4no. 220 kV Bays			2.86	1.81	1.22	5.89
	220 kV Side bus extension arrangement to be made at 400 kV Rajpura for providing suitable space for 2 Nos 220 kV Bays			0.05	0.03	0.02	0.10
6	Solar system on roof top.			3.34	3.53	3.28	10.15
7	OPGW			14.49	11.76	10.80	37.05
8	220 kV Patti		Replacement of 1x100 MVA, 220/66 kV to 1x160 MVA, 220/66 kV T/F.	7.80	0.64	0.00	8.44
9	220 kV Ferozepur road Ludhaiana		Replacement of 1x100 MVA, 220/66 kV to 1x160 MVA, 220/66 kV T/F.	7.80	0.64	0.00	8.44
10	220 kV Dhandari Kalan 2		2x160 MVA, 220/66 kV T/F at new location to be added(with	15.67	4.87	0.00	20.54

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
			complete newICT bays				
11			dismantlement of 2x100 MVA T/F for creating space for double bus bar	0.45	0.35	0.00	0.80
12			interconnecting 66 kV double bus bar of ofdhandarikalan 1-dhandarikalan 2	0.89	0.71	0.00	1.60
	Total			**101.30**	**74.08**	**64.33**	**239.71**

Table 33 : Capital Investmentfor works already planned for FY 2020-23 as submitted by PSTCL

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
1	1 No. 400kV ICT bay, 1 No. 400 kV Tie bay, 1 No. 400 kV Future bay, 1 No. 220 kV ICT bay at 400 kV Rajpura. Amendment No. 20/ 2018-19	0.00	0.00	13.37	9.41	9.49	32.27
2	Termination of direct link 220 kV between Lalton Kalan Sahnewal (Amendment	0.00	0.00	0.02	0.00	0.00	0.02

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
	no. 18 / 2018-19)						
3	400kV, 200MW Permanent Power to Guru Gobind Singh Polymer Addition Project-HPCL Mittal Energy Limited. (Amendment no. 21 (ii,iii& iv) / 2018-19)	0.00	Creation of Proposed 400kV Sub-Station Malkana with 2x500MVA, 400/220kV ICTs for PSTCL	5.57	16.47	11.86	33.90
		10.00	0.00	4.46	7.06	5.93	17.45
		0.00	b) 6 Nos. of 220kV Transmission Line for Future	0.00	0.00	0.00	0.00
		25.00	0.00	5.17	6.74	10.35	22.26
		0.00	[220kV Bays 4 No.]	2.37	1.88	1.89	6.14
		30.00	0.00	4.65	8.09	14.08	26.82
		0.00	[220kV Bays 4 No.](i.e. 2 bays at each end)	2.37	1.88	1.89	6.14
		0.00	a)1x500MVA, 400/220kV ICT (for future)	0.00	0.00	1.19	1.19
		0.00	b)400kV bays = 2 No. (for future)	0.00	0.00	1.19	1.19
		0.00	c)220kV bays = 2 No. (for future)	0.00	0.00	1.19	1.19
Total				**37.98**	**51.53**	**59.06**	**148.57**

Table 34: Capital Investment submitted by PSTCL for New Works planned for MYT plan 2020-23

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
1	400 kV S/s Ropar New Grid (in the premises		Establishment of 400 kV AIS station along with	9.23	9.96	10.04	29.23

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
	of GGSSTP)		auxiliary, control room building, Gantry structure, extension provision etc.				
2			400 kV S/s with 2x500 MVA, 400/220 kV ICTs	3.12	21.88	11.38	36.38
3			400 kV bays = 4 Nos	2.23	6.47	8.89	17.59
4			220 kV bays = 10 Nos	2.23	4.66	4.70	11.59
5			Connectivity of 220 kV bus of 400 kV Ropar with existing 220 kV bus of GGSTP Ropar with 4 Nos. twin Moose ckts. (Approx. Length 1 km)	0.00	2.82	2.13	4.95
6		LILO of one ckt of 400 kV Ludhina PGCIL– Koldam at proposed 400 kV S/s Ropar, LILO Length = 15 km (approx.), Triple Conductor (Snowbird)		6.13	11.91	12.00	30.04
7		LILO of 2nd ckt of 400 kV Ludhina PGCIL– Koldam at proposed 400 kV S/s Ropar, LILO		0.00	15.88	12.00	27.88

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
		Length = 15 km (approx.), Triple Conductor (Snowbird)					
8			400 kV bays = 2 Nos	3.34	2.65	2.67	8.66
9	400 kV Dhanansu(already planned) its additional 400 kV link required	LILO of 2nd ckt of 400 kV Jallandhar–Kurukshetra D/c line at Dhanansu. (Quad Moose), LILO length = 5 km (approx.)		0.00	0.00	2.37	2.37
10		400 kV bays 2 no.		0.00	0.00	1.19	1.19
11	220 kV Kharar		Replacement of 2x20MVA, 132/11 kV with 2x20MVA, 66/11kV T/F	3.65	0.00	0.00	3.65
12	220 kV Banga		a) Addl. 1x100 MVA, 220/66 kV T/F.	4.46	4.05	0.00	8.51
13			b) Replacement of 2x20MVA, 132/11 kV T/F with 2x20 MVA, 66/11kV T/F.	2.23	1.51	0.00	3.74
14	220kV G.T. Road Ludhiana (New GIS) or (in Ludhiana area)Includind SAS for RS 1cr.		220 kV S/s G.T. Road Ludhiana (New GIS Grid in the premises of existing 66 kV S/s G.T. Road Ludhiana) or (in Ludhiana area) with	11.14	11.76	13.68	36.58

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
			2x160MVA, 220/66 kV T/F				
15		LILO of 220 kV Ladowal - Gaunsgarh (DC) lines both ckts. at 220 kV G.T. Road Ludhiana. LILO Length = 7KM (appx.), conductor size 0.4sq" (2xDC lines).	0	3.90	4.12	4.39	12.41
16		0	220 kV bays = 4 Nos.	3.34	3.53	5.41	12.28
17		0	66 kV bays = 4 Nos.	0.56	0.59	0.66	1.81
18		0	220 kV S/s Gobindgarh (New) with 2x160MVA, 220/66 kV T/F.	11.14	11.76	13.68	36.58
19	220 kV Gobindgarh S/s (New Grid in the near by area of existing 220 kV S/s Gobindgarh-I). Includind SAS for RS 1cr.	LILO of 220 kV Gobindgarh-I - Bassi Pathana at 220 kV Gobindgarh, LILO length appx. 7KM (DC on DC) with 0.4sq" conductor.	0	2.23	2.35	1.60	6.18
20		LILO of 220 kV GGSSTP - Gobindgarh-I at 220 kV Gobindgarh (new), LILO length 7 KM (appx.) 0.4sq"	0	2.23	2.35	1.60	6.18

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
		conductor, DC on DC.					
21		0	220 kV bays = 4 No.	1.11	1.18	0.76	3.05
22		0	66 kV bays = 6 No.	1.11	1.18	0.40	2.69
23	220 kV Nawanpind (new grid in the premises of 66 kV S/s Nawanpind)Includind SAS for RS 1cr.	LILO of both ckts of 220 kV Verpal – Wadalagranthian DC line at proposed 220 kV S/s Nawanpind. 2xDC, conductor size 0.4sq", LILO length 1 KM.	2x100 MVA, 220/132 kV auto T/F.	11.14	11.76	13.60	36.50
24		0	0	0.56	0.59	0.63	1.78
25		0	220 kV bays = 4 Nos.	2.23	2.35	1.52	6.10
26		0	132 kV bays = 2 Nos	0.33	0.42	0.36	1.11
27	Additional link	Stringing of IIndckt. Of 220kV Mukatsar-Ghubayaline, conductor size 0.4sq", Line length 40.3 KM	0	1.11	1.18	5.44	7.73
28		0	220 kV double bus bar at 220 kV Ghubaya	0.11	0.06	0.00	0.17
29	Augmentation/additions of transformers at 220/132 kV level.	(L.S. provision)	For augmentation and addition of 220 kV as well as 132 kV transformers, as per the unforeseen/emergent loading	5.57	5.88	26.08	37.53

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
			requirements, an approximate provision of 5 Cr..s per year (i.e. 3 transformers per year) has been made.				
30	New 220 kVGiaspura including SAS of RS 1 cr.	0	under study	5.57	8.82	8.89	23.28
31	New 220 kVJhokeHarike including SAS of RS 1 cr.	0	under study	5.57	8.82	8.89	23.28
32	220 kV Gurdaspur including SAS of RS 1 cr	LILO of one ckt of 220 kV wadalagranthian-sarna line DC on DC 2xDC, conductor size 0.4sq", LILO length 5 km(approx)	0	1.70	1.35	1.36	4.41
33		0	2x100 MVA, 220/66 kV T/F. including 2 no. 220 kV bays	5.65	8.88	8.95	23.48
34	220 kVDhaleke(GIS)) including SAS of RS 1 cr	LILO of both ckts of 220 kV Talwandi Bhai Dharmkot ,conductor size 0.4sq", LILO length 10 km(approx)	0	2.35	5.39	5.43	13.17
35		0	2x100 MVA, 220/132 kV T/F. including 4 no. 220 kV bays	6.01	13.58	13.68	33.27
36		132 kVMoga I - Dhaleke	0	0.95	0.76	0.76	2.47

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
		DC link arrangement by making use of existing network,conductor size 0.2sq", LILO length 7 km(approx)					
37	132 kVSwadi Kalan	0.41	LILO of one ckt of 132kV Jamalpur-Moga 1 at 220 kVswadikalan DC on DC ,conductor size 0.2sq", LILO length 1 km(approx)	0.18	0.14	0.15	0.47
38		0.96	2 no. 132 kV bays	0.33	0.35	0.43	1.11
39	i) 220 kV Sighawal	0	Addl. 1x100 MVA, 220/66 kV T/F.				
40	ii) 220 kV Abohar	0	Addl. 12.5 MVA, 66/11 kV T/F.				
41	iii) 220 kV Passiana	0	Addl. 12.5 MVA, 66/11 kV T/F.				
42	iv) 220 kV Dhuri	0	Aug. of 12.5 MVA, 66/11 kV to 20 MVA, 66/11 kV T/F.	42.30	33.49	33.71	109.50
43	v) 220 kV Mohali - I	0	Replacement of 1x100 MVA, 220/66 kV to 1x160 MVA, 220/66 kV T/F.				
44	vi) 220 kV Banur	0	Addl. 20 MVA, 66/11 kV T/F.				
45	vii) 220 kV Khassa	0	Aug. of 12.5 MVA, 66/11 kV to 20				

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
			MVA, 66/11 kV T/F.				
46	viii) 220 kV Algon	0	Aug. of 12.5 MVA, 66/11 kV to 20 MVA, 66/11 kV T/F.				
47	ix) 220 kV Mahilpur	0	Addl. 12.5 MVA, 66/11 kV T/F.				
48	x) 220 kV Kartarpur	0	Addl. 12.5 MVA, 66/11 kV T/F.				
49	xi) 220 kV Badsahpur	0	Addl. 1x100 MVA, 220/66 kV T/F.				
50	xii) 220 kV Butari	0	Addl. 12.5 MVA, 66/11 kV T/F.				
51	xiii) 220 kV Udhoke	0	Addl. 1x100 MVA, 220/66 kV T/F.				
52	xiv) 220 kV Pakhowal	0	Replacement of 1x100 MVA, 220/66 kV to 1x160 MVA, 220/66 kV T/F.				
53	xv) 220 kV Jagraon	0	Aug. of 12.5 MVA, 66/11 kV to 20 MVA, 66/11 kV T/F.				
54	xvi) 220 kV Himmatpura	0	Aug. of 12.5 MVA, 66/11 kV to 20 MVA, 66/11 kV T/F.				
55	xvii) 220 kV Kohara	0	Addl. 12.5 MVA, 66/11 kV T/F.				
56	xviii) 220 kV Doraha	0	Addl. 12.5 MVA, 66/11 kV T/F.				
57	xix) 220 kV Baghapurana	0	Addl. 12.5 MVA, 66/11 kV T/F.				
58	xx) 132kV SmadhBhai	0	Addl. 12.5 MVA,				

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
			132/11 kV T/F.				
59	xxi) 132kV Faridkot	0	Aug. of 12.5 MVA, 132/11 kV to 20 MVA, 132/11 kV T/F.				
60	xxii) 132kV Ferozshah	0	Aug. of 12.5 MVA, 132/11 kV to 20 MVA, 132/11 kV T/F.				
61	xxiii) 132kV Manasingh Wala	0	Aug. of 12.5 MVA, 132/11 kV to 20 MVA, 132/11 kV T/F.				
62	xxiv) 132kV Jallalabad	0	Aug. of 12.5 MVA, 66/11 kV to 20 MVA, 66/11 kV T/F.				
63	xxvi) 132kV Kathunangal	0	Aug. of 12.5 MVA, 132/11 kV to 20 MVA, 132/11 kV T/F.				
64	xxvii) 132kV Bhikhiwind	0	Aug. of 12.5 MVA, 132/11 kV to 20 MVA, 132/11 kV T/F.				
65	xxviii) 132kV Shri Hargobindpur	0	Addl. 20 MVA, 132/11 kV T/F.				
66	xxx) 132kV Phillour	0	Aug. of 12.5 MVA, 132/11 kV to 20 MVA, 132/11 kV T/F.				
67	xxxi) 132kV Bilaspur	0	Aug. of 12.5 MVA, 132/11 kV to 20 MVA, 132/11 kV T/F.				
68	xxxii) 132kV Tangra	0	Addl. 12.5 MVA, 132/11 kV T/F.				

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
69	Augmentation of bus bars, extension in control room building, providing room for second source for station battery etc.	0	For strengthening of bus – bar arrangement, extension in control room building for the existing 220/132 kV grids of PSTCL, as per the requirement of P&M from time to time, a provision of about 20 Cr..s (i.e. 7,7,6 Cr..s per year) has been made.	7.80	8.24	7.11	23.15
70	Additional 220/132/66 kV line bays related with feasibility cases or as per PSPCL. requirement.	0	As per the requirement of PSPCL, for the load released through feasibility cases, a provision of about 25 Cr..s per year has been made for erection of 66/132/220 kV bays at various grids of PSTCL. (i.e. 8,8,9 Cr..s per year)	11.14	9.41	8.30	28.85
71	Second source of battery at various 220/132 kV S/s of PSTCL	0	Balance work for 49 Nos grids (out of these 31 Nos are 220 kV &	1.67	1.76	1.78	5.21

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
			remaining 18 Nos are 132 kV S/s) Total cost = 15 Cr..s (with 70% PSDF funding & remaining to be arranged through capital investment)				
72	90 nos PSTCL grids (220 kV) to be provided with SAS. Report already sent for PSDF funding if approved, these stations will be upgraded.	0	Cost of one station for SAS provision is Rs 4 Cr..s out of this 70% is PSDF funding & balance 30% shall be through capital investment.	22.28	41.18	39.13	102.59
73	Digitization of existing 220 kV S/s Passiana.	0	Case already approved. PSDF funding have been applied. Total cost = 11 Cr..s, out of which 90% PSDF funding & remaining 10% through capital investment.	0.56	0.71	0.00	1.27
74	Replacement of existing conductor of 220 kV Gobindgarh - 400kV Rajpura (DC), 220 kV Kohara - 400 kV Dhanansu (DC), 220 kV Kohara - Sahnewal (B)	0	L.S. Provision in @ Rs. 40 Cr.. per year	22.28	47.06	47.43	116.77

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
	(SC) with HTLS of suitable capacity.						
75	Additional of 14 No T/f on account of making (N-1) complaint system for those grids where only one T/f existing (Annexure-C).	0	.A provision of Rs. 25 Cr.. for 2020-21, Rs 25 Cr.. for 2021-22 & Rs 20 Cr.. For 2022-23 have been made. Augmentation shall be made for grid stations as per the space availability & loading conditions.	27.86	29.41	23.71	80.98
76	132 kV S/s Kotkapura-I	0	Addl. 1x20 MVA, 132/11kV T/F	3.69	0.00	0.00	3.69
77	132 kV works Bilaspur.	0	Replacement of 1x12.5 MVA, 132/11 kV with 1x20 MVA, 132/11 kV T/F	2.74	0.00	0.00	2.74
78	132 kV Nawanshahar.	0	Addl. 1x20 MVA, 132/11 kV T/F	3.69	0.00	0.00	3.69
79	132 kV Kapurthala.	0	Addl. 1x20 MVA, 132/11 kV T/F	3.69	0.00	0.00	3.69
80	132 kV Susan.	0	Replacement of 1x12.5 MVA, 132/11 kV with 1x20 MVA, 132/11 kV T/F	2.74	0.00	0.00	2.74
81	132 kV Panjgraian.	0	Replacement of 1x12.5 MVA, 132/11 kV with 1x20 MVA, 132/11 kV T/F	2.74	0.00	0.00	2.74
82	132 Baluana.	0	Replacement	2.74	0.00	0.00	2.74

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
			of 1x12.5 MVA, 132/11 kV with 1x20 MVA, 132/11 kV				
83	IGC Bathinda (Aug)	0	Replacement of 2x12.5 MVA, 132/11 kV with 2x20 MVA, 132/11 kV	5.48	0.00	0.00	5.48
84	132 kV Gholian Kalan.	0	Addl. 1x20 MVA, 132/11 kV T/F	3.69	0.00	0.00	3.69
85	LILO of 132 kV Verka – Mal mandi SC line at 220 kV S/s Nawanpind (132 kV bus) LILO length = 1 KM appx. DC on DC.	Replacement of existing conductor of 0.25sq" with equivalent HTLS conductor (on the same supporting structure), having a minimum capacity of at least 800A.	0	0.28	0.59	0.30	1.17
86	Augmentation of 132 kV Nawanpind - Verka, 5 KM (0.2sq") and 132 kV Nawanpind - Malmandi (5KM 0.2sq") with suitable HTLS conductor.	0	0	1.11	2.35	2.37	5.83
87	Augmentation of 132 kV GGSSTP - Asron) 6 KM 0.2sq") and 132 kV GGSSTP - Ropar (19.76 KM) 0.2sq".	Replacement of existing conductor of line with suitable HTLS conductor (on same towers) having a capacity of at	0	1.67	8.24	8.89	18.80

Rs. Cr.

Sl. No.	Particulars	Network Addition		FY 2020-21	FY 2021-22	FY 2022-23	Total
		Line (km)	Substation				
		least 800A.					
88	CE/ P&M Agenda No. 145/2017-18 dtd 20.09.17. Best Practices recommended by Protection Sub Committee of NRPC in operation & construction of Sub Stations	0	Installation of 999 Nos. CVTs at various 220 kV lines for Distance Relay protection	5.57	5.88	5.93	17.38
89	132 kV GT Road Amritsar & 132 kV Sakatari Bagh Asr	132 kV link between 132 kV Gt Road-132 kV Sakatri Bagh through 132 kV underground cable	0	3.34	9.41	5.93	18.68
90		0	132 kV Bays= 2 Nos.	0.56	0.59	0.00	1.15
91	OPGW link between SKPP-RSD- 220 kV Sarna & SKPP-220 kV Sarna			3.90	4.12	0.00	8.02
92	Unforeseen emergency works			5.57	5.88	5.93	17.38
	Total			**311.83**	**399.26**	**396.24**	**1107.33**

Table 35 : Capital Investment submitted by PSTCL for P&M works for the 2nd Control Period

Rs. Cr.

Sl. No.	Particulars	FY 2020-21	FY 2021-22	FY 2022-23	Total	Remarks
1	To Modernise the hotline work by use of Diagnostic techniques to decrease the outage in transmission system of PSTCL.	11.14	0.00	0.00	11.14	Scheme is already approved by BOD/PSTCL and spillover

Rs. Cr.

Sl. No.	Particulars	FY 2020-21	FY 2021-22	FY 2022-23	Total	Remarks
						from last MYT
2	To provide SAS based DRs and ELs at six 220kV S/stns as per requirements of IEGC and SGC and comply with 3rd party protection audit by CPRI.	1.11	2.94	0.00	4.06	Scheme is already approved by BOD/PSTCL and spillover from last MYT
3	To provide DRs and ELs in 220kV S/stns of PSTCL to comply with IEGC, SGC and 3rd party protection audit by CPRI.	1.67	5.88	11.86	19.41	Proposed as New Scheme
4	To procure testing Equipment to check healthiness of OPGW channels and Ethernet Switch Network in Substation automation.	0.28	0.00	0.00	0.28	Proposed as New Scheme
5	Tan-Delta Measurement Set (7 No.)	2.51	0.00	0.00	2.51	Proposed as New Scheme
6	Tan Delta and Resistive kit for testing of Transformer oil.	0.45	0.00	0.00	0.45	Proposed as New Scheme
7	PT/CVT testing kit for ODTL	0.39	0.00	0.00	0.39	Proposed as New Scheme
8	Remote Control Operation of 400kV S/StnsMukhtsar, Nakodar and Makhu	0.00	1.76	0.00	1.76	Proposed as New Scheme
9	Insulation Tester for new Substations (25 No.)	0.00	1.47	0.00	1.47	Proposed as New Scheme
10	Online partially discharge monitaring kit equipment for 400 kV ICT at 400kV S/s.(14 No.)	5.57	5.88	4.74	16.20	Proposed as New Scheme
11	CRM- Contact Resistance measurement meter for maintenance gang	1.00	0.00	0.00	1.00	Proposed as New Scheme
12	Upgrading of 2 No. 3	0.00	0.00	0.00	0.00	Proposed as

Rs. Cr.

Sl. No.	Particulars	FY 2020-21	FY 2021-22	FY 2022-23	Total	Remarks
	Phase Relay testing kits of 400kV protection Hub and SAP Hub with CMGPS (testing kit synchronising equipment and software) for end to end testing as per recommandation of 3rd party protection audit alongwith advance teasplay software.					New Scheme
13	Loader cum Cr.ane for Amritsar Circle	0.56	0.00	0.00	0.56	Proposed as New Scheme
14	Mobile oil filteration sets under P&M Circle (4 No., 6KL/H)	1.11	0.00	0.00	1.11	Proposed as New Scheme
15	Construction of Security Huts at 220/132kV Sub stations.	3.09	0.00	0.00	3.09	Proposed as New Scheme
16	Refixing of UC Fencing at top toe wall to safeguard yard area from fire.	2.69	2.69	2.69	20.86	Proposed as New Scheme
17	Providing Plinths for 2 sets (20 No.) of ERS-Emergency Restoration System Towers at 400kV S/S Rajpura,Nakodar and 220kV Muktsar	0.56	0.00	0.00	0.56	Proposed as New Scheme
18	Providing RCC Roads in 220kV S/S to facilitate movement of heavy vehicle loaded with equipment.	5.01	2.94	2.96	10.92	Proposed as New Scheme
19	Providing PCC in the yard area in 220kV S/s	3.34	4.12	3.56	11.02	Proposed as New Scheme
20	Providing AC and Furniture at kangra Rest House	0.17	0.00	0.00	0.17	Proposed as New Scheme
Total		**40.65**	**27.68**	**25.81**	**94.14**	

Table 36: Capital Investment claimed by PSTCL for SLDC Business for the 2nd Control Period

Rs. Cr.

Sl. No.	Particulars	FY 2020-21	FY 2021-22	FY 2022-23	Total	Remarks
1	Scheme for providing 45 nos. Remote Terminal Units for SCADA/EMS system at 220 & 132 kV Substations of PSTCL in Punjab	0.48	0.00	0.00	0.48	Spillover
2	Centralised AC system, Furniture & Fixtures (including office ACs)	1.46	0.14	0.16	1.76	Spillover
3	IT equipmentsinlcuding Server, computer, Displays, software etc. for SLDC, Web site and its offices	0.24	0.07	0.07	0.38	Spillover
4	Implementation of SAMAST scheme in Punjab (Procurement of meters, communication equipments and Harware and software for Scheduling, Accounting, Metering and settlement of transaction of Electricity)	12.17	11.33	8.75	32.26	New
5	Procurement/Replacment of 66 nos. RTUs for various substations of PSTCL	7.81	3.41	2.40	13.64	New
6	Extension of SLDC Building	1.22	0.71	0.00	1.93	New
7	OPGW laid by PGCIL under package V on turnkey basis	1.83	2.13	2.04	5.99	New
	Total	**25.22**	**17.79**	**13.42**	**56.43**	

Annexure 2 -Capitalisation

Table 37 : Capitalisation for 53 Spillover Schemes as Approved by the Commission

Rs. Cr.

Sl. No.	Particulars	FY 2020-21	FY 2021-22	FY 2022-23	Total MYT
A	Unforeseen Expenditure on works on 2018-19	3.34	2.35	1.19	6.88
39	Bus Bar Protection scheme for 45 no S/Stns. (90% funding Under Power System Development Fund (PSDF), 10% amount accounted for in FY 2017-18	2.10	0.00	0.00	2.10
60	220 kV S/S Derabassi	11.77	0.00	0.00	11.77
62	400 kV S/Stn. Makhu	0.00	33.52	0.00	33.52
89	220 kV S/S Dhandhari Kalan 1 and 2	10.09	0.00	0.00	10.09
90	220 kV S/S Sahnewal	3.27	0.00	0.00	3.27
102	New Civil Works in respect of 5 no. stores such as sheds, plinths and Boundry walls etc.	4.23	0.00	0.00	4.23
104	Procurement of Hardwares, Server, Furniture, IT Space renovation (Civil Works) & Unforeseen Capital Investment	0.00	0.00	6.21	6.21
107	220 kV S/Stn Sadiq	10.55	0.00	0.00	10.55
108	220 kV S/StnBajakhana	10.61	0.00	0.00	10.61
110	220 kV S/StnGhubaya	10.55	0.00	0.00	10.55
116	220 kV S/StnBanga (U/G from 132 kV)	14.65	0.00	0.00	14.65
119	220 kV Line bays at 220 kV S/StnBanga (Proposed)	1.53	0.00	0.00	1.53
120	220 kV S/StnSherpur (Focal Point) (U/G from 66 kV grid with 220 kV side GIS and 66 kV side Conventional)	16.68	0.00	0.00	16.68
121	LILO of both ckts of 220 kV S/Stn Jamalpur - 220 kV S/StnDhandari Kalan-I line at 220 kV S/StnSherpur (Focal Point)	3.52	0.00	0.00	3.52

Rs. Cr.

Sl. No.	Particulars	FY 2020-21	FY 2021-22	FY 2022-23	Total MYT
123	220 kV S/StnBudhlada (U/G from 66 kV)	0.00	27.95	0.00	27.95
124	220 kV S/Stn Mansa - 220 kV S/StnBudhlada DC Line	0.00	21.08	0.00	21.08
128	400 kV S/StnDoraha (New at Village Dhanansu)	0.00	0.00	45.21	45.21
129	LILO of one ckt. of 400 kVJalandhar-Kurukshetra D/C line f at 400 kV Dhanansu(Quad Moose)	0.00	0.00	14.45	14.45
130	(i) 400 kV Bays (ii) 220 kV Bays at 400 kV S/StnDoraha	0.00	0.00	26.63	26.63
131	220 kV Banur-Mohali (GMADA) DC line	0.00	3.47	0.00	3.47
132	220 kV DC line from 400 kV Grid near Doraha to 220 kV Kohara	0.00	0.00	10.69	10.69
133	220 kV DC line from 400 kV Grid near Doraha to 220 kV Doraha	0.00	0.00	8.88	8.88
134	220 kV DC line from 400 kV Grid near Doraha to 220 kV Ikolaha	0.00	0.00	8.88	8.88
135	220 kV Bays (2Nos. at 220 kV Ikolaha, 2 Nos. at Doraha, 2Nos. at Kohara (220 kV bus)and 2 no. ICT bays	0.00	0.00	12.34	12.34
136	LILO of 220 kV S/Stn Mansa - Sunam (SC) at 400 kV S/StnPatran (220 kV bus).	0.00	0.00	35.50	35.50
137-140	1. Aug/Strengthening of bus bars 2. Extension in Switchyard buildings, Provision for AC etc. 3. Provision for Reactive Compensation 4. Addition of bays/system strengthening required on account of RE generation	0.00	23.82	0.00	23.82
142	Replacement of Disc Insulators of 400 kV PSTCL lines with Polymer Insulators	0.00	0.00	107.85	107.85

Rs. Cr.

Sl. No.	Particulars	FY 2020-21	FY 2021-22	FY 2022-23	Total MYT
143	220 kV DC line from 220 kV S/StnGaunsgarh to 220 kV S/StnLadhowal.	15.80	0.00	0.00	15.80
152-155	1. Aug/Strengthening of bus bars 2. Extension in Switchyard buildings, Provision for AC etc. 3. Provision for Reactive Compensation 4. Addition of bays/system strengthening required on account of RE generation	40.93	0.00	0.00	40.93
163	132 kV Samadh Bhai	1.39	0.00	0.00	1.39
164	132 kV Pathankot	1.78	0.00	0.00	1.78
166	220 kV S/StnBhawanigarh	8.44	0.00	0.00	8.44
167	220 kV S/StnJadla	8.41	0.00	0.00	8.41
168	220 kV S/StnBotianwala (Thatha Sahib)	11.61	0.00	0.00	11.61
169	220 kV S/StnMajitha	8.59	0.00	0.00	8.59
170	132 kV S/Stn Pathankot	0.29	0.00	0.00	0.29
171	132 kV IGC, Bathinda				
172-175	1. Aug/Strengthening of bus bars 2. Extension in Switchyard buildings, Provision for AC etc. 3. Provision for Reactive Compensation 4. Addition of bays/system strengthening required on account of RE generation	52.45	0.00	0.00	52.45
176	Replacement of Existing conductor of 220 kV Mohali-I - Mohali-II line	0.00	0.00	31.15	31.15
177	220 kV S/StnFazilka (U/G from 66 kV)	0.00	0.00	26.54	26.54
178	400 kV S/StnMukatsar - 220 kV S/StnFazilka 220 kV DC line	0.00	0.00	26.15	26.15
179	220 kV Bays	0.00	6.05	0.00	6.05
180	220 kV DC line from 400 kV	0.00	0.00	41.83	41.83

Rs. Cr.

Sl. No.	Particulars	FY 2020-21	FY 2021-22	FY 2022-23	Total MYT
	Jalandhar (PGCIL) to 220 kV Kartarpur				
Total		**252.59**	**118.25**	**403.49**	**774.33**

Table 38 : Capitalisation for Scheme approved by the Board in FY 2019-20 outside the first MYT approval

Rs. Cr.

Sl. No.	Particulars	FY 2020-21	FY 2021-22	FY 2022-23	Total
1a	132 kV Faridkot –Kotkapur-2 SC link (Amendment no. 16 / 2018-19)	0.00	0.00	12.12	12.12
1b		0.00	0.00	1.15	1.15
2a	132 kV Sihora-132 kV Seh SC line	0.00	0.00	12.52	12.52
2b		0.00	0.00	1.15	1.15
3a	400 kV S/StnNakodar (2x315 MVA, 400/220 kV) (Amendment no. 43 /2018-19)	0.00	0.00	16.66	16.66
3b	Cost of dismantlement of 1x315 MVA, 400/220 kV ICT at 400 kV Nakodar	0.00	0.00	0.57	0.57
4		0.00	0.00	0.00	0.00
5	400 kV Rajpura–220 kV Bassi Pathana DC Link. (Amendment no. 13 /2019-20)	0.00	0.00	17.55	17.55
	4no. 220 kV Bays	0.00	0.00	6.07	6.07
	220 kV Side bus extension arrangement to be made at 400 kV Rajpura for providing suitable space for 2 Nos 220 kV Bays	0.00	0.00	0.11	0.11
7	OPGW	0.00	0.00	38.12	38.12
8	220 kV Patti	0.00	9.64	0.00	9.64
9	220 kV Ferozepur road Ludhaiana	0.00	9.64	0.00	9.64
10	220 kV Dhandari Kalan 2	0.00	22.94	0.00	22.94
11		0.00	1.16	0.00	1.16
12		0.00	2.32	0.00	2.32
	Total	**0.00**	**45.68**	**106.02**	**151.70**

Table 39 : Capitalisation of the Schemes planned for FY 2020-23 as approved by the Commission for 2nd Control Period

Rs. Cr.

Sl.	Particulars	FY 2020-21	FY 2021-22	FY 2022-23	Total

No.					
1	1 No. 400kV ICT bay, 1 No. 400 kV Tie bay, 1 No. 400 kV Future bay, 1 No. 220 kV ICT bay at 400 kV Rajpura. Amendment No. 20/ 2018-19	0.00	0.00	32.27	32.27
2	Termination of direct link 220 kV between Lalton Kalan Sahnewal (Amendment no. 18 / 2018-19)	0.02	0.00	0.00	0.02
3	400kV, 200MW Permanent Power to Guru Gobind Singh Polymer Addition Project- HPCL Mittal Energy Limited. (Amendment no. 21 (ii,iii& iv) / 2018-19)	0.00	0.00	1.00	1.00
	Total	**0.02**	**0.00**	**33.27**	**33.29**

Table 40 : Capitalisation approved by the Commission for New Schemes for the 2nd Control Period (Rs Cr.)

Sl. No.	Particulars	FY 2020-21	FY 2021-22	FY 2022-23	Total
1	400 kV S/s Ropar New Grid (in the premises of GGSSTP)	0.00	0.00	0.00	0.00
2		0.00	0.00	0.00	0.00
3		0.00	0.00	0.00	0.00
4		0.00	0.00	0.00	0.00
5		0.00	0.00	0.00	0.00
6		0.00	0.00	0.00	0.00
7		0.00	0.00	0.00	0.00
8		0.00	0.00	8.66	8.66
9	400 kV Dhanansu(already planned) its additional 400 kV link required	0.00	0.00	0.00	0.00
10		0.00	0.00	0.00	0.00
11	220 kV Kharar	3.65	0.00	0.00	3.65
12	220 kV Banga	0.00	8.50	0.00	8.50
13		0.00	3.73	0.00	3.73
14	220kV G.T. Road Ludhiana (New GIS) or (in Ludhiana area)Includind SAS for RS 1cr.	0.00	0.00	36.59	36.59
15		0.00	0.00	12.40	12.40
16		0.00	0.00	12.28	12.28
17		0.00	0.00	1.81	1.81
18	220 kV Gobindgarh S/s (New Grid in the near by area of existing 220 kV S/s Gobindgarh-I). Includind SAS for RS 1cr.	0.00	0.00	36.59	36.59
19		0.00	0.00	6.18	6.18
20		0.00	0.00	6.18	6.18
21		0.00	0.00	3.05	3.05
22		0.00	0.00	2.69	2.69
23	220 kV Nawanpind (new grid in the premises of 66 kV S/s	0.00	0.00	0.00	0.00
24		0.00	0.00	1.77	1.77

Sl. No.	Particulars	FY 2020-21	FY 2021-22	FY 2022-23	Total
25	Nawanpind)Includind SAS for RS 1cr.	0.00	0.00	6.10	6.10
26		0.00	0.00	1.11	1.11
27	Additional link	0.00	0.00	7.73	7.73
28		0.00	0.17	0.00	0.17
29	Augmentation/additions of transformers at 220/132 kV level.	0.00	0.00	37.54	37.54
31	New 220 kVJhokeHarike including SAS of RS 1 cr.	0.00	0.00	0.00	0.00
32	220 kV Gurdaspur including SAS of RS 1 cr	0.00	0.00	4.41	4.41
33		0.00	0.00	0.00	0.00
34	220 kVDhaleke(GIS)) including SAS of RS 1 cr	0.00	0.00	0.00	0.00
35		0.00	0.00	0.00	0.00
36		0.00	0.00	2.47	2.47
37	132 kVSwadi Kalan	0.00	0.00	0.47	0.47
38		0.00	0.00	1.11	1.11
39	i) 220 kV Sighawal	0.00	0.00	109.50	109.50
40	ii) 220 kV Abohar				
41	iii) 220 kV Passiana				
42	iv) 220 kV Dhuri				
43	v) 220 kV Mohali - I				
44	vi) 220 kV Banur				
45	vii) 220 kV Khassa				
46	viii) 220 kV Algon				
47	ix) 220 kV Mahilpur				
48	x) 220 kV Kartarpur				
49	xi) 220 kV Badsahpur				
50	xii) 220 kV Butari				
51	xiii) 220 kV Udhoke				
52	xiv) 220 kV Pakhowal				
53	xv) 220 kV Jagraon				
54	xvi) 220 kV Himmatpura				
55	xvii) 220 kV Kohara				
56	xviii) 220 kV Doraha				
57	xix) 220 kV Baghapurana				
58	xx) 132kV SmadhBhai				
59	xxi) 132kV Faridkot				
60	xxii) 132kV Ferozshah				
61	xxiii) 132kV Manasingh Wala				
62	xxiv) 132kV Jallalabad				
63	xxvi) 132kV Kathunangal				
64	xxvii) 132kV Bhikhiwind				
65	xxviii) 132kV Shri Hargobindpur				
66	xxx) 132kV Phillour				
67	xxxi) 132kV Bilaspur				
68	xxxii) 132kV Tangra				
69	Augmentation of bus bars, extension in control room building, providing room for second source	0.00	0.00	23.15	23.15

Sl. No.	Particulars	FY 2020-21	FY 2021-22	FY 2022-23	Total
	for station battery etc.				
70	Additional 220/132/66 kV line bays related with feasibility cases or as per PSPCL. requirement.	0.00	0.00	28.85	28.85
71	Second source of battery at various 220/132 kV S/s of PSTCL	0.00	0.00	5.21	5.21
72	90 nos PSTCL grids (220 kV) to be provided with SAS. Report already sent for PSDF funding if approved, these stations will be upgraded.	0.00	0.00	0.00	0.00
73	Digitization of existing 220 kV S/s Passiana.	0.00	1.26	0.00	1.26
74	Replacement of existing conductor of 220 kV Gobindgarh - 400kV Rajpura (DC), 220 kV Kohara - 400 kV Dhanansu (DC), 220 kV Kohara - Sahnewal (B) (SC) with HTLS of suitable capacity.	0.00	0.00	0.00	0.00
75	Additional of 14 No T/f on account of making (N-1) complaint system for those grids where only one T/f existing (Annexure-C).	0.00	0.00	80.98	80.98
76	132 kV S/s Kotkapura-I	3.69	0.00	0.00	3.69
77	132 kV works Bilaspur.	2.74	0.00	0.00	2.74
78	132 kV Nawanshahar.	3.69	0.00	0.00	3.69
79	132 kV Kapurthala.	3.69	0.00	0.00	3.69
80	132 kV Susan.	2.74	0.00	0.00	2.74
81	132 kV Panjgraian.	2.74	0.00	0.00	2.74
83	IGC Bathinda (Aug)	5.48	0.00	0.00	5.48
84	132 kV Gholian Kalan.	3.69	0.00	0.00	3.69
85	LILO of 132 kV Verka – Mal mandi SC line at 220 kV S/s Nawanpind (132 kV bus) LILO length = 1 KM appx. DC on DC.	0.00	0.00	1.16	1.16
86	Augmentation of 132 kV Nawanpind - Verka, 5 KM (0.2sq") and 132 kV Nawanpind - Malmandi (5KM 0.2sq") with suitable HTLS conductor.	0.00	0.00	5.84	5.84
87	Augmentation of 132 kV GGSSTP - Asron) 6 KM 0.2sq") and 132 kV GGSSTP - Ropar (19.76 KM) 0.2sq".	0.00	0.00	18.80	18.80
88	CE/ P&M Agenda No. 145/2017-18 dtd 20.09.17. Best Practices recommended by Protection Sub Committee of NRPC in operation & construction of Sub Stations	0.00	0.00	0.00	0.00
89	132 kV GT Road Amritsar & 132 kV Sakatari Bagh Asr	0.00	0.00	18.68	18.68
90		0.00	1.15	0.00	1.15

Sl. No.	Particulars	FY 2020-21	FY 2021-22	FY 2022-23	Total
91	OPGW link between SKPP- RSD-220 kV Sarna & SKPP- 220 kV Sarna	0.00	8.02	0.00	8.02
92	Unforeseen emergency works	0.00	0.00	17.38	17.38
	Total	**32.11**	**22.83**	**498.71**	**553.66**

Table 41 : Capitalisation approved by the Commission for P&M works for the 2nd Control Period

Rs. Cr.

Sl. No.	Particulars	FY 2020-21	FY 2021-22	FY 2022-23	Total
1	To Modernise the hotline work by use of Diagnostic techniques to decrease the outage in transmission system of PSTCL.	14.74	0.00	0.00	14.74
2	To provide SAS based DRs and ELs at six 220kV S/stns as per requirements of IEGC and SGC and comply with 3rd party protection audit by CPRI.	0.00	4.06	0.00	4.06
3	To provide DRs and ELs in 220kV S/stns of PSTCL to comply with IEGC, SGC and 3rd party protection audit by CPRI.	0.00	0.00	19.41	19.41
4	To procure testing Equipment to check healthiness of OPGW channels and Ethernet Switch Network in Substation automation.	0.40	0.00	0.00	0.40
5	Tan-Delta Measurement Set (7 No.)	2.51	0.00	0.00	2.51
6	Tan Delta and Resistive kit for testing of Transformer oil.	0.45	0.00	0.00	0.45
7	PT/CVT testing kit for ODTL	0.39	0.00	0.00	0.39
8	Remote Control Operation of 400kV S/StnsMukhtsar, Nakodar and Makhu	0.00	1.76	0.00	1.76

9	Insulation Tester for new Substations (25 No.)	0.00	1.47	0.00	1.47
10	Online partially discharge monitaring kit equipment for 400 kV ICT at 400kV S/s.(14 No.)	0.00	0.00	16.20	16.20
11	CRM- Contact Resistance measurement meter for maintenance gang	1.00	0.00	0.00	1.00
12	Upgrading of 2 No. 3 Phase Relay testing kits of 400kV protection Hub and SAP Hub with CMGPS (testing kit synchronising equipment and software) for end to end testing as per recommandation of 3rd party protection audit alongwith advance teasplay software.	0.00	0.00	0.00	0.00
13	Loader cum Cr.ane for Amritsar Circle	0.56	0.00	0.00	0.56
14	Mobile oil filteration sets under P&M Circle (4 No., 6KL/H)	1.11	0.00	0.00	1.11
15	Construction of Security Huts at 220/132kV Sub stations.	3.09	0.00	0.00	3.09
16	Refixing of UC Fencing at top toe wall to safeguard yard area from fire.	0.00	0.00	8.06	8.06
17	Providing Plinths for 2 sets (20 No.) of ERS-Emergency Restoration System Towers at 400kV S/S Rajpura,Nakodar and 220kV Muktsar	0.56	0.00	0.00	0.56
18	Providing RCC Roads in 220kV S/S to facilitate movement of heavy vehicle loaded with equipment.	0.00	0.00	10.92	10.92
19	Providing PCC in the yard area in 220kV S/s	0.00	0.00	11.02	11.02
20	Providing AC and Furniture at kangra Rest House	0.17	0.00	0.00	0.17
Total		**24.97**	**7.29**	**65.60**	**97.86**

Table 42:Capitalisation approved by the Commission for SLDC Business for the 2nd Control Period

Rs. Cr.

Sl. No.	Particulars	FY 2020-21	FY 2021-22	FY 2022-23	Total
1	Scheme for providing 45 nos. Remote Terminal Units for SCADA/EMS system at 220 & 132 kV Substations of PSTCL in Punjab	7.87	0.00	0.00	7.87
2	Centralised AC system, Furniture & Fixtures (including office ACs)	0.00	0.00	1.91	1.91
3	IT equipmentsinlcuding Server, computer, Displays, software etc. for SLDC, Web site and its offices	0.00	0.00	0.51	0.51
4	Implementation of SAMAST scheme in Punjab (Procurement of meters, communication equipments and Harware and software for Scheduling, Accounting, Metering and settlement of transaction of Electricity)	0.00	0.00	32.25	32.25
5	Procurement/Replacment of 66 nos. RTUs for various substations of PSTCL	0.00	0.00	13.63	13.63
6	Extension of SLDC Building	0.00	1.93	0.00	1.93
7	OPGW laid by PGCIL under package V on turnkey basis	0.00	0.00	5.99	5.99
	Total	**7.87**	**1.93**	**54.29**	**64.09**