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To

Registrar,
Punjab State Electricity Regulatory Commission,
Site No. 3, Sector 18-A, Madhya Marg,
Chandigarh. Pincode-160018.
Tel No. 0172-2861800

Memo No. 968 /CAO/F&A/Comml./CIP-3rd
Dated 03/11/22

Subject: **Reply to queries raised by Hon'ble PSERC vide Order dated 27.10.2022 in Petition No. 50 of 2022.**

In compliance to PSERC order dated 27.10.2022, enclosed please find herewith 7 Nos. copies of reply on behalf of PSTCL in relation to subject cited petition for the kind consideration of Hon'ble Commission.

DA/As above

CAO/Finance & Audit,
PSTCL, Patiala.

The point-wise reply to the further clarifications sought by PSERC order dated 27.10.2022 regarding Petition No. 50 of 2022 has been prepared as below:

1. The CIP sought on 3rd MYT is much more and does not commensurate with PSTCL past experience. PSTCL to review and submit the list of schemes by prioritizing the works with regards to high priority and low priority.

   PSTCL Reply:- All works submitted in the Capital Investment Plan for MYT 2023–26 have been decided in consultation and on specific requirement of PSPCL discussed in the TPC meetings. Now as per information sought by commission, PSTCL has reviewed all schemes and it is intimated that the details of works of 2nd priority have been prepared and the list of the same is enclosed as Annexure – A. All other works mentioned in the CIP for 3rd Control Period are of the high priority (or 1st priority).

2. PSTCL was directed to provide details and cost of the power transformers which will be used to reduce the cost of acquisition of new transformer. In the reply PSTCL submitted that they have already excluded the cost of dismantled transformers. PSTCL to review and check all the up gradation schemes whether dismantled transformers have been adjusted therein(for example scheme No. 40 where 2X 100 MVA 220/66 kV transformers have been spared after augmentation, can be used in other scheme No. 41 & 43 where CIP has again been asked).

   PSTCL Reply:- PSTCL has reviewed all upgradation schemes where dismantled transformers have been adjusted. For example after up gradation of 100 MVA, 220/66 kV T/F to 160 MVA, 10 No. spared 100 MVA T/fs shall be used against requirement of 43 No. 100 MVA, 220/66 kV T/Fs and list of all such T/F upgradations is enclosed as **Annexure-1**.

3. PSTCL has requested the Commission to exempt the schemes exceeding Rs. 50 Crore from TBCB mode as notified by the Commission. PSTCL to submit the cost benefit analysis and Concurrence of State Government.

   PSTCL Reply:- Regarding works amounting to more than Rs. 50 Crore (New works and Spill-over works) it is submitted as under:-

a. **400 kV Dhanansu (Sr. No. 4 of Appendix-B submitted in 3rd CIP with Project cost of 73.3 Cr.):-** This work has already been exempted by PSERC from TBCB mode.

b. **400 kV Behman Jassa Singh (Sr. No. 7 of Appendix-B submitted in 3rd CIP with Project cost of 256.55 Cr.):-** The first stage of 400 kV switching station has already been constructed as deposit work of HMEL. The land for this work was provided by HMEL and PSTCL will not be able

to sell this land to TBCB operator. The switching station is now in the possession of PSTCL. The remaining (partial) work of the same project cannot be executed under TBCB mode. Moreover, this work is of top priority and related with enhancement of ATC/TTC limits of Punjab. Tender specification for this work has been prepared and tender is to be floated shortly. Hon'ble Commission is requested to give exemption for this work from TBCB mode.

c. **Sub-station automation System (Sr. No. 72 of Appendix-B submitted in 3rd CIP with Project cost of 108 Cr.)**:-The implementation of SAS on 90 Nos. substations of PSTCL requires replacement/retrofitting of existing C&R panels/isolators etc. at various 220 kV substations of PSTCL, which is a scattered work. No separate ownership can be given to TBCB operator for SAS equipment only. Moreover DPR for PSDF grant has also been submitted to the NLDC. Hence this work cannot be executed under TBCB mode. Hon'ble Commission is requested to give exemption for this work from TBCB mode.

d. **Remaining works**:- All other works amounting to more than Rs. 50 Crore (list enclosed herewith as **Annexure-2**), request shall be submitted to the Punjab Govt. for their concurrence for exemption from TBCB mode and the outcome shall be duly intimated to the commission.

4. Some works such as 220 kV Fazillka have not been started since 1st MYT. PSTCL needs to segregate the spillover works included in 3rd MYT Control Period which have not been started wither in 1st MYT or 2nd MYT and include those works in new works.

PSTCL Reply:- It is submitted that there are some schemes which have not been started in 1st MYT or 2nd MYT with no expenditure is booked till date and list for the same has been enclosed as **Annexure-3A**. Also, there are some schemes with no expenditure booked till date but there might be some expenditure related to Tender/survey charges of few lacs which shall be booked till March 2023 and list for the same has been enclosed as **Annexure-3B.** If Commission permits, these works may be included in New works list.

5. In spillover works, the requisite CIP depicted exceeds the project cost in some of the schemes. PSTCL has submitted that partial approval was sought from the Commission. PSTCL to provide the reasons for the same. Also, no reason of higher CIP than project cost has been provided.

PSTCL Reply:- It is submitted that list has been enclosed as **Annexure-4** where reasons for higher project cost than requisite CIP has been clarified.

6. PSTCL needs to provide the details of various grant portion and CIP for the schemes in which grant is provide.

PSTCL Reply:- It is submitted that list has been enclosed as **Annexure-5**.

7. PSTCL to submit load growth data of 132 kV Beas grid which has been proposed to be upgraded to 220 kV and load flow studies.

PSTCL Reply:- The load flow sheets corresponding to the proposed transmission system with and without 220 kV Beas are enclosed (**Annexure-6**).

It is humbly submitted that the upgradation of 132 kV Beas to 220 kV level has been proposed in view of resolution of the physical constraints being faced at 220 kV Butari and this **proposed upgradation is not attributable to the load growth.** It is reiterated that 220 kV double bus arrangement is imperatively required at 220 kV Butari due to the fact that railways are being fed from 220 kV Butari and shutdown blocks for maintenance are not easily provided by the Railway authorities as the supply for railways is affected during maintenance due to single 220 kV busbar at 220 kV Butari. Presently there is only 1 No. 220/132 kV Auto transformer at 220 kV Butari. Also, as part of the downstream network of the proposed 400 kV substation Wadala Granthian (included in the MYT 2023 – 26) to regularize the power flows at 220 kV level, D/C line from 220 kV Butari to 400 kV Wadala Granthian has also been proposed. Consequently there shall be no space available for installation of 2nd 220/132 kV Auto transformer to make it N-1 compliant at 220 kV Butari. Accordingly, the only viable solution for the above-mentioned issues associated with 220 kV Butari is dismantlement of the 220/132 kV Auto T/f along with the associated 132 kV connectivity. The most suitable option for catering to this dismantled 132 kV system from 220 kV Butari is upgradation of 132 kV Beas to 220 kV level and feeding the dismantled 132 kV network from there. Also, as per the field loading conditions, 132 kV Beas and 132 kV Dhilwan draw majority of power (more than 50%) from 220 kV BBMB Jalandhar and 220 kV Kartarpur, respectively, thus rendering Butari a poorer source of power. As per the proposed 220 kV connectivity for 220 kV Beas submitted in MYT 2023 – 26, the existing 220 kV BBMB Jalandhar – Butari S/C line is to be LILOed at 400 kV PGCIL Jalandhar and the section of 400 kV Jalandhar – Butari thus formed is subsequently to be LILOed at 220 kV Beas, thus utilizing the existing ROW. This will feed the 132 kV system dismantled from 220 kV Butari from 400 kV PGCIL Jalandhar, which is a major source of power.

LIST OF 2ND PRIORITY WORKS				Annexure-A
Sr. No.	**Sr. No. as per CIP submitted**	**Substation Name**	**Scope of work**	**Capex submitted for 3rd CP**
1	5	Upgradation of 66 kV Chaherhu to 220 kV level (2nd 100MVA, 220/66kV T/F for N-1)	Creation of 220kV Chaheru with 2x100MVA , 220/66kV T/F (4 line bays, 2 T/F bays & 1no. Bus coupler bay)	30.61
			LILO of 400 kV Nakodar – 220 kV Hoshiarpur and Nakodar - Rehana Jattan 220 kV Ckts at Proposed 220 kV S/S Chaheru (LILO Length - 6km + 6km, 0.4 Sq")	
2	6	Upgradation of 66 kV Gill Road Ludhiana to 220 kV level (Under Study)	Creation of 220kV Gill Road Ludhiana with 2X160MVA 220/66KV T/F (4 line bays (2 at Proposed Gill road and 2 at Ferozepur road), 2 T/F bays & 1no. bus coupler bay)	0.24
			D/C line (6km, 0.4Sq") from 220 kV Ferozepur Road Ludhiana on multi circuit towers/modern techniques.	
3	7	Upgradation of 66 kV Bija/Chawa to 220 kV level	Creation of 220kV Bija/Chawa with 2x100MVA, 220/66kV T/F (2 nos. line bays, 2 T/F bays & 1no. Bus Coupler bay)	28.68
			LILO of one circuit of upcoming Dhanasu - Doraha 220 KV line at Bija (12km, 0.4Sq")	
4	14	Upgradation of 132 kV Sri Hargobindpur to 220 kV level (1X100 MVA 220/132 kV + 1x100 220/66 kV - already planned 3rd 220/132 kV Auto transformer at Wadala Granthian be dropped) (132 kV line from WG and 132/66 KV TFs will be spared)	Creation of 220kV Sri Hargobindpura with 1x100MVA, 220/132kV & 1x100MVA, 220/66kV T/Fs (2 line bays, 2 T/F bays &1no. Bus Coupler Bay)	48.06
			220 KV D/C Line From Proposed 400 KV S/S Wadala Granthian (28km, 0.4Sq")	
5	19	400 kV Makhu	To give second ISTS connectivity	0
6	21	To provide second source to 220 kV S/S Badhni Kalan	Under Study	0
7	27	To curtail overloading during N-1 conditions of Shanan-Kangra-Pathankot corridor	Under Study	0
8	32	400KV Dhuri to 400KV Patran	To increase ISTS point of drawl for ATC/TTC and injection of nuclear Power from Fatehabad via TBCB Patran	0
9	35	Upgradation of 66 kV Ajnala to 220 kV level	Creation of 220 kV Ajnala with 1X160MVA + 1X100 MVA, 220/66 kV T/Fs (2 line bays, 2 T/F bays & 1no. Bus Coupler Bay)	34.74
			LILO of S/C line 220 kV Fatehgarh Churian - 220 kV Civil Lines Amritsar (LILO length 18 km, 0.4Sq")	
10	36	Upgradation of 66 kV Bhagta Bhai ka to 220 kV level	Creation of 220kV Bhagta Bhai Ka with 1X160MVA + 1X100MVA, 220/66kV T/Fs (4 line bays, 2 T/F bays & 1no. Bus Coupler Bay)	42.1
			LILO of both circuits of 220 kV Himmatpura - GHTP Line (Line length 24 km, 0.4Sq")	
11	37	Upgradation of 66 kV Aerocity to 220 kV level (GIS substation)	Under Study	0
12	38	Upgradation of 66 kV Kurali to 220 kV level	Under Study	0
13	39	Upgradation of 66 kV Bhabat to 220 kV level	Under Study	0

14	43	220 kV S/S Jhoke harihar (Amend No. 11/2021-22)	1 No. Additional 220/66 kV 100 MVA T/F	10.85
15	2,3,10 & 12	220 kV S/S Bhalaiana, Guru Har Sahai, Toot , and Jandiala Guru	2nd 100 MVA, 220/66 kV T/F at 220 kV S/S Bhalaiana, Guru Har Sahai, Toot and 2nd 100 MVA, 220/132 kV auto T/f at Jandiala Guru.	

SUMMARY OF TRANSFORMERS

ANNEXURE-1

VOLTAGE LEVEL	Substation	Scope		500 MVA 400/220	315 MVA 400/220	160 MVA 220/66	100 MVA 220/66	100 MVA 220/132	50 MVA 132/66	20/25 MVA 132/66	31.5 MVA 66/11	20 MVA 132/11	20 MVA 66/11	10/12.5 MVA 132/11	10/12.5 MVA 66/11
220 KV	BUDHLADA	U/G FROM 66 KV				1									
400 KV	DHANANSU (DORAHA)	NEW SUBSTATION			2										
220 KV	FAZILKA	U/G FROM 66 KV	LAND ISSUE												
220 KV	BEAS	U/G FROM 132 KV						2							
220 KV	DHANDARI KALAN-2	AUGMENTATION				2	-2								
400 KV	ROPAR	NEW SUBSTATION		2											
220 KV	BANGA	ADDITIONAL T/F						1							
220 KV	G T ROAD LUDHIANA	NEW SUBSTATION				2									
220 KV	WAZIRABAD (GBGR NEW)	NEW SUBSTATION				2									
220 KV	NAWANPIND	NEW SUBSTATION					2								
220 KV	GIASPURA	NEW SUBSTATION	UNDER STUDY												
220 KV	JHOKE HARIHAR	U/G FROM 66 KV					1								
220 KV	GURDASPUR	U/G FROM 132 KV					2								
220 KV	DHALLEKE	U/G FROM 132 KV	DELETED												
220 KV	SINGHAWALA	ADDITIONAL T/F					1								
220 KV	KHASSA	AUGMENTATION											1		-1
220 KV	ALGON	AUGMENTATION											1		-1
220 KV	HIMMATPURA	AUGMENTATION											1		-1
132 KV	FEROZESHAH	AUGMENTATION										1		-1	
132 KV	MANA SINGH WALA	AUGMENTATION										1		-1	
132 KV	JALLALABAD	AUGMENTATION											1		-1
132 KV	KATHUNANGAL	AUGMENTATION										1		-1	
132 KV	BILASPUR	AUGMENTATION										1		-1	
132 KV	NAWANSHAHAR	ADDITIONAL T/F										1			
400 KV	NAKODAR	AUGMENTATION		2	-2										
220 KV	OLD PATIALA	U/G FROM 66 KV					2								
400 KV	DHANANSU (DORAHA)	ADDITIONAL T/F		1											
220 KV	JHORDAN	NEW SUBSTATION					2								
400 KV	BEHMAN JASSA SINGH	NEW SUBSTATION		2											
220 KV	KHARAR	AUGMENTATION				1	-1								
220 KV	WADALA GRANTHIAN	ADDITIONAL T/F	TO BE DELETED					1							

VOLTAGE LEVEL	Substation	Scope		500 MVA 400/220	315 MVA 400/220	160 MVA 220/66	100 MVA 220/66	100 MVA 220/132	50 MVA 132/66	20/25 MVA 132/66	31.5 MVA 66/11	20 MVA 132/11	20 MVA 66/11	10/12.5 MVA 132/11	10/12.5 MVA 66/11
220 KV	MUBARIKPUR	U/G FROM 66 KV				2									
220 KV	BANUR	AUGMENTATION				1	-1								
220 KV	GOBINDGARH-1	AUGMENTATION				2	-2								
220 KV	CHITTI	U/G FROM 66 KV				1									
132 KV	NAKODAR	ADDITIONAL T/F										1			
220 KV	BANGA	ADDITIONAL T/F										1			
220 KV	GORAYA	ADDITIONAL T/F										1			
220 KV	SINGHAWALA	ADDITIONAL T/F											1		
132 KV	MOGA-2 (DHALLEKE)	ADDITIONAL T/F										1			
132 KV	MOGA-1	ADDITIONAL T/F										1			
220 KV	GAUNSGARH	ADDITIONAL T/F											1		
220 KV	BASSI PATHANA	ADDITIONAL T/F											1		
220 KV	HUMBRAN	ADDITIONAL T/F											1		
220 KV	AJITWAL	ADDITIONAL T/F	SPARE TO BE USED												1
220 KV	GHUBAYA	AUGMENTATION									1		-1		
220 KV	AMLOH	ADDITIONAL T/F											1		
220 KV	SAIDPURA (DERA BASSI)	AUGMENTATION									1		-1		
220 KV	KHARAR	ADDITIONAL T/F											1		
220 KV	CHOGAWAN	ADDITIONAL T/F											1		
220 KV	KOHARA	AUGMENTATION	WITH COMMENTS								1		-1		
220 KV	CIVIL LINES AMRITSAR	ADDITIONAL T/F	SPARE TO BE USED												1
220 KV	GNDTP	ADDITIONAL T/F				1			-2						
220 KV	BHALAIANA	U/G FROM 66 KV	USE SPARE FOR 2ND T/F				2								
220 KV	GURU HAR SAHAI	U/G FROM 66 KV	USE SPARE FOR 2ND T/F				2								
220 KV	SAMADH BHAI	U/G FROM 132 KV						1							
220 KV	CHAHERHU	U/G FROM 66 KV	USE SPARE FOR 2ND T/F				2								
220 KV	GILL ROAD LUDHIANA	U/G FROM 66 KV	UNDER STUDY			2									
220 KV	BIJA (CHAWA)	U/G FROM 66 KV	USE SPARE FOR 2ND T/F				2								
220 KV	BHADSON	U/G FROM 66 KV	USE SPARE FOR 2ND T/F				2								
220 KV	CHOURWALA	U/G FROM 66 KV				2									
220 KV	TOOT	U/G FROM 66 KV	USE SPARE FOR 2ND T/F				2								

VOLTAGE LEVEL	Substation	Scope		500 MVA 400/220	315 MVA 400/220	160 MVA 220/66	100 MVA 220/66	100 MVA 220/132	50 MVA 132/66	20/25 MVA 132/66	31.5 MVA 66/11	20 MVA 132/11	20 MVA 66/11	10/12.5 MVA 132/11	10/12.5 MVA 66/11
220 KV	JANDIALA GURU	U/G FROM 132 KV	2ND T/F FROM BUTARI					2							
220 KV	TANDA	U/G FROM 132 KV					1	1							
220 KV	SRI HARGOBINDPUR	U/G FROM 132 KV	3RD AUTO T/F AT WGT BE DROPPED				1	1							
220 KV	GORAYA	ADDITIONAL T/F	N-1 COMPLIANCE				1								
400 KV	WADALA GRANTHIAN	NEW SUBSTATION	TWO STAGES	3											
400 KV	RAJPURA	ADDITIONAL T/F		1											
220 KV	BANGA (NAWANSHEHAR)	ADDITIONAL T/F					2								
220 KV	AJNALA	U/G FROM 66 KV	USE SPARE FOR 2ND T/F			1	1								
220 KV	BHAGTA BHAI KA	U/G FROM 66 KV	USE SPARE FOR 2ND T/F			1	1								
220 KV	AEROCITY	U/G FROM 66 KV	UNDER STUDY												
220 KV	KURALI	U/G FROM 66 KV	UNDER STUDY												
220 KV	BHABAT	U/G FROM 66 KV	UNDER STUDY												
220 KV	GOBINDGARH-3	AUGMENTATION				2	-2								
220 KV	MAUR	ADDITIONAL T/F					1								
220 KV	KARTARPUR	AUGMENTATION				1	-1								
220 KV	JHOKE HARIHAR	ADDITIONAL T/F					1								
220 KV	MAUR	ADDITIONAL T/F											1		
220 KV	TALWANDI SABO	AUGMENTATION											1		-1
220 KV	BOTTIANWALA	AUGMENTATION											1		-1
220 KV	BAGHAPURANA	AUGMENTATION											1		-1
132 KV	BHOGPUR	AUGMENTATION										1		-1	
132 KV	SOSAN	ADDITIONAL T/F												1	
220 KV	DEVIGARH	ADDITIONAL T/F													1
132 KV	CHAMKAUR SAHIB	ADDITIONAL T/F													1
132 KV	KOTAKPURA-1	AUGMENTATION											1	-1	
220 KV	KOTKAROR	ADDITIONAL T/F													1
220 KV	BADHNI KALAN	ADDITIONAL T/F											1		
220 KV	HANDIAYA (BARNALA)	ADDITIONAL T/F													1
220 KV	DHANAULA	ADDITIONAL T/F													1
220 KV	PAKHOWAL	AUGMENTATION											1		-1
220 KV	HOSHIARPUR	REPLACEMENT							-1			-1	2	-1	

	VOLTAGE LEVEL	Substation	Scope		500 MVA 400/220	315 MVA 400/220	160 MVA 220/66	100 MVA 220/66	100 MVA 220/132	50 MVA 132/66	20/25 MVA 132/66	31.5 MVA 66/11	20 MVA 132/11	20 MVA 66/11	10/12.5 MVA 132/11	10/12.5 MVA 66/11
	Sr. No. 29 T/fs															
	132	PHAGWARA	REPLACEMENT FROM HOSHAIRPUR							1	-1					
	220	SAHNEWAL	AUGMENTATION				1	-1								
	220	SCIENCE CITY	ADDITIONAL T/F												1	
	132	BALLUANA	ADDITIONAL T/F												1	
	132	CHOHAL	ADDITIONAL T/F												1	
	132	NAKKIAN	ADDITIONAL T/F												1	
	132	PATHANKOT	ADDITIONAL T/F										1			
	220	BANGA	AUGMENTATION							1						
	132	CHAMKAUR SAHIB	ADDITIONAL T/F								2					
	Sr. No. 75 T/fs															
	220	BADHNI KALAN	ADDITIONAL T/F					1								
	220	BHARI	ADDITIONAL T/F					1								
	220	GORAYA	ADDITIONAL T/F					1								
	220	LADOWAL	ADDITIONAL T/F					1								
	220	NARAINGARH	ADDITIONAL T/F					1								
	220	TALWANDI SABO	ADDITIONAL T/F					1								
	220	IKOLAHA	ADDITIONAL T/F					1								
	220	MAJITHA	ADDITIONAL T/F					1								
	220	MAJRA	ADDITIONAL T/F					1								
	220	JADLA	ADDITIONAL T/F					1								
	220	PATTI	ADDITIONAL T/F						1							
	220	SANDHAUR	ADDITIONAL T/F					1								
	220	SANDHWAN	ADDITIONAL T/F					1								
	220	SCIENCE CITY	ADDITIONAL T/F						1							
TOTAL					**11**	**0**	**25**	**33**	**11**	**-1**	**1**	**3**	**11**	**17**	**-2**	**-1**

ANNEXURE-2

NEW WORKS COSTING MORE THAN 50 CRORES

S.No.	Sr. No.(as per CIP submitted)	Substation Name	Scope of work	Project cost including EC & IDC	Capex requirement for 3rd CP
1	3	Upgradation of 66 kV Guru Har Sahai to 220 kV sub-station	Creation of 220kV Guru Har-sahai with 2x100MVA , 220/66kV T/F (4 line bays at Guru Har Sahai, 2bays each at Ghubaya & Jhoke Hari Har, 2 T/F bays & 1no. bus coupler bay) D/C line from 220 kV Ghubaya and D/C line from 220 kV Jhoke Hari Har (Line length (35km & 30km, 0.4Sq").	132.40	79.44
2	5	Upgradation of 66 kV Chaherhu to 220 kV level (2nd 100MVA, 220/66kV T/F for N-1)	Creation of 220kV Chaheru with 2x100MVA , 220/66kV T/F (4 line bays, 2 T/F bays & 1no. Bus coupler bay) LILO of 400 kV Nakodar – 220 kV Hoshiarpur and Nakodar - Rehana Jattan 220 kV Ckts at Proposed 220 kV S/S Chaheru (LILO Length - 6km + 6km, 0.4 Sq")	51.02	30.61
3	8	Upgradation of 66 kV Bhadson to 220 kV level.	Creation of 220kV Bhadson with 2x100MVA, 220/66kV T/F (6 line bays (2 at Amloh and 4 at Bhadson), 2 T/F bays & 1no. Bus Coupler Bay) D/C line from 400 kV PGCIL Patiala (16km, 0.4Sq") and D/C line from 220 kV Amloh (12km, 0.4Sq").	76.74	76.74
4	9	Upgradation of 66 kV Chourwala to 220 kV level	Creation of 220kV Chourwala with 2x160MVA, 220/66kV T/F (4 line bays, 2 T/F bays & 1no. Bus Coupler Bay) LILO of both circuits of 400 kV Rajpura – 220 kV Gobindgarh-1 line (HTLS) (8 km, 0.4Sq" HTLS equivalent)	68.04	68.04
5	14	Upgradation of 132 kV Sri Hargobindpur to 220 kV level (1X100 MVA 220/132 kV + 1x100 220/66 kV - already planned 3rd 220/132 kV Auto transformer at Wadala Granthian be dropped) (132 kV line from WG and 132/66 KV TFs will be spared)	Creation of 220kV Sri Hargobindpura with 1x100MVA, 220/132kV & 1x100MVA, 220/66kV T/Fs (2 line bays, 2 T/F bays &1no. Bus Coupler Bay) 220 KV D/C Line From Proposed 400 KV S/S Wadala Granthian (28km, 0.4Sq")	80.10	48.06
6	15	Re-arrangement to provide 2nd connectivity to 220 kV S/s Naraingarh	Double circuit from 220kV Khassa-Chogawan, 12 Km, 0.4 Sq" Disconnecting 220kV Khassa -Civil Line ASR circuit and Chogawan- Khassa circuits from Khassa and diverting them to Naraingarh 1 no. circuit between 220kV Chogawan - Nariangarh and 1no. circuit between 220kV Civil Line ASR - Nariangarh, D/c line with 12.5 Km 0.4Sq"	54.07	54.07
7	17	220KV S/S Goraya (Addl. 220/66KV 100MVA T/F for N-1 compliance)	Connectivity of 220KV Noormehel with 220KV Goraya with D/C line (length - 25km, 0.4Sq") (LILO of both circuits of BBMB Jalandhar-Jamalpur line at Goraya subject to approval of Power Sub-committee of BBMB)	52.33	52.33
8	18	400KV Wadala Granthian	**Stage 1:** Creation of 400kV Wadala Granthian with 2x500MVA, 400/220kV ICTs (2no. 400 kV line bays, 2no. 400 kV ICT bays, 2 no. 400 kV Tie Bays, 4 no. 220 kV Line bays, 4 no. 220 kV bus interconnection bay, 2 no. 220 kV ICT bays, 1 no. 220 kV TBC bay, 1 no. 220 kV BC bay) LILO of 1 circuit of 400 kV Moga - Kishanpur line (20km, Quad Moose) **Stage 2:** Addl. 1X500 MVA, 400/220 kV ICT (2 line bays, 1 ICT bays & 2 no. Tie Bays) LILO of 2nd circuit of 400 kV Moga - Kishanpur line (20km, Quad moose)	360.83	180.42
9	29	220 kV Hoshiarpur	2nd source connectivity to Hoshiarpur via D/C on D/C line 220 kV Dasuya-Hoshiarpur (40 km, 0.4 sq") & using existing MCkt Towers	62.86	62.86

S.No.	Sr. No.(as per CIP submitted)	Substation Name	Scope of work	Project cost including EC & IDC	Capex requirement for 3rd CP
10	34	220 kV D/C link between 220 kV S/S Butari and 400 kV S/S Wadala Granthian	220 kV D/C Link between 220 kV S/S Butari and 400 kV S/S Wadala Granthian, (35 km, 0.4 Sq" conductor)	52.81	39.61
11	35	Upgradation of 66 kV Ajnala to 220 kV level	Creation of 220 kV Ajnala with 1X160MVA + 1X100 MVA, 220/66 kV T/Fs (2 line bays, 2 T/F bays & 1no. Bus Coupler Bay) LILO of S/C line 220 kV Fatehgarh Churian - 220 kV Civil Lines Amritsar (LILO length 18 km, 0.4Sq")	57.89	34.74
12	36	Upgradation of 66 kV Bhagta Bhai ka to 220 kV level	Creation of 220kV Bhagta Bhai Ka with 1X160MVA + 1X100MVA, 220/66kV T/Fs (4 line bays, 2 T/F bays & 1no. Bus Coupler Bay) LILO of both circuits of 220 kV Himmatpura - GHTP Line (Line length 24 km, 0.4Sq")	70.17	42.1

				ANNEXURE-2
	SPILLOVER WORKS COSTING MORE THAN 50 CRORES			
Sr.No. (as per CIP submitted)	Sr No. as per CIP Order	Particulars	Project cost	Capex submitted for 3rd CP
22	4	220 kV S/S Beas (new) 132KV S/S system at Butari will be dismantled. Bypassing 132 Kv Beas line to Tangra & Dhilwan-Beas/Butari to Ekalgadda after LILO of Dhilwan-Butari at Beas (new)	121.375	130.3
3	Amendment No.18/2021-22	Upgradation of 66 kV substation Old Patiala to 220 kV substation.	61.91	55.94

LIST OF WORKS WITH NO EXPENDITURE TO BE BOOKED BY MARCH 2023

ANNEXURE- 3A

Sr.No.	Sr No. as per CIP Order	Particulars	Network Addition	Scope of Work	Actual/ Anticipated Year of completion	Remarks	Status of work	CIP approved for 2nd Control Period (in Cr)	Project cost	CAPEX Requirement in 3rd CP
Spill Over Works of 1st Control Period (From FY 2017-18 to FY 2019-20)										
1	**177**	220 kV S/Stn Fazilka (U/G from 66 kV)	220 kV S/Stn Fazilka (U/G from 66 kV)		2025-26	PSPCL demanded again this sub-station in TPC meeting held on 19.07.22 but till date land has not been finalized. Initially for railway connection 220 kV Arniwala switching sub-station has been proposed as deposit work of Railways. If land is not finalised by PSPCL even in future then expansion of new switching sub-station of Arniwala will be explored.	Work may be dropped.	25.33	17.8	27.37
2	**178**		400 kV S/Stn Mukatsar - 220 kV S/Stn Fazilka 220 kV DC line		2025-26			26.09	22.47	26.01
3	**179**		220 kV Bays		2024-25			5.45	5.28	5.95
Spill Over Works of 2nd Control Period (From FY 2020-21 to FY 2022-23)										
4	**4**	220 kV S/S Beas (new)	2x100 MVA 220/132 kV Auto T/F		2025-26	Project cost is more than 50 cr but land is to be given free of cost by Radha Swami Dera Beas as such TBCB guidelines (as per Tariff Policy 2016 read with PSERC notification no. 132 dated 05.11.2018(Annexure-A) and MOP GOI letter no. 15/2/2017-Trans-Pt(1) dated 15.03.2021)(Annexure-B) are not applicable.	Not started yet	1	121.38	52.36
			6x132kV line bays (Existing 3 and additional 3)							0.00
		132KV S/S system at Butari will be dismantled.	LILO of Butari – BBMB Jalandhar at PGCIL Jalandhar 2.5Km 0.4Sq" and subsequently LILO of PGCIL Jalandhar- Butari at Beas 22.5Km 0.4Sq"							77.94
		Bypassing 132 Kv Beas line to Tangra & Dhilwan-Beas/Butari to Ekalgadda after LILO of Dhilwan-Butari at Beas (new)	Shifting of 132kV system from 220kV Butari (1 Km length) by LILO of 132 KV Dhilwan - Butari at Beas 1.5 KMs with some portion on Modern Techniques Total Length 2.5 Km							0.00
			2x132kV towers dismantlement & 3nos. Towers to be erected							0.00
			Conversion of 132kV Tarn taran - Butari-Ekalgadda T-off to LILO 15Km 0.2 Sq"							0.00
			132KV D/C Beas - Ekalgadda Line 30 Kms 0.2 Sq"							0.00

Sr.No.	Sr No. as per CIP Order	Particulars	Network Addition	Scope of Work	Actual/ Anticipated Year of completion	Remarks	Status of work	CIP approved for 2nd Control Period (in Cr)	Project cost	CAPEX Requirement in 3rd CP
Table 17 : New Works planned for the 2nd Control Period from FY 2020-21 to 2022-23										
5	**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	Under Study	Under study due to complication of ROW. Route is being studied by using modern technology like monopoles/multi-cirucit towers.Once the route is finalised, PSERC will be approached through petition during the course of next MYT.	Under study	36.58	31.54	0.00
6	**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				12.41	12.41	0.24
7	**16**			220 kV bays = 4 Nos.				12.28	10.56	0.00
8	**17**			66 kV bays = 4 Nos.				1.81	1.56	0.00
9	**30**	New 220 kV Giaspura including SAS of RS 1 cr.		Under study	2025-26	Proposal of up-gradation has been received from CE/Central and CE/P&M PSPCL to de-load 220 KV S/S Sahnewal to facilitate release of new connections in Kanganwal area and shift 66 KV Singla Cycles. Under study due to complication of ROW. Route is being studied by using modern technology like monopoles/multi-cirucit towers.Once the route is finalised, PSERC will be approached through petition during the course of next MYT.	Under study	0	0	0.24
10	**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.		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.	25-26	DPR for PSDF funding returned by NLDC POSOCO. New DPR is being submitted for PSDF funding.	Not started yet.	102.59	108	107.10

Sr.No.	Sr No. as per CIP Order	Particulars	Network Addition	Scope of Work	Actual/ Anticipated Year of completion	Remarks	Status of work	CIP approved for 2nd Control Period (in Cr)	Project cost	CAPEX Requirement in 3rd CP
11	91	OPGW link between SKPP-RSD- 220 kV Sarna & SKPP-220 kV Sarna			2025-26	This work will be executed after execution of S /S at SKPP by PSPCL.	Not started yet	8.02	8	8.00

LIST OF WORKS WITH FEW LACS OF EXPENDITURE TO BE BOOKED BY MARCH 2023

ANNEXURE- 3 B

Sr.No.	Sr No. as per CIP Order	Particulars	Network Addition	Scope of Work	Remarks	Status of work	CIP approved for 2nd Control Period (in Cr)	Project cost	CAPEX Requirement in 3rd CP
1	**23**	220 kV Nawanpind (new grid in the premises of 66 kV S/s Nawanpind)Includind SAS for RS 1cr. Amedment No. 17/21-22		2x100 MVA, 220/66 kV T/F including 4 No. 220 kV line bays, 2 T/F bays and 1 Bus coupler bay and associated 66 kV bays) inluding SAS .	Scope revised on basis of request from PSPCL and Amendment No. 17/21-22 dated 24.08.21 issued and ratified by BOD. Right to use from PSPCL is pending	Not started yet	36.969	36.969	38.08
2	**24**		LILO of 220 kV Verpal – Wadalagranthian and Verpal-Udhoke lines at proposed DC line at proposed 20 kV S/s Nawanpind. 2xDC, conductor size 0.4sq", LILO length 1 KM.				2.774	2.774	4.07
3	**27**	Additional link	Stringing of IInd ckt. Of 220kV Mukatsar-Ghubaya line,conductor size 0.4sq", Line length 40.3 KM		Work not started due to non availability of space at 220 KV Ghubaya.	Not started yet	7.73	7.72	7.72

Spill over of Works approved outside 2nd MYT 2020-23 by									
Sr.No.	Sr No. as per CIP Order	Particulars	Network Addition	Scope of Work	Remarks	Status of work	CIP approved for 2nd Control Period (in Cr)	Total Cost of Project	Total CAPEX
4	**Amendments No.18/2021-22**	Upgradation of 66 kV substation Old Patiala to 220 kV substation.	2X100 MVA, 220/66 kV T/F With 2 No. 220 kV line bays,2 No. T/f bays and 1No. Bus coupler bay		ROW work is undertaken. Sub-station will be constructed after ROW and right to use by PSPCL	Not started yet		61.91	38.08
			LILO of one Ckt. of 220 kV Bahadurgarh-Devigarh line (DC on DC 19 km Zebra conductor 420 mm²)						17.86
5	**Amendment No. 15/2021-22**	Evacuation sysytem of Shahpur Kandi Hydel Project	220 kV RSD to 220 kV Shahpur Kandi PH-I (SC on DC, 0.5 sq.in, line length 16 km, LILO length 0.5 km approx)		Hydel work is delayed.			0.68	14.00
			220 kV Shahpur Kandi PH-II to 220 kV Sarna (SC on DC, HTLS of 1200 A capacity, line length 18 km approx)					27.87	14.00
6	**Amendments No.23/2021-22**	220kV S/S Jhordan (New) including Substation Automation System SAS of 1 cr.	2x100MVA, 220/66kV T/F with 2 no. 220kV line bays and 1 no. Bus coupler bay including SAS and Civil works.		Land acquired from panchayat. Route survey is being carried out and drawing work under progress.	Not started yet		48.81	42.84

			LILO of one ckt. Of 220kV Pakhowal Mehal Kalan trnsmission line (9kM Zebra conductor 420 mm2) at 220kV Jhordan (New).		Tender for route survey is under process.				16.05
			4 nos 66kV line bays.		Land acquisition work completed. Drawing work under progress.				0.00
7	**Amendments No.24/2021-22.**	400 kV S/S Behman Jassa Singh.	2x500 MVA, additional 400/220 kV ICT at 400 kV Behman Jassa Singh along with 2 no. 400 kV ICT Bays, 2 nos. 400 KV line Bays, 2 nos. 400 kv Tie Bays, 400 kv Future Bay, 2 no.220 kv ICT Bays, 220 KV Bus coupler bay, 220 KV Transfer bus coupler bay, 8 nos 220 kv line bays.		First stage of 400 kV switching yard has been constructed as deposit work by HMEL and 200 MVA connection to HMEL has been released on 400 kV voltage through DC line from Behman Jassa to HPCL refinery. Now 2nd stage of work that is 400 kV S/S yard is to be constructed for which tendet specifications are being finalised.	Not started yet		256.55	135.66
			LILO of 400 kv Talwandi Sabo-Nakodar line at 400 Kv Behman Jassa Singh(line length-16 km , Twin Moose conductor (Work and review)						150.00

			220 KV D/C line (with OPGW) from 400 KV Behman Jassa Singh to 220kV Talwandi Sabo (Line length - 8km, 0.4 sq")						0.00
			LILO of 220 KV Mansa-Talwandi Sabo at 220 KV Maur (Line length -9km, 0.4 sq")						0.00
			LILO of both circuits of HPCL Mittal -220 KV Mansa at 220 KV bus of 400 KV Behman Jassa Singh(3x2 KM DC on DC , 0.4sq")						0.00
			220 KV D/C line on D/C towers from 400 kv Behman Jassa Singh to GNDTP Bathinda with multi circuit towers in GNDTP premises (Line length -35km , 0.4 sq")						0.00
			6 nos 220 kv bays 2 each at 220 kv Talwandi sabo, Maur & GNDTP.						5.95

8	**Amend 07/22-23**	220K S/S Chitti (U/G from 66 KV)	Creation of 220 KV Chitti with 1 x 160 MVA T/F (fed from LILO of 220 KV SC line, (2 line bays, 1 T/F bay and 1 B/C bay).		Right to use not finalised.	**Not started yet**		27.175	39.27
			LILO of one ckt. of 400 kV Nakodar – Kartarpur D/C line at 220 kV Chitti (LILO length – 2.5 km, 0.4sq")		Survey tender work in process.				3.47

REASONS FOR HIGHER CIP THAN PROJECT COST

ANNEXURE-4

Sr.No.	Sr No. as per CIP Order	Particulars	Network Addition	Scope of Work	Project Start Date	Actual/ Anticipated Year of completion	Remarks	Reasons for higher CIP than project cost	CIP approved for 2nd Control Period (in Cr)	Project cost	CAPEX Requirement in 3rd CP
Spill Over Works of 1st Control Period (From FY 2017-18 to FY 2019-20)											
1	120	220 kV S/Stn Sherpur (Focal Point) (U/G from 66 kV grid with 220 kV side GIS and 66 kV side Conventional)			27/11/2020	2023-24	Start of work got delayed due to shifting of 11 kV feeders and dismantlement of old building/ water tank by PSPCL. The site was cleared by PSPCL in March, 2021 and was handed over to the contractor for execution of work. Now the work of control room and yard.is in progress.	While submitting 2nd CIP, partial cost of the project was inadvertently got approved from the Commission. Now Capex requirement as per the full cost of the project has been indicated in the CIP for 3rd Control period.	4.79	10.2	48.08
2	121	LILO of one ckt of 220 kV S/Stn Jamalpur - 220 kV S/Stn Dhandari Kalan-1 line at 220 kV S/Stn Sherpur (Focal Point)(Amendment 25 2018-19)			1.2021	23-24	Price bid opened on dated 18.07.2022. Work allotment to be done.		1.11	1.94	3.01
3	128	400 kV S/Stn Doraha (New at Village Dhanansu)		2x315 MVA, 400/220 kV T/Fs	05-11-2020	2023-24	The land was allocated by PSIEC and handed over to PSTCL during 12/2019. The work was awarded on Turnkey basis in 12/20. Work was to be completed by 05/22. This work involved major earth filling which got delayed due to mining issues.		37.26	38.62	61.88
Spill Over Works of 2nd Control Period (From FY 2020-21 to FY 2022-23)											
4	1a	132 kV Faridkot – Kotkapur-2 SC link (Amendment no. 16 / 2018-19)	30 Kms		31/10/2019	3-2024	Work has been delayed due to court case.A legal opinion is being sought for further course of action as . Price bid has already been opened.	While submitting 2nd CIP, partial cost of the project was inadvertently got approved from the Commission. Now Capex requirement as per the full cost of the project has been indicated in the CIP for 3rd Control period. .	11.79	13.03	18.07
5	1b			2 no. 132 kV line bays (one at each end)	Apr 23	Dec 23	Work in progress. to be completed by 12/23.		1.11	1	2.02
6	2a	132 kV Sihora-132 kV Seh SC line	31 Kms		01-2021	06-2023	ROW issues.		12.18	12.16	15.54

7	10	220 kV Dhandari Kalan - 2		2x160 MVA, 220/66 kV T/F at new location to be added (with complete newICT bays	2022-23	March 24	This sub-station caters industrial load and this work requires multiple shutdowns due to which work got delayed.	As per PSTCL cost data 2022-23, Transformer and Bay cost has been increased which causes higher CIP.	20.54	20.2	27.05
8	11			dismantlement of 2x100 MVA T/F for creating space for double bus bar	2022-23	March 24			0.8	1	2.38
9	12			interconnecting 66 kV double bus bar of dhandarikalan 1-dhandarikalan 2	02-2020	March 24			1.6	2	6.69
Table 17 : New Works planned for the 2nd Control Period from FY 2020-21 to 2022-23											
10	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.	06-09-2021	2023-24	Work awarded on turnkey basis in 10/21. Scheduled Completion by 03/23. Work is likely to be completed in 2023-24.	Total Capex of 65.76 Cr includes work at Sr. No. 1 & 3 and projection is shown against Sr. No. 3 and further cost escalation is due to increase in T/F and bays cost as per cost data 2022-23.	29.23	29.23	0.01
11	3			400 kV bays = 4 Nos					17.59	15	65.75
12	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. (Pharmaceuticals Wazirabad new)		220 kV S/s Gobindgarh (New) with 2x160MVA, 220/66 kV T/F.	2024-25	2025-26	Land yet to be allotted by PSIEC.	Total Capex of 51.17 Cr includes work at Sr. No. 18,21 & 22 and projection is shown against Sr. No. 18 and further cost escalation is due to increase in T/F and bays cost as per cost data 2022-23.	36.58	31.54	51.17
13	21			220 kV bays = 4 No.	2024-25	2025-26			3.05	2.64	0.00
14	22			66 kV bays = 6 No.	2024-25	2025-26			2.69	2.34	0.00
15	36		132 kVMoga I - Dhaleke DC link arrangement by making use of existing network,conductor size 0.2sq", LILO length 7 km(approx)		2019-20	2025-26		Cost escalation is due to increase in line cost as per Cost data 2022-23.	2.47	1.11	2.45

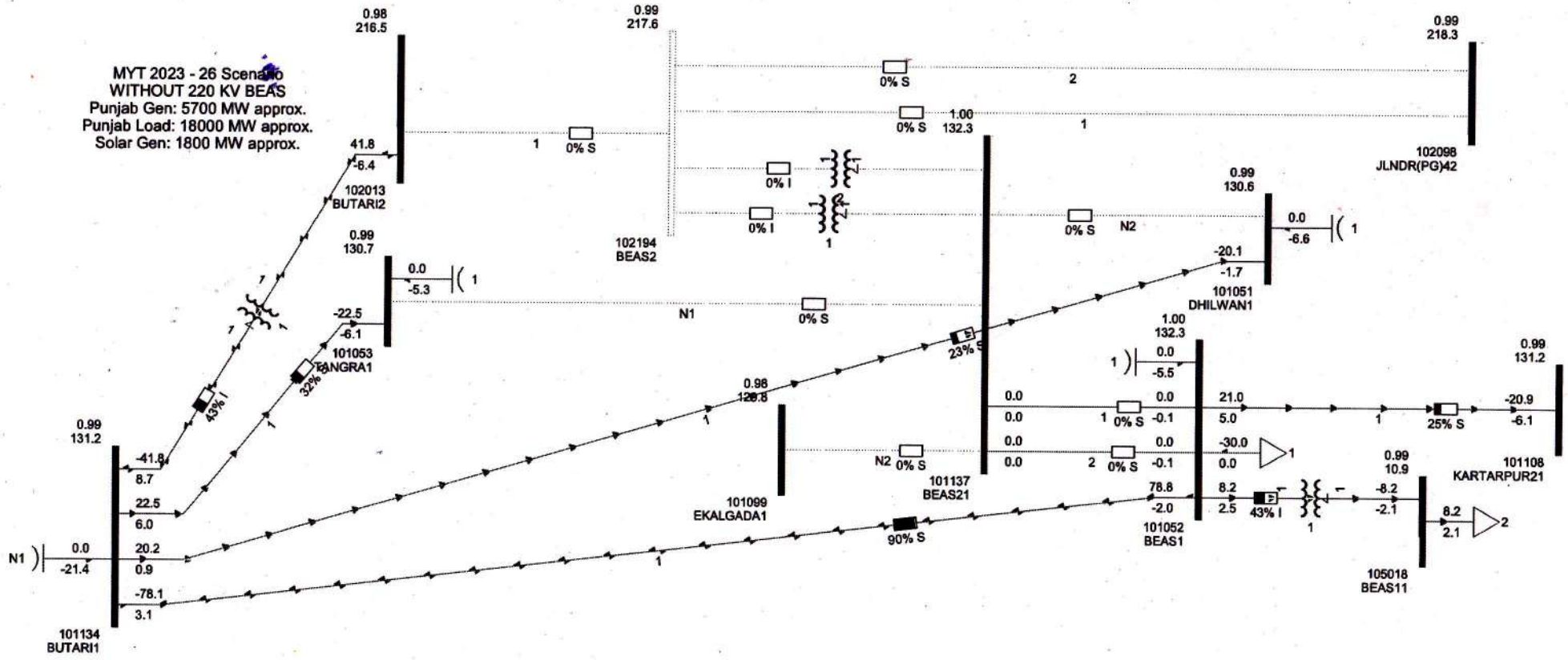
16	39	220 kV Singhawala		Addl. 1x100 MVA, 220/66 kV T/F.	2022-23	2023-24	Work will be completed by 30.06.2023	Typographical error, transformer cost has been inadvertently added twice which causes higher CIP. Otherwise T/f cost including EC and IDC comes out to be 10.84 Cr.	8.56	8.56	19.46

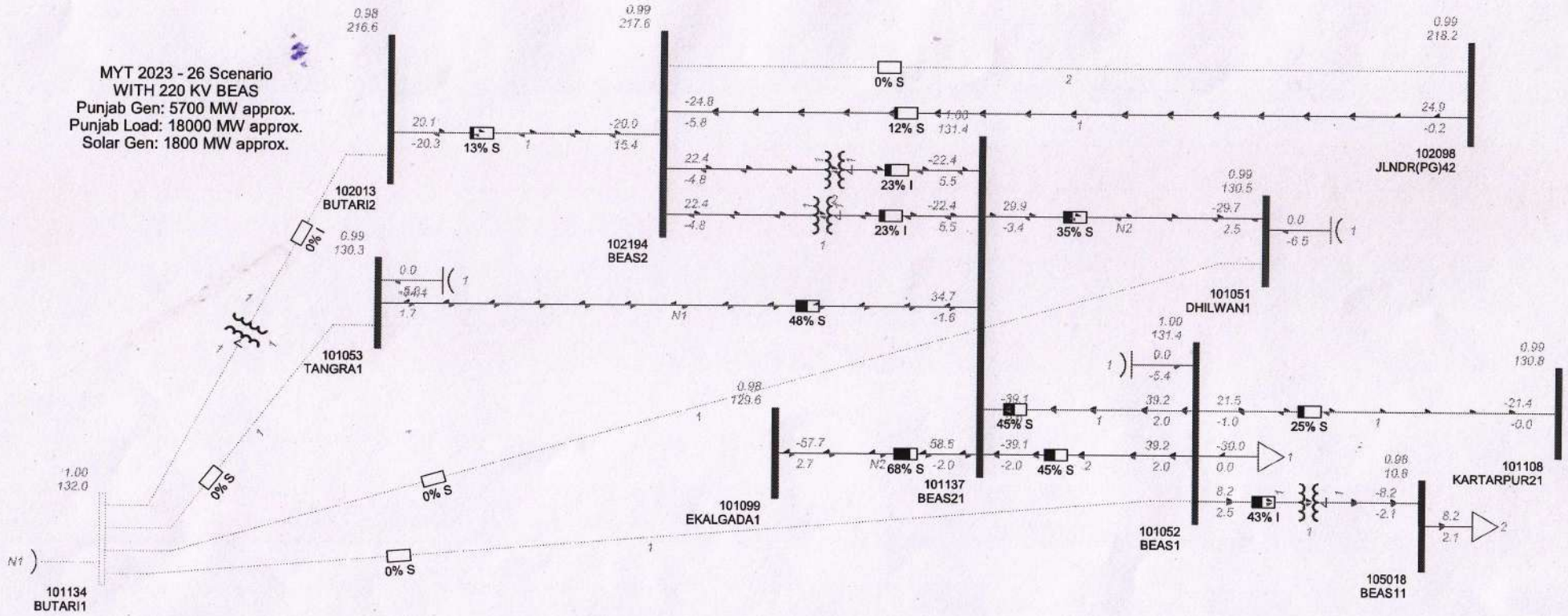
Note: The escalation of around 20% generally occurs for projects because projections are given at time of submission of MYT and there is increase in cost of material due to time gap between submission of MYT and actual execution of projects. So reasons have been provided only for works where escalation has been more than 20%. So, the same may kindly be accepted please.

PSDF GRANT LIST

ANNEXURE-5

Sr.No.	Sr No. as per CIP Order	Particulars	Network Addition	Scope of Work	Remarks	CIP approved for 2nd Control Period (in Cr)	DPR/ Project cost	PSDF share	PSTCL share without EC& IDC	PSTCL share with EC& IDC
1	7	OPGW			Work under progress. 50% funding Under Power System Development Fund (PSDF) i.e. Rs 33.05 Cr, and balance amount of Rs. 66.24 Cr – Rs 33.05 cr = Rs 33.19 Cr as PSTCL share. (DPR cost = Rs 66.10 Cr)	37.05	66.1	33.05	**33.19**	**39.4961**
2	71	Second source of battery at various 220/132 kV S/s of PSTCL		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)	PSDF funding sanctioned in the month of March 22 for 67 No. Grids. PSDF funding is 5.91crore (project cost 11.67). PSDF sanctioned late.	5.21	11.67	5.91	**5.76**	**6.8544**
3	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.		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.	DPR for PSDF funding returned by NLDC POSOCO. New DPR is being submitted for PSDF funding.	102.59	360	252	**108**	**128.52**
4	74	Replacement of existing conductor of 220 kV Gobindgarh - 400kV Rajpura (DC) with HTLS of suitable capacity.	Revised	L.S. Provision in @ Rs. 40 Cr.. per year	Work in progress. Work is PSDF funded. 20.97 crore is PSDF funded. Total project cost is 27.67 Crore	66.17	27.67	20.97	**6.7**	**7.973**
5	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 least 800A.		AS this is PSDF funded work, project got sanctioned on 20.3.22. Now tendering is under process. Line length is 15 km instread of 6 km. PSDF funding is 11.32 crores. DPR cost is 16.60 crore.	18.8	16.6	11.32	**5.28**	**6.2832**
		Total				**229.82**	**482.04**	**323.25**	**158.93**	**189.13**


MYT 2023 - 26 Scenario
WITHOUT 220 KV BEAS
Punjab Gen: 5700 MW approx.
Punjab Load: 18000 MW approx.
Solar Gen: 1800 MW approx.
101134 BUTARI1
102013 BUTARI2
101053 TANGRA1
102194 BEAS2
101051 DHILWAN1
102098 JLNDR(PG)42
101099 EKALGADA1
101137 BEAS21
101052 BEAS1
105018 BEAS11
101108 KARTARPUR21
N1
N2
0% S
0% I
23% S
32% S
43% I
90% S
25% S


MYT 2023 - 26 Scenario
WITH 220 KV BEAS
Punjab Gen: 5700 MW approx.
Punjab Load: 18000 MW approx.
Solar Gen: 1800 MW approx.
102013
BUTARI2
102194
BEAS2
102098
JLNDR(PG)42
101051
DHILWAN1
101053
TANGRA1
101137
BEAS21
101099
EKALGADA1
101052
BEAS1
101108
KARTARPUR21
105018
BEAS11
101134
BUTARI1
13% S
12% S
23% I
35% S
48% S
45% S
25% S
68% S
43% I
0% S
0% I