CHHATTISGARH STATE ELECTRICITY REGULATORY COMMISSION
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Petition No. 05 of 2022(M)

In the matter of

Approval of Capital Investment Plan filed by Chhattisgarh State Power Transmission Company Ltd. (CSPTCL) for FY 2022-23 to FY 2024-25

M/s Chhattisgarh State Power Transmission Company Ltd. ..... Petitioner

Present: Hemant Verma, Chairman
Vinod Deshmukh, Member (Judicial)
Pramod Kumar Gupta, Member

ORDER
(Passed on 27/04/2022)

1. The Chhattisgarh State Power Transmission Company Limited (CSPTCL) isa successor Company of Chhattisgarh State Electricity Board (CSEB) and is the designated State Transmission Utility (STU) in the State, providing transmission services to Chhattisgarh State Power Distribution Company Limited (CSPDCL) and other users of the transmission system.

2. Based on the principles contained in Section 61 and 62 of the Electricity Act, 2003 (hereinafter referred as 'the Act'), the National Electricity Policy and Tariff Policy notified by the Central Government, the Commission has notified the Chhattisgarh State Electricity Regulatory Commission (Terms and Conditions for determination of tariff according to Multi-Year Tariff principles and Methodology and Procedure for determination of Expected revenue from Tariff and Charges) Regulations, 2021 (hereinafter referred as 'CSERC MYT Regulations, 2021') for the Control Period from FY 2022-23 to FY 2024-25, on November 14, 2021.

3. Regulation 7 of the CSERC MYT Regulations, 2021specifiesfor filing of Capital Investment Plan by the entities; the relevant extract of the Regulation is as under:

"7. CAPITAL INVESTMENT PLAN

7.1. The generating company, STU/ transmission licensee, SLDC and distribution licensee shall file for approval of the Commission a capital investment plan by 31st October 2021. The capital investment plan should cover the entire Control

Period, with separate details for each year of the Control Period.

7.2. The capital investment plan may be in respect of new generation projects or transmission/ distribution schemes (for lines, sub stations, bays, etc.) or system operation for capacity addition/ enhancement or renovation of existing capacities on completion of useful life or work required for compliance of law or expenditure incurred to comply with revised emission standards or deferred execution of work included in original scope or efficiency improvement or such works which may be expedient for operation of the system.

(a)The capital investment plan shall show separately, on-going projects that will spill over into the Control Period, and such new projects (along with justification) which will commence in the Control Period but may be completed within or beyond the Control Period. The capital investment plan shall contain the scheme details, justification for the work, capitalization schedule, capital structure and cost benefit analysis, if applicable.

…….”

4. Accordingly, CSPTCL submitted the instant Petition for approval of Capital Investment Plan for the Control Period from FY 2022-23 to FY 2024-25with the following prayers:

“

a. To invoke the power conferred to it under Section 181 of the Electricity Act, 2003, to be read with Section 7 of the MYT Regulation, 2021 and to admit the petition seeking approval of Capital Investment Plan for the FY23 to FY25.

b. To pass any other order as the Hon'ble Commission may deem fit and appropriate under the circumstances of the case and in the interest of justice.

c. To condone any error/ omission and to give opportunity to rectify the same.

d. The filing is being done based on the best available information and in case of any change, the Petitioner may be permitted to make further submissions, addition and alteration to this Petition as may be necessary from time to time.”

5. The Petition was registered as Petition No.05 of 2022 dated 01/01/2022.

6. On the scrutiny of the Capital Investment Plan (CIP) Petition filed by CSPTCL, the Commission observed certain deficiencies and sought clarification from CSPTCL through Data Gaps. The Commission asked CSPTCL to submit Cost Benefit Analysis (CBA) actually achieved for all Schemes approved by the Commission for the MYT Control Period from FY 2016-17 to FY 2020-21 with several other queries. In response to the Commission's query, CSPTCL submitted that it has submitted the details of capitalisation at the time of true up of respective year during previous Control Period.

7. The Petition was made available on the Commission's website. The Petition was also available at the offices of the Petitioner. A Public Notice along with the gist of the Petition was also published in the newspapers and objections/suggestions were invited as per the

procedure laid down in the Regulations. A Technical Validation Session (TVS) on the Petition was held on February 16, 2022, in the office of Commission. During the TVS, the CSPTCL was asked to submit clarifications/ additional information for prudence analysis of the submission of CSPTCL. In response to the queries of the Commission, CSPTCL submitted the clarifications, which have been discussed at relevant section of this Order. The Commission also held a meeting with Members of the State Advisory Committee on February 23, 2022, for seeking their valuable suggestions and comments. Further, the Commission conducted Public Hearing on 24th and 25th February 2022.

8. No comments from any stakeholder were received. No objections were presented in the hearing too.

9. Summary of Capital Investment Plan (CIP) submitted by CSPTCL is as under:

CSPTCL has submitted CIP comprising spilled-over works from previous Control Period, New Development Schemes (State) and New Development Schemes (Central). CSPTCL has submitted total scheme outlay of Rs. 6679.73 Crore out which Rs. 5432.54 Crore has been proposed for the Control Period from FY 2022-23 to FY 2024-25. Summary of CIP proposed by CSPTCL is shown in the Table below:

Table 1: Capital Investment Plan proposed by CSPTCL (Rs. Crore)

Sr. No.	Scheme	Scheme Provision	FY 2022-23	FY 2023-24	FY 2024-25
A. Spill-Over Works					
1	400/220 kV Substation and Associated Lines	962.62	42.00	82.00	71.62
2	220/132 kV Substation and Associated Lines	755.89	275.00	295.13	57.09
3	132/33 kV Substation and Associated Lines	744.44	383.00	129.17	14.05
4	Other System Improvement Schemes	410.84	197.48	148.22	3.14
	Sub Total A	**2873.79**	**897.48**	**654.52**	**145.90**
B. New Normal Development Scheme (State)					
1	400/220 kV Substation and Associated Lines	0.00	0.00	0.00	0.00
2	220/132 kV Substation and Associated Lines	559.84	75.00	262.00	193.54
3	132/33 kV Substation and Associated Lines	269.30	52.00	188.00	19.30
4	Other System Improvement Schemes	1370.61	505.00	503.64	356.97
	Sub-Total B	**2199.75**	**632.00**	**953.64**	**569.81**
C. New Normal Development Scheme (Centre)					
1	Other System Improvement Schemes	1606.19	331.50	720.79	526.90
	Sub Total C	**1606.19**	**331.50**	**720.79**	**526.90**
Grand Total		**6679.73**	**1860.98**	**2328.95**	**1242.61**

Sr. No.	Scheme	Scheme Provision	FY 2022-23	FY 2023-24	FY 2024-25
D. IDC					
	Interest During Construction		63.51	210.82	347.09
	Total Capex Including IDC		**1924.49**	**2539.77**	**1589.70**

Table 2: Summary of CIP proposed by CSPTCL (Rs. Crore)

Sl. No.	Scheme	Scheme Provision	FY 23	FY 24	FY 25
1	Spill-Over Works	2873.79	897.48	654.52	145.90
2	New Normal Development Scheme (State)	2199.75	632.00	953.64	569.81
3	New Normal Development Scheme (Central)	1606.19	331.5	720.79	526.90
	Total	**6679.73**	**1860.98**	**2328.95**	**1242.61**

The proposed CIP of CSPTCL comprises capital works relating to 440 kV substations, 220/132 kV substations, 132/33 kV substations, 400 kV lines, 220 kV lines, and 132 kV lines. CSPTCL has also proposed various system improvement works like upgradation of conductor of existing EHV line, second circuiting of line, LILO of existing line, augmentation/additional transformer in the existing EHV substation along with laying of 400 kV and 220 kV lines for increasing the connectivity with CTU system, etc.

CSPTCL has submitted the number of substations and details of lines to be completed during the Control Period, as shown in the Table below:

Table 3: Details of Substations to be commissioned during the Control Period (Nos.)

Particulars	Till 31.3.2021	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	At the end of Control Period
400kVSubstation	4	0	0	0	1	5
220kVSubstation	25	0	0	2	8	35
132kVSubstation	94	3	4	16	2	119

Table 4: Details of Lines to be completed during the Control Period (Ckt K.M)

Particulars	Till 31.3.2021	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
400kV Lines	1918	1918	1998	2158	2318
220kV Lines	4032	4032	4412	5552	5935
132kV Lines	7192	7406	8511	9396	9619
Total	**13142**	**13356**	**14921**	**17106**	**17872**

10. Status of Transmission System Capacity

CSPTCL submitted that in existing 220/132 kV substations of State Transmission System, considering loading system and N-1 criteria, the following 160 MVA 220/132 kV additional power transformers are proposed to be installed/commissioned:

Table 5: Status of Transmission System Capacity (MVA)

Sr. No.	Financial Year	Name of EHV Substation where additional 160 MVA 220/ 132 kV Power Transformer proposed to be commissioned	Total no. of additional Power Transformer
1	FY 2022-23	Borjhara,Mungeli, Thelkadih, Bemetara and Churri	5*160 MVA= 800 MVA
2	FY 2023-24	Gerwani, Barsoor, Jagdalpur, Narainpur and Gendpur	5*160 MVA= 800 MVA
3	FY 2024-25	Kuthrel, Dhardehi	2*160 MVA= 320 MVA

With the commissioning of above-mentioned additional transformer in the proposed EHV substations and commissioning of new 220/132 kV EHV substation as proposed under spilled-over works and New Development Work Scheme, physical status of Transmission System Capacity of CSPTCL shall increase, as shown in the Table below:

Table 6: Status of Physical Assets – Transmission System Capacity (MVA)

Transmission System Capacity	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Capacity	8660	8820	9620	11060	13940

Table 7: Status of Physical Assets – Transmission Lines (Cktkm)

Particulars	Till 31.3.2021	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
400kV Lines	1918	1918	1998	2158	2318
220kV Lines	4032	4032	4412	5552	5935
132kV Lines	7192	7406	8511	9396	9619
Total	**13142**	**13356**	**14921**	**17106**	**17872**

11. <u>Spilled Over Work:</u>

CSPTCL's Submission

CSPTCL submitted that most of the capital works approved in CIP for FY 2016-17 to FY 2020-21 have already been completed. Some capital works from approved CIP along with additional CIP for FY 2016-17 to FY 2020-21 approved by the Commission in April 2020 and CIP for FY 2021-22 are under construction or under the stage of administrative approval / tendering process. Incomplete capital works of previous approved CIP till FY

2021-22 have been considered as spill-over works in Current Petition. The scheme provision is Rs. 2873.79 Crore with expenditure proposed to be carried out during the upcoming Control Period of Rs. 1926.60 Crore.

Commission's View

CSPTCL has proposed some spilled-over works, which were approved in the previous CIP Orders approved by the Commission but are going to continue in the Control Period from FY 2022-23 to FY 2024-25. Since, all capital works under spilled over works have already been approved by the Commission therefore, no further approval is required, and CSPTCL should complete these schemes at the earliest. Accordingly, the Commission approves spilled-over works for the Control Period as proposed by CSPTCL. The list of approved spilled-over works for Control Period from FY 2022-23 to FY 2024-25 is given in **Annexure -1** of this Order.

12. New Normal Development Works (Intra-State Network)

CSPTCL's **Submission**

CSPTCL has proposed Capital Investment under New Normal Development Works (NDW) considering the proposal of CSPDCL and to meet the requirement for stable/reliable/ uninterrupted power supply to the end consumers of the State. The scheme provision is Rs. 2199.75 Crore with expenditure proposed to be carried out during the upcoming Control Period of Rs. 2155.45 Crore. The NDW woks proposed by CSPTCL comprise the following:

(a) 220 kV substations along with associated lines;
(b) 132 kV substations along with associated lines;
(c) Other system improvement works.

CSPTCL has submitted work-wise details under NDW, as detailed in the following paragraphs:

<u>220/132 kV Substation and Associated Lines</u>

220/132 kV substation, Kumhari (District – Durg)

The Commission vide Order dated April 30, 2020, in additional CIP for the Control Period from FY 2016-17 to FY 2020-21 had approved construction of 220 kV substation at Guma / Bana / Kara (Distt - Raipur) along with its associated lines. Due to non-availability of suitable land for construction of 220/132/33 kV Substation at Guma / Bana / Kara, alternate land at Kumhari has been identified. Therefore, in order to strengthen the transmission system of Bhilai and Raipur areas and to maintain reliable power supply, it would be appropriate to construct a new 220 kV substation at Kumhari and thereafter re-arrangement of 132 kV connectivity of said substation will provide load relief to 220 kV substation Bhilai, 220 kV S/s Borjhara and 220 kV substation Urla and stability

/reliability of supply to the consumers of Raipur city and industrial areas of Borjhara, Urla and Siltara will be improved and any emergency /contingency including N-1 criteria will be met. CSPTCL has proposed total capital investment of Rs. 86.70 Crore for the Control Period, as shown in the Table below:

Table 8: Capital investment for 220/132 kV Kumhari substation submitted by CSPTCL (Rs. Crore)

Sr. No.	Particulars	Scheme Provision	FY 2022-23	FY 2023-24	FY 2024-25
1	220/132/33 kV S/s Kumhari	60.00	12.00	30.00	18.00
2	220 kV DCDS Bhilai - Kumhari line.	10.00	6.00	3.00	1.00
3	LILO of 132 kV Bhilai - Sarona and 132 kV Bhilai - Gudhiyari lines at proposed 220 kV S/s Kumhari.	5.00	1.00	3.00	1.00
4	132 kV DCDS Kumhari-Sarora (Urla) line	11.70	1.00	6.00	4.70
	Total	**86.70**	**20.00**	**42.00**	**24.70**

220/132 kV substation, Malda/Sarangarh, (District–Raigarh)

CSPTCL submitted that presently 9 Nos. of existing 132 kV substations of MaldaandSarangarh areas (i.e., Kondatarai, Dabhra, Baramkela, Sarangarh, Adbhar, Jaijaipur, Chaple, ChampaandSeorinarayan) are getting supply from 132 kV circuits radiating from 220 kV Raigarhsubstation and 220 kV Banari substation. Further, in addition to above specified substations,03 Nos. of proposed 132 kV substations (i.e.,Masturi – Malhar, Balodaand Bilaigarh) will also be getting supply from 220 kV Banari substation. Therefore, considering the existing substations of MaldaandSarangarh areas, it would be appropriate to construct new 220/132 kV substation at Malda/Sarangarh area and its 220 kV connectivity from 400 kV PGCIL Raigarhsubstation through 220 kV DCDS line and by LILO of one circuit of 220 kV Raigarh – Saraipali line. Further, in order to maintain stable / reliable supply to the area and to meet any emergency /contingency including N-1 criteria, re-arrangement of connectivity of proposed substation will be done.CSPTCL has proposed total capital investment of Rs. 201.39 Crore for the Control Period, as shown in the Table below:

Table 9: Capital investment for 220/132 kV Malda / Sarangarh substation submitted by CSPTCL (Rs. Crore)

Sr. No.	Particulars	Scheme Provision	FY 2022-23	FY 2023-24	FY 2024-25
1	220/132 kV S/s Malda/Sarangarh	60.00	5.00	30.00	25.00
2	220 kV DCDS Raigarh (PGCIL) - Malda/Sarangarh line.	77.34	10.00	30.00	37.34
3	LILO of 1 Ckt of 220 kV Saraipali - Raigarh line at proposed 220 kV S/s Malda/Sarangarh.	30.75	5.00	20.00	5.75
4	132 kV DCDS Malda/Sarangarh - Sarangarh line & 2 Nos. 132 kV feeder bays at 132 kV S/s Sarangarh.	10.80	2.00	6.00	2.80
5	132 kV DCDS Malda/Sarangarh - Dabhara line and 2 Nos. 132 kV feeder bays at 132 kV S/s Dabhra.	22.50	5.00	15.00	2.50
	Total	**201.39**	**27.00**	**101.00**	**73.39**

220/132 kV substation Murethi / Parastarai, Distt: -Raipur

CSPTCL submitted that the industrial substation situated in Siltara Raipur is feeding power to many existing large and medium scale industries. In future, many new industries are expected to come in the area, which will lead to increased power demand in the area. Existing 220/132/33 kV Siltara substation is mainly feeding power supply to industrial load growth centre Siltara as well as to major part of capital city Raipur. The 220/132/33 kV substation Siltara has 9 Nos. of 220 kV feeder Bays, 17 Nos. of 132 kV feeder Bays,and 31 Nos. of 33 kV feeder Bays. Therefore, space is not available for extension of new 132 kV and 33 kV feeder Bay at 220/132/33 kV substation Siltara for power supply to new industries as well as capacity enhancement of existing industries. Further, one new 132/ 33 kV substation Siltara-II with capacity of 2x63 MVA power transformer is being constructed near 220/ 132 kV Siltara subtation, which will be charged in next six months. Also, one new 132/ 33 kV substation is proposed at Metal Park and Sarora area. After commissioning of these substations, the load on 3x 160 MVA 220/ 132 kV transformer of 220kV substation Siltara will increase to the maximum capacity. Therefore, in order to meet the existing and future load demand, construction of one additional 220/132 kV substation near Siltara is essential. Considering the above, construction of new GIS 220/132/33 kV substation at Murethi/Parastarai (Distt Raipur) will meet the future load growth of industries and will improve the reliability/ stability of Siltara growth centre.

Further, CSPTCL submitted that it is proposed to connect 220/132/33 kV GIS substation Murethi/Parastarai by 220 kV DCDS line from 400 kV Raita substation and LILO of 220 kV Bhatapara-Bhilai line. This substation will also feed power to newly proposed 132/33 kV Metalpark (Siltara) substation in addition to Industrial Consumers. CSPTCL has

proposed total capital investment of Rs. 125.45 Crore for the Control Period, as shown in the Table below:

Table 10: Capital investment 220/132 kV Murethi / Parastarai substation submitted by CSPTCL (Rs. Crore)

Sr. No.	Particulars	Scheme Provision	FY 2022-23	FY 2023-24	FY 2024-25
1	220/132 kV S/s Murethi/ Parastarai (Distt.-Raipur) (GIS) Upgradable to 400/220/132 kV	75.00	10.00	50.00	15.00
2	220 kV DCDS Raita-Murethi/Parastarai line and 2 Nos.220 kV feeder bays at 400 kV S/s Raita	23.45	5.00	15.00	3.45
3	LILO of 220 kV Bhilai - Bhatapara line at propsed 220 kV s/s Murethi/ Prasatari.	12.30	3.00	7.00	2.30
4	132 kV DCDS Murethi - Siltara-II line and 2 Nos. 132 kV feeder bays at 132 kV S/s Siltara -II.	14.70	3.00	7.00	4.70
	Total	**125.45**	**21.00**	**79.00**	**25.45**

220/132 kV substation, Bacheli/Kirandul, (Distt: -Dantewada)

CSPTCL submitted that Bacheli and Kirandul areas are being fed from 132 kV Kirandul substation, which is connected from 220 kV Barsoor substation through 132 kV DCDS line (Radial), having existing loads of about 114 MVA (i.e., M/s AM/NS Steel-32 MVA, NMDC Kirandul-20 MVA, NMDC Bacheli- 25 MVA, Geedam TSS-13 MVA, Bhansi TSS-14 MVA and load of 132 kV Kirandul substation -10 MVA). The 132/33 kV Kirandul substation is a very old substation and there is no space available for further extension also. Therefore, considering the future load growth of the area and NMDC, it would be appropriate to construct new 220/132 kV substation at Bacheli / Kirandul area and its 220 kV connectivity from 220 kV substation Barsoor through 220 V DCDS line and thereafter re-arrangement of connectivity of said Substation in order to maintain stable/reliable supply to the area and to meet any emergency /contingency including N-1 criteria. CSPTCL has proposed total capital investment of Rs. 117.00 Crore for the Control Period, as shown in the Table below:

Table 11: Capital investment for 220/132 Bacheli/Kirandul substation submitted by CSPTCL (Rs. Crore)

Sr. No.	Particulars	Scheme Provision	FY 2022-23	FY 2023-24	FY 2024-25
1	220/132/33 kV S/s Bacheli/Kirandul	55.00	2.00	10.00	30.0
2	220 kV DCDS Barsoor - Bacheli/Kirandul line along with	91.30	5.00	30.00	40.0

	feeder bays at Barsoor				
	Total	**146.30**	**7.00**	**40.00**	**70.00**

132/33 kV Substation and Associated Lines

132 kV Chotiya/Banjari substation, (District – Korba)

CSPTCL submitted that CSPDCL has proposed construction of 132 kV Chotiya/Banjari substation in District Korba. At present, supply to Chotiya / Banjari and nearby areas is fed through 33 kV feeder (Line Length- 107 km) emanating from 132/33 kV Vandana, Chhuri substation having voltage regulation of about 24.51%. Therefore, considering excessive length of existing 33 kV feeder, future load growth and contingency, construction of proposed 132/33 kV Chotiya/Banjari substation is essential. This proposed substation will improve the voltage profile/reliability/stability, reduce T&D losses and strengthen the network of Chotiya/Banjari and nearby areas. CSPTCL has proposed total capital investment of Rs. 34.70 Crore for the Control Period, as shown in the Table below:

Table 12: Capital investment for 132 kV Chotiya/Banjari substation submitted by CSPTCL (Rs. Crore)

Sr. No.	Particulars	Scheme Provision	FY 2022-23	FY 2023-24	FY 2024-25
1	132/33 kV substation Chotiya/Banjari	23.00	5.00	16.00	2.00
2	LILO of 132 kV Bishrampur - Bango line	11.70	2.00	8.00	1.70
	Total	**34.70**	**7.00**	**24.00**	**3.70**

132 kV Arjuni Substation, District- Dhamtari

CSPTCL submitted that CSPDCL has proposed construction of 132 kV substation at Arjuni. At present, supply to Dhmatari and nearby areas are managed though 8 Nos. 33 kV feeders emanating from 132/33 kV Chhitaud substation. Maximum load on these feeders has reached up to 298 Amp and calculated voltage regulation at tail end is 13.95 % due to the long length of 33 kV feeder. Therefore, considering length, load and voltage regulations of 33 kV feeders emanating from 132/33 kV Chhitaud substation and contingency, construction of proposed 132/33 kV Arjuni substation is essential to improve the voltage profile/reliability/stability, reduce T&D losses and strengthen the network of Dhamtari /Arjuni and nearby areas. CSPTCL has proposed total capital investment of Rs. 55.64 Crore for the Control Period, as shown in the Table below:

Table 13: Capital investment for 132 kV Arjuni substation submitted by CSPTCL (Rs. Crore)

Sr. No.	Particulars	Scheme Provision	FY 2022-23	FY 2023-24	FY 2024-25
1	132/33 kV S/S Arjuni (Dhamtari)	23.00	5.00	16.00	2.00
2	132 kV DCDS Patan- Arjuni line and 02 Nos. 132 kV feeder bays at 220 kV S/s Patan	32.64	5.00	25.00	2.64
	Total	**55.64**	**10.00**	**41.00**	**4.64**

132 kV Substation, Raigarh Medical College, District - Raigarh

CSPTCL submitted that CSPDCL has proposed construction of 132 kV substation at Raigarh Medical College. At present, supply to Raigarh Medical College and nearby areas are fed through 33 kV feeders emanating from 220/132/33 kV Raigarh substation and 132/33 kV Raigarh substations. Maximum load on these 33 kV feeders has reached up to 290 Amp and calculated voltage regulation at tail end is 20.69 % due to the long length of 33 kV feeder. Therefore, keeping in view of length, load and voltage regulation of 33 KV feeders emanating from 220/132/33 kV and 132/33 kV Raigarh substation and to meet any contingency, construction of proposed 132/33 kV substation at Raigarh Medical College is essential. This will improve the voltage profile, reduce T&D losses and reliability/stability of power supply of Raigarh Medical College and nearby areas. CSPTCL has proposed capital investment of Rs. 25.50 Crore for the Control Period, as shown in the Table below:

Table 14: Capital investment for 132 kV Substation, Raigarh Medical College submitted by CSPTCL (Rs. Crore)

Sr. No.	Particulars	Scheme Provision	FY 2022-23	FY 2023-24	FY 2024-25
1	132/33 kV S/S Raigarh Medical College	23.00	5.00	16.00	2.00
2	LILO of 132 kV Kondatarai-Jurda (NTPC) line	2.5	1.00	1.00	0.50
	Total	**25.50***	**6.00**	**17.00**	**2.50**

CSPTCL has submitted sum of proposed works as Rs. 45.18 Crore.

132 kV Bilaigarh Substation, District Balodabazar-Bhatapara

CSPTCL submitted that CSPDCL has proposed construction of 132 kV Bilaigarh substation. At present, supply to Bilaigarh and nearby areas are fed though 33 kV feeders emanating from 132/33 kV Sarangarh substation and 132 kV Kasdol substations. Maximum load on these 33 kV feeders has reached up to 310 Amp and calculated voltage regulation at tail end is 31.50 % due to the long length of 33 kV feeder. Therefore, keeping

in view of length, load and voltage regulation of existing 33 kV feeders emanating from 132/33 kV Kasdol and 132/33 kV Sarangarh substation and to meet any contingency, construction of proposed 132/33 kV substation at Bilaigarh is essential. This will improve the voltage profile/reliability/stability, reduce T&D losses and strengthen the network of Bilaigarh and nearby areas. CSPTCL has proposed capital investment of Rs. 58.76 Crore for the Control Period, as shown in the Table below:

Table 15: Capital investment for 132 kV Bilaigarh Substation submitted by CSPTCL (Rs. Crore)

Sr. No.	Particulars	Scheme Provision	FY 2022-23	FY 2023-24	FY 2024-25
1	132/33 kV S/S Bilaigarh	23.00	5.00	16.00	2.00
2	132 kV DCDS Bilaigarh-Sheorinarayan line and 02 Nos. 132 kV feeder bays at Sheorinarayan	35.76	5.00	28.00	2.76
	Total	**58.76**	**10.00**	**44.00**	**4.76**

132 kV BhilmiSubstation (Beltara)

CSPTCL has submitted that CSPDCL has proposed construction of 132 kV Bhilmi substation. At present, supply to Bhilmi and nearby areas is fed though 2 Nos. of 33 kV feeders emanating from 220/132/33 kV Mopka substation and 1 Nos. of 33 kV feeder emanating from 132 kV Vandana substation, Chhuri. Maximum load on these 33 kV feeders has reached up to 283 Amp and calculated voltage regulation at tail end is 33.40 % due to the long length of 33 kV feeder. Therefore, keeping in view of length, load and voltage regulation of existing 33 kV feeders emanating from 132/33 kV Kasdol and 132/33 kV Sarangarh substation and to meet any contingency, construction of proposed 132/33 kV Bhilmi substation is essential. This will improve the voltage profile/reliability/stability, reduce T&D losses and strengthen the network of Bhilm andnearby areas. CSPTCL has proposed capital investment of Rs. 34.70 Crore for the Control Period, as shown in the Table below:

Table 16: Capital investment for 132 kV Bhilmi Substation submitted by CSPTCL (Rs. Crore)

Sr. No.	Particulars	Scheme Provision (Rs. Crore)	FY 2022-23	FY 2023-24	FY 2024-25
1	132/33 kV S/S Bhilmi	23.00	5.00	16.00	2.00
2	LILO of 132 kV SV Power-Koni line	11.70	2.00	8.00	1.70
	Total	**34.70**	**7.00**	**24.00**	**3.70**

132 kV Substation,Urla Colony (GIS),(District – Raipur)

CSPTCL submitted that Urla industrial load growth centre has extensive industrial potential for new industries as well as capacity enhancement of existing industries. At present, supply of Urla industrial area is managed through 220/132/33 kV Urla substation, 220/132/33 kV Borjhara substation, 132/33 kV Sect-C substation, 132 kV Sect-A substation and 132 kVBirgaon substation. Further space is not available for extension of new 132 kV and 33 kV feeder Bay at these substations for power supply to new industries as well as capacity enhancement of existing industries. Further, the loading of these substations has also reached up to their maximum capacity. The demand for new 33 kV feeder Bay is increasing day by day, therefore for accommodating new industrial consumer by extension of additional 33 kV feeder Bay it is necessary to construct new 132/33 kV substation at Urla colony (District - Raipur), which will meet the future load growth of industries and will improve the reliability/ stability of Urla growth centre. The land available for this substation is small in size and construction of conventional AIS substation is not feasible. Therefore, GIS substation has been proposed. CSPTCL has proposed capital investment of Rs. 60.00 Crore for the Control Period, as shown in the Table below:

Table 17: Capital investment for 132 kV Substation, Urla Colony (GIS) submitted by CSPTCL (Rs. Crore)

Sr. No.	Particulars	Scheme Provision	FY 2022-23	FY 2023-24	FY 2024-25
1	132/33 kV S/S Urla, Colony (GIS)	45.00	10.00	35.00	0.00
2	132 kV DCDS line from 220 kV S/s Urla (HTLS)	10.00	5.00	5.00	0.00
3	LILO of 132 kV Borjhara-Urla line	5.00	3.00	2.00	0.00
	Total	**60.00**	**18.00**	**42.00**	**0.00**

<u>Other System Improvement works</u>

CSPTCL has proposed system improvement works in addition to above discussed capital works. CSPTCL has submitted justification for proposed system improvement works, as shown in the Table below:

Table 18: Justification for System Improvement Works submitted by CSPTCL

S.No	Particulars	Scheme Provision (Rs. Crore)	Remark
1	400 kV DCDS Raipur Pool (PGCIL Dhamdha) - Kurud line on Quad moose along	10.00	In view of Transmission constraints on Inter-State Transmission system being faced by CSPTCL and to increase central sector drawal, joint study was carried out by CEA, CTUIL,

S.No	Particulars	Scheme Provision (Rs. Crore)	Remark
	with 2 no. 400 kV feeder bays at 400 kV S/s Kurud (proposed 400 kV line shall be constructed under ISTS scheme)		CSPTCL and WRLDC to work out the strengthening requirement in Inter-State/Intra-State transmission system and they recommended construction of 400 kV DCDS Raipur Pool (PGCIL Dhamdha) - Kurud line on Quad moose. **Matter for construction of 400 kV Raipur Pool (PGCIL Dhamdha)-Kurud DCDS line is under deliberations with CTU. Bays will be constructed if construction of line is agreed under ISTS by CTU.**
2	LILO of 400 kV Raita - Jagdalpur line at 400 kV S/s Kurud along with 2 no. 400 kV feeder bays and 50 MVAR 400 kV switchable line reactor at 400 kV S/s Kurud	30.00	To improve the reliability/ stability / Voltage profile of supply and also to maintain system security level of "N-1" "Single contingency for steady state operation of 400 kV substation Kurudand Jagdalpur, LILO of 400 kV Raita - Jagdalpur line at 400 kV S/s Kurud along with 2 no. 400 kV feeder bays and 50 MVAR Bus reactor at 400 kV S/s Kurud is required
3	Construction of 220 kV DCDS transmission line between Korba West and Chhuri S/s along with associated line 2 nos 220 kV feeder bays at Korba West and 220 kV S/s Chhuri each	34.60	To improve the reliability/ stability / Voltage profile of supply and also to maintain system security level of "N-1" "Single contingency for steady state operation of 220 kV substation Churri and other connected 220 kV Substations, construction of 220 kV DCDS transmission line between Korba West and Chhuri S/s is required
4	LILO of 220 kV PGCIL Raipur - Urla line at 220 kV S/s Borjhara along with associated line bays at Borjhara	6.25	To improve the reliability/ stability / Voltage profile of supply and also to maintain system security level of "N-1" Single contingency for steady state operation of 220 kV substation Urla and Borjhara, and to meet increasing load requirement of power at Raipur industrial area, construction of LILO of 220 kV line from PGCIL(Raipur)-Urla at 220 kV substation Borjhara is required
5	220 kV DCSS Patan - Doma line along with associated feeder bays at Doma	35.06	To improve the reliability/ stability / Voltage profile of supply and also to maintain system security level of "N-1" "Single contingency for steady state operation of 220 kV substation Patan & Doma and to meet increasing load requirement of power at Raipur and Patan

S.No	Particulars	Scheme Provision (Rs. Crore)	Remark
			areas, construction of 220 kV DCSS Patan - Doma line along with associated feeder bays is required.
6	2nd circuiting of 132 kV Gurur - Balod Line along with feeder bays at Gurur and Balod each	13.54	To improve the reliability/ stability / Voltage profile of supply and also to maintain system security level of "N-1" "Single contingency for steady state operation and to meet increasing load requirement of power, 2ndcircuiting of 132 kV Gurur - Balod Line is required.
7	LILO of 132 kV Bemetara - Kawardha line at proposed 132 kV S/s Betar along with feeder bays at Betar	5.34	To improve the reliability/ stability / Voltage profile of supply and also to maintain system security level of "N-1" "Single contingency for steady state operation and to meet increasing load requirement of power, LILO of 132 kV Bemetara - Kawardha line at proposed 132 kV S/s Betar is required.
8	2nd circuiting of Bhanupratappur - Pakhanjur line along with feeder bays at Bhanupratappur and Pakhanjur each	25.25	To improve the reliability/ stability / Voltage profile of supply and also to maintain system security level of "N-1" "Single contingency for steady state operation and to meet increasing load requirement of power, 2nd circuiting of 132 kV Bhanupratappur - Pakhanjur Line is required.
9	Connectivity between 132 kV S/s Sukma and Dornapal along with line and feeder bays at Sukma and Dornapal each	9.12	To improve the reliability/ stability / Voltage profile of supply and also to maintain system security level of "N-1" "Single contingency for steady state operation, construction of connectivity between 132 kV S/s Sukma and Dornapal is required
10	2nd circuiting of 132 kV Jagdalpur - Parchanpal line along with feeder bay at 400/220/132 kV S/s Parchanpal	5.90	To improve the reliability/ stability / Voltage profile of supply and also to maintain system security level of "N-1" "Single contingency for steady state operation and to meet increasing load requirement of power, 2nd circuiting of 132 kV Jagdalpur - Parchanpal Line is required.
11	132 kV DCDS Patan - Bakhara line along with associated line bays at Patan and Bakhara each	23.60	To improve the reliability/ stability / Voltage profile of supply and also to maintain system security level of "N-1" Single contingency for steady state operation, and to meet increasing load requirement of power, construction of 132 kV DCDS Patan - Bakhara line is required

S.No	Particulars	Scheme Provision (Rs. Crore)	Remark
12	2nd circuiting of 132 kV Bhakhara - Kurud line along with feeder bays at Bhakhara and Kurud each	7.96	To improve the reliability/ stability / Voltage profile of supply and also to maintain system security level of "N-1" "Single contingency for steady state operation andto meet increasing load requirement of power, 2nd circuiting of 132 kV Bhakhara - Kurud Line is required.
13	132 kV DCSS line from 220 kV S/s Suhela to 132 kV S/s Tulsi along with feeder bays at Tulsi	11.35	To improve the reliability/ stability / Voltage profile of supply and also to maintain system security level of "N-1" "Single contingency for steady state operation and to meet increasing load requirement of power,132 kV DCSS line from 220 kV S/s Suhela to 132 kV S/s Tulsi is required
14	LILO of 132 kV Ambikapur - Pathalgaon line at 132 kV S/s Batauli along with feeder bays at Batauli	2.64	To improve the reliability/ stability / Voltage profile of supply and also to maintain system security level of "N-1" Single contingency for steady state operation, and to meet increasing load requirement of the power, construction of LILO LILO of 132 kV Ambikapur - Pathalgaon line at 132 kV S/s Batauli is required.
15	132 kV DCDS Daldalseoni-Metalpark hybrid line alongwith 2 nos. 132 kV feeder bays at Daldalseoni and Metalpark each	42.00	To improve the reliability/ stability / Voltage profile of supply and also to maintain system security level of "N-1" Single contingency for steady state operation andto meet increasing load requirement of power of Urlaand Siltara industrial area, 132 kV DCDS Daldalseoni-Metalpark hybrid line is required
16	2nd circuiting of 132 kV Kanker-Nagri line along with associated line bays at Kanker and Nagri each	28.00	To improve the reliability/ stability / Voltage profile of supply and also to maintain system security level of "N-1" Single contingency for steady state operation and to meet increasing load requirement of power, 2nd circuiting of 132 kV Kanker-Nagri Line is required
17	2nd circuiting of 132 kV Dongargaon to Mohla line along with associated line bays at Dongargaon and Mohla each	25.00	To improve the reliability/ stability / Voltage profile of supply and also to maintain system security level of "N-1" Single contingency for steady state operation and to meet increasing load requirement of power, 2nd circuiting of 132 kV Dongargaon - Mohla Line is required.
18	Augmentation/ replacement of	200.00	Replacement of existing conductor with HTLS conductor shall increase the current carrying

S.No	Particulars	Scheme Provision (Rs. Crore)	Remark
	conductor by HTLS conductor of existing old EHV lines of state transmission system		capacities of the lines to almost double. This will ensure proper load management in view of the growing load. Due to severe ROW issues; laying of new lines is not feasible in these areas and also replacement with HTLS conductor shall be more economical as compared to laying of new lines. Details of transmission lines whose conductor will be replaced are given below: 1. 132 kV Borjhara –Sector "C" line – 5.30 km 2. 132 kVBhilai –Gudhiyari and Bhilai – Sarona Line – 47.3 km 3. 132 kV S/s Sector "C"- Birgaon and Gudhiyari-Birgaon Line – 11.830 km 4. 132 kV Kachna-Mandir Hasaud –Kuhera – Mahasamund Line – 66.246 km 5. 220 kV Bhatapara (PGCIL) – Bhatapara (CSPTCL) line – 4.750 km 6. 132 kV Bhilai – ACC Line – 2.958 km 7. 132 kV Bhilai –Kurud line - 3.296 km 8. 132 kV Bhilai –Kurud-Rasmada line - 32.522 km 9. 132 kV Bhilai-Pulgaon line – 31.135 km 10. 132 kV Thelkadih-Rajnandgaon Line Ckt. - I- 16.932 km 11. 132 kV Thelkadih-Rajnandgaon Line Ckt. - II-16.932 km 12. 132 kV single Ckt from Gharghoda to 132 kV S/s Pathalgaon -58.35 km 13. 132 kV Mopka-Bilaspur feeder-10.76 km 14. 132 kV Silpahri-Bilaspur feeder-8.94 km 15. 132 kV Mopka-Silpahri feeder-11.63 km 16. 132kV DCDS Raigarh-Baramkela-52.843km 17. 132 kV DCDS Raigarh-Adbhar line-39.744 km 18. 132 kV DCDS Raigarh-Chaple line-25.74 km
19	Smartgrid arrangement/SCADA/Automation of existing substation of CSPTCL	300.00	The proposed Smart Grid will be a result of integration of electricity and communication in which electric network will be always available, live, interactive, interconnected, and

S.No	Particulars	Scheme Provision (Rs. Crore)	Remark
			tightly coupled with the communications in a complex energy and information real-time network. The result will be a more resourceful and capable power system, which would be fault resilient, self-healing and seamlessly integrating distributed renewable sources, such as wind and solar. Smart Grid promises to minimize operating costs. It also aims at capital investment optimization. It will improve reliability, quality and assure better resource utilization of electricity. In a smart grid, Control Centre manages all the units connected to it and utilizes these at the best of their efficiencies. The Control Centre aims to improve energy management of the grid and optimizes the energy consumption during peak load periods, thereby effecting savings. The smart grid provides easy and effective ways to integrate highly inconsistent renewable sources of wind and solar energy into majorly conventional grid energy
20	Islanding of Raipur city with Marwa power house(Under PSDF scheme of Rs. 300 Crore with 50 % cost borne by CSPTCL)	150.00	The islanding scheme is a defence mechanism for the power system in which a part of the system is islanded from a disturbed grid so that this sub-part could survive in isolation from the rest of the grid and continuity of supply to the essential load in this area is maintained. This scheme would ensure maintenance of essential services and also faster restoration of supply to the electricity consumers in the event of any outage. As per Minutes of Meeting of review meeting on islanding scheme chaired by Secretary, Ministry of Power on 19.08.2021, Raipur islanding scheme is included under new islanding schemes proposed by CEA. Further, it was decided that the new islanding schemes may be funded through PSDF. In this regard, the Detailed Project Report (DPR) for the new islanding schemes may be prepared by the State utilities as per Guidelines of MoP for PSDF and the same may be submitted to NLDC (Nodal Agency of PSDF)

S.No	Particulars	Scheme Provision (Rs. Crore)	Remark
21	Augmentation/ Additional power transformer/ installation of reactors in existing and upcoming EHV substations	150.00	To enhance the capacity of existing/upcoming/proposed 400 kV,220 kV and 132 kV Substations in future looking to the load patterns and to fulfil the (N-1) criteria as per the Grid Code to maintain reliability and stability of supply in case of any contingency. The expenditure proposed during the respective years of the Control Period is given in the appendix enclosed with the petition.
22	Construction of 220/ 132/33 kV feeder Bay at existing and upcoming EHV substations	45.00	To meet the future requirements of additional bays in existing/ upcoming/ proposed substations and grid systems. The expenditure proposed during the respective years of the Control Period is given in the appendix enclosed with the Petition.

Table 19: Capital investment for System Improvement Works submitted by CSPTCL (Rs. Crore)

Sr. No.	Scheme/Name of Work	Scheme Provision	FY 2022-23	FY 2023-24	FY 2024-25
1	400 kV DCDS Raipur Pool (PGCIL Dhamdha) - Kurud line on Quad moose along with 2 Nos. of 400 kV feeder Bays at 400 kV S/s Kurud (proposed 400 kV line shall be constructed under ISTS scheme)	10.00	0.00	0.00	5.00
2	LILO of 400 kV Raita - Jagdalpur line at 400 kV S/s Kurud along with 2 Nos. 400 kV feeder Bays and 50 MVAR Bus reactor at 400 kV S/s Kurud	30.00	15.00	15.00	0.00
3	Construction of 220 kV DCDS transmission line between Korba West and Chhuri S/s along with associated line 2 Nos. of 220 kV feeder Bays at Korba West and 220 kV S/s Chhuri each	34.60	10.00	20.00	4.60
4	LILO of 220 kV PGCIL Raipur - Urla line at 220 kV S/s Borjhara along with associated line Bays at Borjhara	6.25	5.00	1.25	0.00
5	220 kV DCSS Patan - Doma line along with associated feeder Bays at Doma	35.06	10.00	20.00	5.06
6	2nd Circuiting of 132 kV Gurur - Balod Line along with feeder Bays at Gurur and Balod	13.54	5.00	8.54	0.00

Sr. No.	Scheme/Name of Work	Scheme Provision	FY 2022-23	FY 2023-24	FY 2024-25
	each				
7	LILO of 132 kV Bemetara - Kawardha line at proposed 132 kV S/s Betar along with feeder Bays at Betar	5.34	3.00	2.00	0.34
8	2nd circuiting of Bhanupratappur - Pakhanjur line along with feeder bays at Bhanupratappur and Pakhanjur each	25.25	12.00	12.00	1.25
9	Connectivity between 132 kV S/s Sukma and Dornapal along with line and feeder bays at Sukma and Dornapal each	9.12	5.00	4.00	0.12
10	2nd circuiting of 132 kV Jagdalpur - Parchanpal line along with feeder bay at 400/220/132 kV S/s Parchanpal	5.90	4.00	1.90	0.00
11	132 kV DCDS Patan - Bakhara line along with associated line Bays at Patan and Bakhara each	23.60	5.00	15.00	3.60
12	2nd circuiting of 132 kV Bhakhara - Kurud line along with feeder bays at Bhakhara and Kurud each	7.96	5.00	2.96	0.00
13	132 kV DCSS line from 220 kV S/s Suhela to 132 kV S/s Tulsi along with feeder Bays at Tulsi	11.35	7.00	4.35	0.00
14	LILO of 132 kV Ambikapur - Pathalgaon line at 132 kV S/s Batauli along with feeder bays at Batauli	2.64	2.00	0.64	0.00
15	132 kV DCDS Daldalseoni-Metalpark line alongwith 2 Nos. 132 kV feeder Bays at Daldalseoni and Metalpark each.	42.00	5.00	35.00	2.00
16	2nd circuiting of 132 kV Kanker-Nagri line along with associated line bays at Kanker and Nagri each	28.00	14.00	14.00	0.00
17	2nd circuiting of 132 kV Dongargaon to Mohla line along with associated line bays at Dongargaon and Mohla each	25.00	13.00	12.00	0.00
18	Additional/Augmentation of Transformer/Reactor in existing and upcoming EHV Substation	150.00	50.00	50.00	50.00
19	Construction of 220/132/33 kV feeder additional Bays in existing substations as per requirement	45.00	15.00	15.00	15.00

Sr. No.	Scheme/Name of Work	Scheme Provision	FY 2022-23	FY 2023-24	FY 2024-25
20	Capacitor Banks, RTU's, Communication equipment, Renovation and Modernisation of existing old EHV S/s battery, battery chargers, other EHV equipment of S/s, Conductor replacement, etc., and other associated equipment, acquisition of land, Survey works, forest clearance, land compensation and Miscellaneous system improvement related with existing/new upcoming substation/PSDF Works/ OPGW works, Testing equipment, Energy meters, CT/PT for metering	210.00	70.00	70.00	70.00
21	Augmentation/ replacement of conductor by HTLS conductor of existing old EHV lines of state transmission system	200.00	100.00	50.00	50.00
22	Smart grid arrangement/SCADA/Automation of existing substation of CSPTCL	300.00	100.00	100.00	100.00
23	Islanding of Raipur city with Marwa power house (Under PSDF scheme of Rs 300 Crore With 50 % cost borne by CSPTCL)	150.00	50.00	50.00	50.00
	Total	**1370.61**	**505.00**	**503.64**	**356.97**

Commission's View

The Commission has gone through the submission of CSPTCL regarding proposed capital work for New Normal Development Works. The Commission noted the detailed submission and justification furnished by CSPTCL in this regard. The Commission asked CSPTCL to submit Scheme-wise Cost Benefit Analysis (CBA) for New Normal Development Schemes (State). In response of the Commission's query, CSPTCL submitted that in accordance with Section 39 of the Act, CSPTCL, as STU, is taking up capital works like construction of all class of voltage EHV substation and its associated transmission lines along with other system improvement works to meet out smooth flow of power. Transmission planning is being carried out for smooth/reliable/stable flow of electricity with uninterrupted quality power. Being service provider nature of work for the State's end consumer and State government organization, transmission planning is technical requirement and should not be taken up considering the cost benefit analysis.

Further, the Commission observed that for several works, CSPTCL has submitted that New Normal Development Schemes have been proposed to "meet the requirement for stable/reliable/uninterrupted supply to end consumers and as per proposal of CSPDCL", "improve the voltage profile/reliability/stability, reduce T&D losses".In this regard, the Commission asked CSPTCL the following queries:

(i) Existing voltage profile, interruptions, and reliability indices and Transmission losses after undertaking proposed capex;
(ii) Projected voltage profile, interruptions and reliability indices and Transmission losses, after undertaking proposed capex;
(iii) Copies of correspondence received from CSPDCL in this regard;
(iv) Existing levels of voltage variation, interruptions, and reliability indices;
(v) Projected levels of voltage variation, interruptions, and reliability indices, after undertaking proposed capex;
(vi) Existing loading levels of transmission network elements, to justify need for new/augmentation of existing network.

In response to the Commission's query, CSPTCL submitted that normally one, two or more 132/33 kV substations from where end consumers of the State getting supply are normally receiving supply from 220 kV substations through a double circuit line, i.e., a single source. Due to loading pattern of power transformers of 132 kV substation, power flow of lines may go up to the line loading capacity of one line. In case of tripping of one circuit out of two, total interruption due to the connecting 132 kV substations may occur. Further connectivity of 132 kV substations in such a pattern may also lead to low bus voltage at 33 kV side of substation and ultimately end consumers shall get low voltage at 33 kV. Induction of new 220 kV substation and alternate connectivity to these 132 kV substations may lead to stability of supply and improvement in 132 kV and 33 kV bus voltages. Due to higher voltage of system, losses in the system may also reduce to some extent. Also, in case of new 132 kV substation, length of 33 kV line available for 33/11 kV substation of DISCOM is reduced considerably causing availability of improved voltages and reduction of interruptions of 33 kV lines. Therefore, CSPTCL has submitted proposal of construction of 220 kV substations with single line diagram sketch in Petition to have a connectivity pattern of existing 132KV substations with existing and proposed 220 kV substations. Also, CSPTCL submitted correspondence of communication between senior officials of CSPDCL and CSPTCL.

As regards the proposed Scheme "220/132 kV S/s Kumhari", the Commission asked CSPTCL to submit the documentary evidence for the non-availability of suitable land at Guma/Bana/Kara. In response of the Commission's query, CSPTCL submitted the correspondence in this regard.

Further, as regards the proposed Scheme "220/132 kV S/s Murethi/Parastarai", the Commission asked CSPTCL to submit justification for considering GIS instead of AIS along with all cost benefit analysis. In response to the Commission's query, CSPTCL submitted that proposed work location is surrounded by densely populated industrial area Siltara, Murethi and nearby area. Also, if required this substation will be upgraded to 400 kV level. Minimum land required for 400/220/132 kV AIS substation in industrial area will be 500 m x 500 m (approx. 25 hectare). Availability of such size of land is not possible therefore, 220 kV GIS substation has been proposed instead of AIS.

Based on the submission of CSPTCL, the Commission has observed that for reliability, stability, voltage profile of supply and also to maintain system security level of "N-1", existing transmission network requires up-gradation. Also, to meet the increasing load requirement of the area, transmission system needs to be developed. In view of this, Commission approves these schemes. Capital investment for Normal Development Scheme (State) as approved by the Commission is shown in the Table below:

Table 20: Capital investment for Normal Development Scheme (State) as approved by the Commission (Rs. Crore)

Sr. No.	Scheme	Scheme Provision	FY 2022-23	FY 2023-24	FY 2024-25
1	220/132 kV Substation and Associated Lines	559.84	75.00	262.00	193.54
2	132/33 kV Substation and Associated Lines	269.30	52.00	188.00	19.30
3	Other System Improvement Schemes	1370.61	505.00	503.64	356.97
	Total	**2199.75**	**632.00**	**953.64**	**569.81**

13. New Normal Development Works (Inter-state Network connectivity)

CSPTCL's Submission

CSPTCL submitted that new capital works for creation of inter-State connectivity with Central Transmission Utility (CTU) by constructing 220 kV lines, 400 kV lines and 440/220/132kV substation, etc., are proposed to increase Available Transfer Capacity (ATC)as per discussions held amongst CEA,CTU,WRPC, POSOCO and CSPTCL. The scheme provision is amounting to Rs 1606.19 Crore with expenditure proposed to be carried out during the upcoming Control Period as Rs. 1581.19 Crore. Under this scheme, CSPTCL has proposed following capital works to be taken up in the Control Period.

400/220/132 kV Pithora substation, (District – Mahasamund)

Considering the transmission constraints in inter-State Transmission System faced by CSPTCL and to increase central sector drawal, joint study was carried out by CEA, CTUIL, POSOCO,WRPC, CSPTCL and WRLDC to work out the strengthening requirement in inter-State/ intra-State Transmission System. After detailed discussions in the meetings, it was recommended to construct 400/220/132 kV Pithora substation and its 400 kV connectivity from LILO of both circuit of 400 kV PGCIL Raipur-JPL Raigarh line or 400 kV PGCIL Raipur – PGCIL Raigarhand220 kV connectivity from 220 kV Paraswani and Saraipali substation through 220 kV DCDS lines.

At present, 15 Nos. of 132 kV substations of Mahasamund and Saraipali areas are getting supply/ interconnected through each other by way of 132 kV circuits radiating from 220 kV Paraswani substation and 220 kV Saraipali substation. 220 kV Paraswani substation is

radially connected through 220 kV DCDS line from 220 kV Suhela substation and 220 kV Saraipali substation is radially connected from 220 kV Raigarh substation through 220 kV DCDS line. Outage of any of 220 kV line of these substations causes cascading tripping and interruptions to 132 kV substations connected with these lines.

Therefore, in order to increase the reliability of Transmission System of existing substations of Mahasamund and Saraipali areas, it would be appropriate to construct 400/220/132 kV substation at Pithora. This will also provide inter-State connections of the proposed 400 kV Pithora substation with CTU, which will increase ATC.

Looking to the future load growth in the above-mentioned areas and to strengthen the Transmission Network in order to meet any transmission constraints/contingencies, 400/220/132 kV Pithora substation has been proposed, which will improve voltage profile and reliability/ stability of Power Supply. Capital expenditure proposed for this scheme is shown in Table No. 16of this Order.

Other System Improvement Schemes

At present, CSPDCL has total operational PPA of around 3752 MW with central sector generating stations and other IPPs connected with ISTS network. Further, as per the PPAs executed, another 3162 MW is expected to come in the future. All contracted power is received into State Transmission Network through various interconnected lines between CTU and State Transmission Network. Earlier, the allocated ATC to receive above said contracted power in the grid of CSPTCL is about 2380 MW. At present, total installed capacity of CSPGCL is 2960 MW. However, during the months of July and August 2021, many of the State Generating Units were out of service due to various reasons. Further, due to limitation in power drawal from central sector, CSPDCL was compelled to resort to load shedding in industrial and rural feeders due to non-availability of sufficient inter-State corridor to receive contracted power. This matter was represented with CEA/ CTU/ WRLDC and also at State and Central Government level and ATC was increased from 2380 MW to 2540 MW. Also, to increase the central sector drawal at State Transmission Network, several meetings were held between CEA, CTU, WRLDC, WRPC, PGCIL, POSOCO and CSPTCL. A load flow study was also conducted jointly to plan to enhance inter-State Transmission Network enabling CSPTCL to draw more power than the present ATC by installation of 400/ 220 kV substation having connectivity with ISTS line, installation of 500 MVA additional 400/ 220 kV power transformers at CTU's substations and laying of new 400 kV and 220 kV inter-State lines by CSPTCL between CTU's substations and existing substations of CSPTCL. As per outcome of the above discussed meetings, capital works of Rs. 1606.19 Crore are to be carried out by CSPTCL, as shown in the Table below. To substantiate the proposed capital works, the copy of MoM of the meeting held on December 10, 2021, has been submitted.

Table 21: Capital investment for Other System Improvement Scheme as submitted by CSPTCL (Rs. Crore)

Sr. No.	Scheme/Name of Work	Scheme Provision
1	**400 kV substation, Bilaspur (2x315 MVA)**	
	400 kV DCDS Bilaspur pool Sipat (765 /400 kV PGCIL) -Bilaspur (Dhardehi) line on QM and 2 Nos. feeder Bays at Bilaspur pool (Sipat PGCIL)	258.40
	220 kV DCDS Bilaspur (Dhardehi) - Mungeli line on Twin moose and 2 Nos. 220 kV feeder Bays at Mungeli substation	110.00
2	**400/220/132 kV substation, Pithora (2x500+ 2x160 MVA) with 125 MVAr 400 kV bus reactors**	180.00
	LILO of both circuits of 400 kV Raipur (PGCIL) - JPL / 400 kV Raigarh (PGCIL) - Raipur (PGCIL) DCDS line at proposed 400/220 kV Pithora substation	382.11
	220 kV DCDS Pithora - Saraipali line and 2 Nos. 220 kV feeder Bay at 220 kV Saraipali substation	72.70
	220 kV DCDS Pithora - Paraswani line and 2 Nos. 220 kV feeder Bays at 220 kV Paraswani substation	94.80
	LILO of 132 kV Basna - Jhalap and 132 kV SankraJhalap line at proposed 220 kV Pithora substation	8.00
3	**Creation of 220 kV level at 765/400 kV Raipur pool substation (PGCIL Dhamdha) with 3x 500 MVA 400/220 kV transformers and 08 Nos. 220 kV feeder Bays for the purpose of utilisation by CSPTCL in order to create interstate connectivity to increase ATC under ISTS scheme (As discussed among CEA, CTU, WRPC, POSOCO & CSPTCL)**	0.00 (Cost to be borne under ISTS)
	220 kV DCDS Raipur pool (PGCIL) - Thelkadih line & 2 Nos. 220 kV feeder Bays at 220 kV Thelkadih substation	56.43
	220 kV DCDS Raipur pool (PGCIL) - Gendpur (kawardha) line 2 Nos. 220 kV feeder Bays at 220 kV substation at Gendpur (Kawardha)	85.95
	220 kV DCDS Raipur pool (PGCIL) - Bemetara line 2 Nos. 220 kV feeder Bays at 220 kV Bemetara substation	57.66
	LILO of 220 kV Urla - Borjhara line on Hybrid scheme at 765 kV S/s Raipur pool (PGCIL Dhamdha)	85.00
4	**Creation of 220 kV level at 765/400 kV S/s Dharamjaigarh (PGCIL) with 04 Nos. 220 kV feeder Bays with 3x 500 MVA 400/220 kV transformers and08 Nos. 220 kV feeder Bays for the purpose of utilisation by CSPTCL in order to create interstate connectivity to increase ATC under ISTS scheme (As discussed among CEA, CTU, WRPC, POSOCO & CSPTCL)**	**0.00 (Cost to be borne under ISTS)**
	220 kV DCDS Dharamjaigarh (PGCIL) - Dharamjaigarh (Hati) line	55.35
	220 kV DCDS Dharamjaigarh (PGCIL) - Churri line 2 Nos. 220 kV	67.50

Sr. No.	Scheme/Name of Work	Scheme Provision
	feeder Bays at 220 kV Chhuri substation	
5	**400 kV DCDS PGCIL Jeypore (Orissa) – Jagdalpur (Parchanpal) line on twin moose along with 2 Nos. 400 kV feeder Bays at 400 kV Jagdalpur substation (Parchanpal) (proposed 400 kV line shall be constructed under ISTS scheme)**	**10.00 (Line shall be constructed under ISTS and cost of 2 nos. bays at 400 kV Jagdalpur shall be borne by CSPTCL)**
6	220 kV DCDS Kurud - Gurur line along with 2 Nos. 220 feeder Bays at 400 kV Kurud substation and 220 kV Gurur substation	59.20
7	220 kV DCDS Bhatapara (PGCIL) - Bhatapara line along with 2 Nos. 220 kV feeder Bays at 220 kV Bhatapara substation	14.84
8	220 kV DCDS Khedamara - Bhilai line along with associated line bays at 220 kV Bhilai substation.	6.25
9	**Scheme to control fault level at Raipur (PG) andBhilai (Khedamara) S/s (CSPTCL) -** Bypassing of Raipur – Bhilai 400 kV S/c line at Bhilai end and connecting it to one circuit of Bhilai – Raita 400 kV transmission line so as to form Raipur – Raita 400kV S/c line.	2.00
		1606.19

Commission's View

The Commission has gone through the submissions of CSPTCL regarding proposed capital work for New Normal Development Works. The Commission noted the detailed submission and justification furnished by CSPTCL in this regard.

Based on the submission of CSPTCL, the Commission observed that proposed capital investment for New Development Works (Central) is for enhancement of present drawal capacity of State Transmission System from CTU.

Considering the copy of MoM of the meeting with CTU and scheme-wise justification submitted by CSPTCL, the Commission finds the proposed capital investment for above discussed scheme is necessary to be taken up. Accordingly, the Commission approves the capital investment proposed by CSPTCL. The approved capital investment for New Normal Development Scheme (Central) is shown in the Table below:

Table 22: Capital investment for Other System Improvement Scheme as approved by the Commission (Rs. Crore)

Sr.No.	Scheme	Scheme Provision	FY 2022-23	FY 2023-24	FY 2024-25
1	Other System Improvement Schemes	1606.19	331.50	720.79	526.90
	Total	**1606.19**	**331.50**	**720.79**	**526.90**

14. Interest During Construction (IDC)

CSPTCL's Submission

CSPTCL has proposed IDC of Rs. 63.51 Crore, Rs. 210.82 Crore and Rs. 347.09 Crore for FY 2022-23, FY 2023-24 and FY 2024-25, respectively.

Commission's View

In reply to the Commission's query, CSPTCL has submitted that IDC has been proposed only for information of the Commission. CSPTCL shall claim actual IDC during the true up of respective financial year of the Control Period. The Commission notes the submission of CSPTCL in this regard, and directs CSPTCL to submit details of projected and actual schedule of completion of the project, along with projected and actual IDC for each scheme/project.

15. Capitalization proposed for the Control Period

CSPTCL's Submission

As per completion target proposed for the various capital works as given in **Annexure- 1** of this Order, capitalization schedule proposed by CSPTCL for each year of the Control Period is shown in the Table below:

Table 23: Scheme wise Capitalisation submitted by CSPTCL (Rs. Crore)

Sr. No.	Scheme	Scheme Provision	FY 2022-23	FY 2023-24	FY 2024-25
A. Spill Over Works					
1	400/220 kV Substation and Associated Lines	962.62	0.00	0.00	181.62
2	220/132 kV Substation and Associated Lines	755.89	0.00	198.42	459
3	132/33 kV Substation and Associated Lines	744.44	148.5	397.17	91.05
4	Other System Improvement Schemes	410.84	54.48	336.36	0.00
	Sub Total A	**2873.79**	**202.98**	**931.95**	**731.67**
B. New Normal Development Scheme (State)					
1	400/220 kV Substation and Associated	0.00	0.00	0.00	0.00

Sr. No.	Scheme	Scheme Provision	FY 2022-23	FY 2023-24	FY 2024-25
	Lines				
2	220/132 kV Substation and Associated Lines	559.84	0.00	0.00	455.54
3	132/33 kV Substation and Associated Lines	269.30	0.00	259.3	0.00
4	Other System Improvement Schemes	1370.61	0.00	181.76	123.85
5	Augmentation Scheme		0.00	0.00	1055.00
	Sub-Total B	**2199.75**	**0.00**	**441.06**	**1634.39**
C. New Normal Development Scheme (Centre)					
1	Other System Improvement Schemes	1606.19	0.00	82.29	776.29
	Sub Total C	1606.19	0.00	82.29	776.29
Grand Total		**6679.73**	**202.98**	**1455.30**	**3142.35**
D. IDC					
1	IDC		6.93	63.99	225.25
Total Capitalisation including IDC			**209.91**	**1519.29**	**3367.6**

Commission's View

As regards IDC, during the TVS, in response of the Commission's query, CSPTCL submitted that it has submitted the details of IDC. However, it has not considered IDC at present. CSPTCL shall claim actual IDC at the time of true up of respective year. Accordingly, the Commission has also not considered IDC at present.

16. Funding of Capital Investment

The Commission notes the submission of CSPTCL. The Commission asked CSPTCL to confirm that that there is no grant funding for any Scheme. In response to the Commission's query, CSPTCL submitted that all proposed capital works shall be carried out by utilizing own resources and taking loan from Financial Institutions. However, system improvement work like laying OPGW cable with all accessories and terminal equipment in existing transmission line of 400 kV to 132 kV level to be carried out, has partial support of PSDF grant. The Commission observed that this scheme is spill-over work and CSPTCL has claimed capital investment net of PSDF grant.

CSPTCL has submitted that capital expenditure shall be met through finding of debt equity in ratio of 70:30. The Commission has also considered debt equity mix as 70:30.

17. The approvals granted for capital investments are based on broad parameters and estimates submitted by utility. The utility has to adhere to prudence check on technical requirement and detailed specifications and ensure that works are completed at reasonable cost. Also, the time lines for executing the works must be adhered to. All such costs shall be considered for capitalization only after prudence check by the Commission.

18. We order accordingly.

Sd/-	Sd/-	Sd/-
(Pramod Kumar Gupta)	**(Vinod Deshmukh)**	**(Hemant Verma)**
Member	**Member (Judicial)**	**Chairman**

Annexure – 1

Table 1: List of 400 kV Substations proposed for 4th Control Period

Serial No.	Name of Substation	Proposed in Scheme	Remarks
1	400/ 220 kV Substation Bilaspur	Spill Over	Completion Target by FY 25
2	400/ 220/ 132 kV Substation Ambikapur	Spill Over	Construction activities proposed from FY 25 with Completion target beyond FY 25
3	400 kV Substation Pithora	ND Scheme(For Inter State Connectivity)	Construction activities proposed from FY 23 with Completion target beyond FY 25

Table 2: List of 220 kV Substations proposed for 4th Control Period

Sr. No.	Name of Substation	Proposed in Scheme	Remarks (Completion Target)
1	Patan	Spill Over	FY 2023-24
2	Daldalseoni	Spill Over	FY 2023-24
3	Kanker	Spill Over	FY 2024-25
4	Ahiwara	Spill Over	FY 2024-25
5	Rajim	Spill Over	FY 2024-25
6	Semariya	Spill Over	FY 2024-25
7	Dharamjaygarh	Spill Over	FY 2024-25
8	Guma/ Bana/ Kara	Spill Over	Deferred
9	Kumhari	ND Scheme (For Intra State Connectivity)	FY 2024-25
10	Malda/ Saranggarh	ND Scheme (For Intra State Connectivity)	FY 2024-25
11	Bacheli/ Kirandul	ND Scheme(For Intra State Connectivity)	Beyond FY 2024-25
12	Murethi/ Parastarai (GIS)	ND Scheme(For Intra State Connectivity)	FY 2024-25

Table 3: List of 132 kV Substations proposed for the4thControl Period

Sr. No.	Name of Substation	Proposed in Scheme	Remarks (Completion Target)
1	Kharmora	Spill Over	FY 2021-22
2	Indamara	Spill Over	FY 2021-22
3	Khairagarh	Spill Over	FY 2021-22
4	(Indagaon) Devbhog	Spill Over	FY 2022-23
5	Chhawni	Spill Over	FY 2022-23
6	Mathkharora	Spill Over	FY 2022-23
7	Siltara	Spill Over	FY 2022-23
8	Sarora, Urla	Spill Over	FY 2023-24
9	Janakpur	Spill Over	FY 2023-24
10	Baijalpur	Spill Over	FY 2023-24
11	Amleshwar	Spill Over	FY 2023-24
12	Masturi/ Malhar	Spill Over	FY 2023-24
13	Baloda	Spill Over	FY 2023-24
14	Betar	Spill Over	FY 2023-24
15	Temari	Spill Over	FY 2023-24
16	Metalpark, Siltarr	Spill Over	FY 2023-24
17	Gull (Arang)	Spill Over	FY 2023-24
18	Keshkal	Spill Over	FY 2024-25
19	Hanfa (Uslapur)	Spill Over	FY 2024-25
20	Chotiya	ND Scheme (For Intra State Connectivity)	FY 2023-24
21	Arjuni (Dhamtari)	ND Scheme (For Intra State Connectivity)	FY 2023-24
22	Raigarh Medical College	ND Scheme (For Intra State Connectivity)	FY 2023-24
23	Bilaigarh	ND Scheme (For Intra State Connectivity)	FY 2023-24

Sr. No.	Name of Substation	Proposed in Scheme	Remarks (Completion Target)
24	Bhilmi (Beltara)	ND Scheme (For Intra State Connectivity)	FY 2023-24
25	Urla Colony (GIS)	ND Scheme (For Intra State Connectivity)	FY 2023-24

Table 4: Details of Capital Work Proposed by CSPTCL

	Spill Over Works										
Sr. No	**Scheme/Name of Work**	**Nature of Work**	**Scheme Provision**	**MVA Capacity**	**Line Length**		**Proposed Expenditure to be incurred (in Rs. Crore)**				**Completion Target**
					Route Length in km	**Length in cktkm**	**MYT Control Period**				
	400/220 kV Substation & Associated Lines						**FY 22**	**FY 23**	**FY 24**	**FY25**	
1	**400 kV Substation Bilaspur (2x315 MVA)**	Spill Over	126.62	2X315	0	0	5.00	30.00	55.00	36.62	FY 2024-25
	LILO of 400 kV Korba West-BhilaiCkt-I (Twin moose AAAC)	Spill Over	55.00	0	9	18	0.00	10.00	25.00	20.00	FY 2024-25
2	**400/220 kV S/s Ambikapur**	Spill Over	175.00	2X315 & 2X160			2.00	2.00	2.00	5.00	Beyond FY 2024-25
	LILO of 400 kV Korba (W) - Madwa/ 400 kV DCDS TM line from Madwa PH	Spill Over	504.00	0	200	400	0.00	0.00	0.00	10.00	Beyond FY 2024-25
	LILO of 220 kV Churri-VishrampurCkt.- I	Spill Over	45.00				0.00	0.00	0.00	0.00	Beyond FY 2024-25
	LILO of 132 kV Rajpur-Pratappur line	Spill Over	25.00				0.00	0.00	0.00	0.00	Beyond FY 2024-25
	132 kV DCDS Interconnector between 132 kV S/s Ambikapur and this 400/220/132 kV S/s and 2Nos. 132 kV feeder bay at 132 kV S/s Ambikapur	Spill Over	32.00				0.00	0.00	0.00	0.00	Beyond FY 2024-25
	TOTAL (A)		**962.62**	**0**	**209**	**418**	**7.00**	**42.00**	**82.00**	**71.62**	
	220/132 kV Substation and Associated Lines										

1	**Up gradation of existing 132 kV S/s Rajim to 220 kV S/s**	Spill Over	35.00	2X160			2.00	13.00	15.00	5.00	FY 2024-25
	220 kV DCDS Rajim - Khurd (Dhamtari) line along with 2 No. 220 kV feeder bays at 400 kV S/s Kurud	Spill Over	44.40	0	40	80	0.00	15.00	20.00	9.40	FY 2024-25
2	**220/132/33 kV S/s Kanker**	Spill Over	50.00	2X160 & 2X40			3.00	20.00	20.00	7.00	FY 2024-25
	LILO of 220 kV Gurur - Barsoor line	Spill Over	22.20		20	40	0.00	10.00	10.00	2.20	FY 2024-25
	LILO of 132 kV existing Kanker - Bhanupratappur line	Spill Over	10.65		15	30	0.00	0.00	5.00	5.65	FY 2024-25
3	**220/132 kV S/s Ahiwara**	Spill Over	50.00	2X160 & 2X40			5.00	15.00	25.00	5.00	FY 2024-25
	LILO of 220 kV Khedamara- Bemetara line & LILO of 220 kV Khedamara JK Lakshmi line at 220 kV S/s Ahiwara	Spill Over	1.11	0		1	0.20	0.50	0.21	0.20	FY 2024-25
	2nd circuiting of 220 kV line from 220/132 kV S/s Ahiwara to 220 kV S/s Bemetara + 1 No. 220 kV feeder at 220 kV Bemetara	Spill Over	20.80	0		52	1.00	10.00	6.00	3.80	FY 2024-25
	LILO of 132 kV Bhilai - Berla line at this substation	Spill Over	14.20	0		20	1.00	6.00	5.00	2.20	FY 2024-25
4	**220/132 kV S/s Patan (Upgradation of 132 kV Patan)**	Spill Over	35.00	2X160			5.00	20.00	10.00	0.00	FY 2023-24
	220 kV DCDS line from 400 kV S/s Kurud to 220 kV S/s Patan + 2 No. 220 kV feeder bay at 400 kV S/s Kurud	Spill Over	43.85	0		35	2.00	25.00	16.85	0.00	FY 2023-24
	LILO of 132 KV Ruabandha - Gunderdehi line at this S/s	Spill Over	25.56	0		36	2.00	15.00	8.56	0.00	FY 2023-24
5	**220/132 kV S/s Semariya**	Spill Over	50.00	2X160			2.00	25.00	20.00	3.00	FY 2024-25
	LILO of 220 kV Thelkadih - Khedamara at 220 kV S/s Semariya	Spill Over	4.44	0		4	0.00	2.00	2.00	0.44	FY 2024-25
	LILO of 132 kV Dhamdha - Rasmada line at this Substation	Spill Over	7.10	0		10	0.00	3.00	3.00	1.10	FY 2024-25
6	**220/132/33 kV S/s Daldalseoni**	Spill Over	55.00	2X160 &2X40			5.00	25.00	25.00	0.00	FY 2023-24

	220 kV DCDS line from 400 kV S/s Raita to this substation Daldalseoni +2 No. 220 kV feeder Bay at 400 kV S/s Raita	Spill Over	38.30	0		30	0.00	20.00	18.30	0.00	FY 2023-24
	LILO of 132 kV Urla - Kachana line at this Substation	Spill Over	0.71	0		1	0.00	0.50	0.21	0.00	FY 2023-24
7	**220/132/33 kV S/s Dharamjaigarh**	Spill Over	50.00	2X160 & 2X40			2.00	20.00	20.00	8.00	FY 2024-25
	LILO of 220 kV DSPM - Banari/ DSPM-Suhela line at 220 kV S/s Dharamjaigarh	Spill Over	77.70	0		70	0.00	20.00	50.00	0.70	FY 2024-25
	LILO of 132 kV Batauli - Pathalgaon line at proposed 220 kV Substation Dharamjaigarh	Spill Over	28.40	0		40	0.00	10.00	15.00	3.40	FY 2024-25
8	**220/132/33 kV S/s Guma/Bana/Kara**	Spill Over	55.20	2X160 & 2X63			0.00	0.00	0.00	0.00	Deferred due to non-availability of suitable land
	220 kV DCDS line from 220/132/33 kV S/s Ahiwara to 220/132/33 kV S/s Guma/Bana/Kara	Spill Over	27.75	0		25	0.00	0.00	0.00	0.00	
	132 kV DCDS line from 220/132/33 kV S/s Guma/Bana/Kara to 132 kV S/s Sarora	Spill Over	8.52	0		12	0.00	0.00	0.00	0.00	
	Total (B)		**755.89**				**30.20**	**275.00**	**295.13**	**57.09**	
	132/33 kV Substation & Associated Lines										
1	**132 kV Substation (Indagaon) Deobhog (1x40 MVA)**	Spill Over	14.00	1 x40			8.00	6.00	0.00	0.00	FY 2022-23
	132 kV DCSS Line from 132 kV Nagari + 1 no. feeder bay at 132 kV S/S Nagari.	Spill Over	38.00	0	70	70	18.00	20.00	0.00	0.00	FY 2022-23
2	**132 kV Substation Sarora, Urla (2x63 MVA)**	Spill Over	20.00	126	0	0	2.00	8.00	10.00	0.00	FY 2023-24
	LILO of existing 132 kV Bhilai -Gudiyari - Borjhara line	Spill Over	10.00	0	10	20	0.00	8.00	2.00	0.00	FY 2023-24
3	**132 kV Substation LIA Chhawani (2x63 MVA)**	Spill Over	20.00	40	0	0	8.00	12.00	0.00	0.00	FY 2022-23
	LILO of 132 kV Bhilai - ACC line and termination of 132 kV Bhilai -Kurud line at proposed 132/33 kV S/s LIA Chhawani Bhilai	Spill Over	15.50	0.00	20.00	20.00	4.00	11.50	0.00	0.00	FY 2022-23
	LILO of 132 kV Bhilai - Rasmada at 132 kV S/s Kurud from Loc. No. 23(Tapping Point)	Spill Over									FY 2022-23

4	**132 kV Substation Janakpur (1x40 MVA)**	Spill Over	19.20	40.00	0.00	0	2.00	10.00	7.20	0.00	FY 2023-24
	Construction of LILO line of existing 132 kV Amarkantak - Rajmilan line of MPPTCL at proposed 132/33 kV S/s Janakpur in place of approved 132 kV DCDS Manendragarh - Janakpur line (approved line deferred due to acute forest of about 43 Km length -Proposed line estimate is about Rs 4.00 Crore in place of approved Rs 100.00 cr.)	Spill Over	4.00	0.00	2.2	4.4	0.00	1.00	3.00	0.00	FY 2023-24
5	**132 kV Substation Baijalpur (2x40 MVA Transformer in place of approved 1 x40 MVA - cost of S/s increased from approved Rs. 14.00 Crore to Rs. 22.00 Crore)**	Spill Over	22.00	2 X40	0	0	7.00	12.00	3.00	0.00	FY 2023-24
	Construction of approx. 40 km 132 kV DCDS line from 220 kV S/s Gendpur (Kawardha) to proposed 132 kV S/s Baijalpur (Silhati) along with 2 No. 132 kV feeder bays at 220 kV S/s Gendpur (Due to construction of 132 kV DCDS line in place of approved 132 kV DCSS line - scheme provision increased from approved Rs. 14.00 Crore to Rs. 26.00 Crore	Spill Over	26.00	0	40	80	8.00	15.00	3.00	0.00	FY 2023-24
6	**132/33 kV S/s Kharmora Dist. Korba**	Spill Over	20.80	2X40			6.00	1.00	0.00	0.00	FY 2021-22
	LILO of 132 kV Korba- Champa DCDS line at proposed 132 kV S/s Kharmora.	Spill Over	7.18		4	16	3.00	1.00	0.00	0.00	FY 2021-22
7	**132/33 kV S/s, Indamara Distt. RJN**	Spill Over	16.70	1X40			7.00	2.00	0.00	0.00	FY 2021-22
	LILO of 1 Ckt of 132 kV DCDS Thelkadih-Dongargarh line to porposed 132 kV S/s Indamara.	Spill Over	14.42		18	36	3.00	2.00	0.00	0.00	FY 2021-22
8	**132/33 kV S/s Khairagarh Distt. RJN**	Spill Over	16.11	1X40			5.00	1.00	0.00	0.00	FY 2021-22
	132 kV DCDS line from 220/132 kV s/s Thelkadih to proposed 132 kV S/s Khairagarh (Kumhi).	Spill Over	27.51		30	60	7.00	1.00	0.00	0.00	FY 2021-22
9	**132/33 kV S/s Mathkharora Distt. Raipur**	Spill Over	17.00	2X40			5.00	10.00	2.00	0.00	FY 2022-23

	132 kV DCDS line from 220/132 kV S/s Kuthrel to proposed 132 kV S/s Mathkharora.	Spill Over	26.00		28	56	7.00	15.00	4.00	0.00	FY 2022-23
10	**132 kV S/s Siltara - II Dist. Raipur**	Spill Over	22.00	2X63			6.00	10.00	1.00	0.00	FY 2022-23
	132 kV DCDS (LILO) line from 132 kV Siltara - Jagdamba Power and alloys ltd and 132 kV Siltara-SKS Ispat Line at proposed 132 kV s/s Siltara-II.	Spill Over	1.00		0.7	1.4	0.50	0.50	0.00	0.00	FY 2022-23
11	**132/33 kV S/s Amaleshwar**	Spill Over	21.00	2X40			5.00	15.00	1.00	0.00	FY 2023-24
	132 kV DCDS line from 132 kV S/s Patan + 2 No. 132 kV feeder bay at 132 kV S/s Patan	Spill Over	23.50	0	30	60	6.00	15.00	2.50	0.00	FY 2023-24
12	**132/33 kV S/s Masturi/Malhar**	Spill Over	21.00	2X40			2.00	15.00	4.00	0.00	FY 2023-24
	2nd circuiting of 132 kV Banari - Seorinarayan line + 1 No. 132 kV feeder bay at each substation that is 220 kV S/s Banari & 132 kV S/s Seorinarayan	Spill Over	7.96	0	19.205	19.205	2.00	5.00	0.96	0.00	FY 2023-24
	LILO of one circuit of Banari - Seorinarayan line at 132 kV S/s Masturi/Malhar	Spill Over	23.43	0	33	66	3.00	15.00	5.43	0.00	FY 2023-24
13	**132/33 kV S/s Baloda**	Spill Over	21.00	2X40			2.00	15.00	4.00	0.00	FY 2023-24
	132 kV DCDS line from 220 kV S/s Banari + 2 No. 132 kV feeder Bay at 220 kV S/s Banari	Spill Over	22.18	0	21	42	3.00	15.00	4.18	0.00	FY 2023-24
14	**132/33 kV S/s Betar**	Spill Over	21.00	2X40			2.00	15.00	4.00	0.00	FY 2023-24
	Construction of LILO of 1 circuit of proposed 132 kV DCDS line from 220 kV S/s Gendpur (Kawardha) to 132 kV S/s Baijalpur at proposed 132 kV S/s Betar	Spill Over	27.05	0	12	24	3.00	15.00	9.05	0.00	FY 2023-24
15	**132/33 kV S/s Keshkal**	Spill Over	21.00	2X40			2.00	10.00	5.00	4.00	FY 2024-25
	LILO of 132 kV Kanker-Kondagaon line	Spill Over	27.05	0	35	70	0.00	10.00	10.00	7.05	FY 2024-25
16	**132/33 kV S/s Temari, Tahsil Navagarh, Distt. Bemetara**	Spill Over	21.00	2X40			2.00	15.00	4.00	0.00	FY 2023-24
	LILO of 132 Simga-Chakarbhata line at proposed 132 kV S/s Temri	Spill Over	10.65		35	70	2.00	8.00	0.65	0.00	FY 2023-24
17	**132/33 kV S/s Metal Park, Siltara**	Spill Over	26.20	2X63			2.00	15.00	9.20	0.00	FY 2023-24
	LILO of existing Siltara - Urla - Kachna to	Spill Over	5.00	0	1	2	1.00	3.00	1.00	0.00	FY 2023-24

	proposed 132 kV S/s Metalpark (in place of approved 132 kV DCDS Bana-Metalpark line & LILO of 132 kV Bhilai-Simga line due to non-availability of suitable land at bana& corridor for LILO of 132 kV Bhilai-Simga line- scheme provision shall be reduced from approved Rs. 23.50 Crore to Rs 5.00 Crore)	Spill Over									
18	**132/33 kV Substation Gullu (Arang)**	Spill Over	23.00	2x40			2.00	15.00	6.00	0.00	FY 2023-24
	132KV DCDS line from 132 kV substation Mathkharora +2 No. 132 kV feeder bays at Mathkharora S/S	Spill Over	22.00		20	40	2.00	15.00	5.00	0.00	FY 2023-24
19	**132/33 kV Substation Hanfa (Usalapur)**	Spill Over	23.00	2x40			2.00	10.00	10.00	1.00	FY 2024-25
	132 kV LILO of 132 kV Chakarabhata-Kota feeder at 132 kV substation Hanfa	Spill Over	20.00	0	15	30	0.00	10.00	8.00	2.00	FY 2024-25
	Total (C)		**744.44**				**149.50**	**383.00**	**129.17**	**14.05**	
	Other System Improvement Works										
1	LILO of 132 kV Korba- Champa at 220 kV S/s Banari + 02 No. 132 kV feeder bay at 220 KV S/s Banari.	Spill Over	18.41				0.00	5.00	13.41	0.00	FY 2023-24
2	LILO of 220 kV Mopka-Siltara Line at 400 kV Substation Raita + 2 no. 220 kV feeder bay at 400 kV Substation Raita	Spill Over	17.50	0	15	30	0.00	7.5.00	10.00	0.00	FY 2023-24
3	LILO of 220 kV Bhatapara-Doma Line at 400 kV Substation Raita + 2 no. 220 kV feeder bay at 400 kV Substation Raita	Spill Over	17.50	0	15	30	0.00	7.50	10.00	0.00	FY 2023-24
4	LILO of 132 kV Raigarh-Adhbhar Line at 132 kV Substation Chaple + 2 no. 132 kV Feeder Bay at 132 kV Substation Chaple	Spill Over	9.20	0	10	20	0.00	2.00	7.20	0.00	FY 2023-24
5	LILO of 132 kV Banari-Seorinarayan DCSS line at 132 kV substation Akaltara + 2 no. 132 kV feeder bay at Akalktara	Spill Over	15.06	0	20	40	0.00	2.00	13.06	0.00	FY 2023-24
6	Construction 03 km DCDS line for re-arrangement of supply to between 220 kV	Spill Over	5.00	0	3	6	3.00	2.00	0.00	0.00	FY 2022-23

	substation Telkhadih (RJN) to 132 kV Substation Dhamdha, Rajnandgaon&Pulgaon.										
7	Utilisation of Traction UrkuraLineby conversion of 2 phase tower into 3 phase to extend one additional interconnector between Urla to sector A s/s Urla and extention of supply to Urkura from 132 kV substation Sector A + 4 Nos. 132 kV feeder Bay at Sector A Urla Substation (Line length shall remain same as this is nothing but rearrangement of supply for system improvement)	Spill Over	5.50	0	0	0	1.00	4.50	0.00	0.00	FY 2022-23
8	2nd circuiting of 132 kV Kanker-Kondagaon-Jagdapur Line +1 no. feeder bay at 132 kV Substation Kanker, 2 Nos. at Kondagaon& 1 no. feeder bay at Jagdalpur.	Spill Over	60.00	0	180	180	15.00	25.00	0.00	0.00	FY 2022-23
9	Second Circuiting of 132 kV Mungeli - Takhatpur line (RL - 36.234 Km) and 02 Nos. 132 kV feeder bays	Spill Over	13.07		36.234		2.00	7.00	4.07	0.00	FY 2023-24
10	LILO of one circuit of 132 kV DCDS Chakarbhata - Kota line from Loc. No. 38 to 132 kV S/s Takhatpur (RL - 18.0 Km) and 02 No. 132 kV feeder bays	Spill Over	14.98		18		2.00	8.00	4.98	0.00	FY 2023-24
11	LILO of 132 kV Bilaspur - Chakarbhata line at 220 kV S/s Bilaspur (RL - 29 Km) and 02 Nos. 132 kV feeder bays	Spill Over	22.79		29		3.00	15.00	4.79	0.00	FY 2023-24
12	LILO of 132 kV Bilasapur - Pathariya line from Loc. No. 36 to 220 kV S/s Dhardehi (RL - 2.5 Km) and 02 No. 132 kV feeder bays	Spill Over	3.98		2.5		1.00	2.98	0.00	0.00	FY 2022-23
13	Second Circuiting of 132 kV Kawardha - Pandariya line (RL - 33.0 Km) and 02 Nos. 132 kV feeder bays	Spill Over	12.10		33		2.00	8.00	2.10	0.00	FY 2023-24
14	Second Circuiting of 132 kV Mungeli - Pandariya line (RL - 38.54 km) and 02 Nos. 132	Spill Over	13.76		38.54		2.00	8.00	3.76	0.00	FY 2023-24

	kV feeder bays										
15	Second Circuiting of 132 kV Pathalgaon - Jashpur line (RL - 107 km) and 02 Nos. 132 kV feeder bays	Spill Over	34.30		107		3.00	15.00	16.3	0.00	FY 2023-24
16	Second Circuiting of 132 kV Pratappur-Balrampur line (RL - 60 Km) and 02 Nos. 132 kV feeder bays	Spill Over	20.20		60		2.00	15.00	3.20	0.00	FY 2023-24
17	Strengthening of existing 132 kV lines feeding power to Raipur area	Spill Over	11.35				2.00	5.00	4.35	0.00	FY 2023-24
18	LILO of 132 kV Doma-Patan line at 132/33 kV upcoming substation, Amleshwar of 11 KM RL.	Spill Over	11.00				2.00	8.00	1.00	0.00	FY 2023-24
19	Providing OPGW cable along with all accessories in the transmission lines of 400 to 132 kV level of 4915 km route length for online real time data communication to main and back up SLDC and other various communication purposes.	Spill Over	105.14				2.00	50.00	50.00	3.14	FY 2023-24
	Total (D)		**410.84**				**42.00**	**197.48**	**148.22**	**3.14**	
	Total SO (A+B+C+D)		**2873.79**				**228.70**	**897.48**	**654.52**	**145.90**	

Scheme for increasing Central Sector Drawal by strengthening inter-State /intra-State transmission system of CSPTCL (Joint study among CEA, CTUIL,WRLDC & CSPTCL)

Sr. No.	**Scheme/Name of Work**		**Scheme Provision (Rs. Crore)**	**MVA Capacity**	**Line Length**		**Proposed Expenditure details to be incurred (in Rs. Crore)**				**Completion Target**
					Route Length in KM	**Length in CKt KM**	**MYT Control Period**				
							FY 22	**FY 23**	**FY 24**	**FY 25**	
1	**400 km Substation Bilaspur (2x315 MVA)**										
	400 kV DCDS Bilaspur pool Sipat(765 /400 kV PGCIL)-Bilaspur(Dhardehi) line on QM and 2 no. feeder bays at Bilaspur pool (Sipat PGCIL)	New Work	258.40	0	60	120	0.00	50.00	100.00	108.40	FY 2024-25
	220 V DCDS Bilaspur(Dhardehi)-Mungeli line on Twin moose and 2 Nos. 220 kV feeder bays	New Work	110.00		36	72	0.00	40.00	50.00	20.00	FY 2024-25

	at Mungeli S/s										
2	**400/220/132 kV Substation Pithora (2x500+ 2x160 MVA)**	New Work	180.00	2 x 500			2.00	50.00	100.00	28.00	Beyond FY 2024-25
	400 kV LILO of both circuit Raipur (PGCIL) - JPL 400 kV DCDS line at proposed 400/220 kV S/s Pithora	New Work	382.11		65	260	0.00	100.00	100.00	182.11	
	220 kV DCDS Pithora - Saraipali line & 2 no. 220 kV feeder bay at 220 kV S/s Saraipali.	New Work	72.70		51	102	0.00	2.00	30.00	30.70	
	220 kV DCDS Pithora- Paraswani line & 2 Nos. 220 kV feeder bays at 220 kV S/s Paraswani.	New Work	94.80		65	130	0.00	2.00	40	42.8	
	LILO of 132 kV Basna-Jhalap and 132 kV SankraJhalap line at proposed 220 kV S/s Pithora.	New Work	8.00		5	20	0.00	1.00	5.00	2.00	
3	**Creation of 220 kV level at 765/400 kV Raipur pool Substation (PGCIL Dhamdha) with 3x 500 MVA 400/220 kV transformers & 08 Nos. 220 kV feeder bays for the purpose of utilisation by CSPTCL in order to create interstate connectivity to increase ATC (available transfer capacity) under ISTS scheme (As discussed among CEA, CTU, WRPC, POSOCO & CSPTCL).**	New Work		3 x 500	0	0	0.00	0.00	0.00	0.00	
	220 kV DCDS Raipur pool (PGCIL) - Thelkadih line & 2 Nos. 220 kV Feeder bays at 220 kV S/s Thelkadih	New Work	56.43	0	41	82	0.00	5.00	30.00	21.43	FY 2024-25
	220 kV DCDS Raipur pool (PGCIL) -Gendpur (kawardha) line 2 Nos. 220 kV Feeder bays at 220 KV S/s at Gendpur (Kawardha)	New Work	85.95		65	130	0.00	10.00	50.00	25.95	FY 2024-25
	220 kV DCDS Raipur pool (PGCIL) - Bemetara line 2 Nos. 220 kV Feeder bays at 220 kV S/s Bemetara	New Work	57.66		42	84	0.00	5.00	30.00	22.66	FY 2024-25
	LILO of 220 kV Urla-Borjhara line on Hybrid scheme at 765 kV S/s Raipur pool (PGCIL	New Work	85.00		35	70	0.00	20.00	55.00	10.00	FY 2024-25

	Dhamdha)										
4	**Creation of 220 kV level at 765/400 kV S/s Dharamjaigarh (PGCIL) with 04 Nos. 220 kV feeder bays. with 3x 500 MVA 400/220 kV transformers & 08 Nos. 220 kV feeder bays for the purpose of utilisation by CSPTCL in order to create interstate connectivity to increase ATC (available transfer capacity) under ISTS scheme (As discussed among CEA, CTU, WRPC, POSOCO & CSPTCL).**	New Work									
	220 kV DCDS Dharamjaigarh (PGCIL) - Dharamjaigarh (Hati) line.	New Work	55.35		45	90	0.00	5.00	40.00	10.35	FY 2024-25
	220 kV DCDS Dharamjaigarh (PGCIL) - Churri line 2 Nos. 220 kV Feeder bays at 220 kV S/s Chhuri	New Work	67.50		50	100	0.00	5.00	45.00	17.50	FY 2024-25
5	400 kV DCDS PGCIL Jeypore (Orissa) – Jagdalpur(Parchanpal) line on twin moose along with 2 No 400 kV feeder bays at 400 kV S/s Jagdalpur(Parchanpal) (proposed 400 kV line shall be constructed under ISTS scheme)	New Work	10.00		100	200	0.00	0.00	0.00	5.00	Beyond FY 2024-25
6	220 kV DCDS Kurud - Gurur line along with 2 Nos. 220 feeder bays at 400 kV S/s Kurud and 220 kV S/s Gurur each	New Work	59.20		40	80	0.00	20.00	39.20	0.00	FY 2023-24
7	220 kV DCDS Bhatapara (PGCIL) - Bhatapara line along with 2 Nos. 220 kV feeder bays at 220 kV S/s Bhatapara	New Work	14.84	0	8	16	0.00	10.00	4.84	0.00	FY 2023-24
8	220 kV DCDS Khedamara - Bhilai line along with associated line bays at 220 kV S/s Bhilai	New Work	6.25	0	1	2	0.00	5.00	1.25	0.00	FY 2023-24
9	**Scheme to control fault level at Raipur (PG) &Bhilai (Khedamara) S/s (CSPTCL)-** Bypassing of Raipur – Bhilai 400kV S/c line at Bhilai end and connecting it to one circuit of Bhilai – Raita 400kV T/c line so as to form	New Work	2.00	0	1	1	0.00	1.50	0.50	0.00	FY 2023-24

	Raipur – Raita 400kV S/c line.										
			1606.19				**2.00**	**331.50**	**720.79**	**526.90**	
	Normal Development Schemes										
Sr. No.	**Scheme/Name of Work**		**Scheme Provision in (Rs. Crore)**	**MVA Capacity**	**Line Length**		**Proposed Expenditure details to be incurred (in Rs. Crore)**				**Completion Target**
					Route Length in KM	**Length in CKt KM**	**MYT Control Period**				
							FY 22	**FY 23**	**FY 24**	**FY 25**	
	220/132 kV Substation & Associated Lines										
1	**220/132/33 kV S/s Kumhari**	New Work	60.00	2X160 & 2X40			0.00	12.00	30.00	18.00	FY 2024-25
	220 kV DCDS Bhilai - Kumhari line.	New Work	10.00		5	10	0.00	6.00	3.00	1.00	FY 2024-25
	LILO of 132 kV Bhilai - Sarona and 132 kV Bhilai - Gudhiyari lines at proposed 220 kV S/s Kumhari.	New Work	5.00		5	20	0.00	1.00	3.00	1.00	FY 2024-25
	132 kV DCDS Kumhari-Sarora (Urla) line	New Work	11.70		15	30	0.00	1.00	6.00	4.70	FY 2024-25
2	**220/132 kV S/s Malda/Sarangarh**	New Work	60.00	2X160 & 2X40			0.00	5.00	30.00	25.00	FY 2024-25
	220 kV DCDS Raigarh (PGCIL) - Malda/Sarangarh line.	New Work	77.34	0	58	116	0.00	10.00	30.00	37.34	FY 2024-25
	LILO of 1 Ckt of 220 kV Saraipali - Raigarh line at proposed 220 kV S/s Malda/Sarangarh.	New Work	30.75	0	25	50	0.00	5.00	20.00	5.75	FY 2024-25
	132 kV DCDS Malda/Sarangarh - Sarangarh line & 2 Nos. 132 kV feeder bays at 132 kV S/s Sarangarh.	New Work	10.80	0	10	20	0.00	2.00	6.00	2.80	FY 2024-25
	132 kV DCDS Malda/Sarangarh - Dabhara line and 2 Nos. 132 kV feeder bays at 132 kV S/s Dabhra.	New Work	22.50	0	25	50	0.00	5.00	15.00	2.50	FY 2024-25
3	**220/132 kV S/s Murethi/ Parastarai (Distt.-Raipur) (GIS) Upgradable to 400/220/132kV**	New Work	75.00	2X160 & 2X63			0.00	10.00	50.00	15.00	FY 2024-25
	220 kV DCDS Raita-Murethi/Parastarai line and 2 Nos. 220 kV feeder bays at 400 kV S/s Raita	New Work	23.45		15	30	0.00	5.00	15.00	3.45	FY 2024-25
	LILO of 220 kV Bhilai - Bhatapara line at	New Work	12.30	0	10	20	0.00	3.00	7.00	2.30	FY 2024-25

	propsed 220 kV s/s Murethi/ Prasatari .										
	132 kV DCDS Murethi - Siltara-II line and 2 no. 132 kV feeder bays at 132 kV S/s Siltara -II.	New Work	14.70	0	15	30	0.00	3.00	7.00	4.70	FY 2024-25
4	**220/132/33 kV S/s Bacheli/Kirandul**	New Work	55.00	2 x 160 + 2 x 40			0.00	2.00	10.00	30.00	FY 2024-25
	220 kV DCDS Barsoor - Bacheli/Kirandul line along with feeder bays at Barsoor	New Work	91.30		71	142	0.00	5.00	30.00	40.00	Beyond FY 2024-25
	Total (B)		**559.84**				**0.00**	**75.00**	**262.00**	**193.54**	
	132/33 kV Substation & Associated Lines	New Work									
1	**132 kV S/s Chotiya Distt. Korba**	New Work	23.00	2 X40			0.00	5.00	16.00	2.00	FY 2023-24
	LILO of 132 kV Bishrampur -Bango line	New Work	11.70	0	15	30	0.00	2.00	8.00	1.70	FY 2023-24
2	**132 kV S/s Arjuni (Dhamtari)**	New Work	23.00	2 X 40			0.00	5.00	16.00	2.00	FY 2023-24
	132 kV DCDS Patan - Arjuni line & 2 Nos. 132 kV feeder bays at 220 kV S/s Patan	New Work	32.64	0	38	76	0.00	5.00	25.00	2.64	FY 2023-24
3	**132 kV S/s Raigarh Medical College**	New Work	23.00	2 X 40			0.00	5.00	16.00	2.00	FY 2023-24
	LILO of 132 kV Kondatarai - Jurda (NTPC) line	New Work	2.50	0	3	6	0.00	1.00	1.00	0.50	FY 2023-24
4	**132 kV Substation Bilaigarh**	New Work	23.00	2 X 40			0.00	5.00	16.00	2.00	FY 2023-24
	132 kV DCDS Bilaigarh - Sheorinarayan line and 2 Nos. 132 kV feeder bays at seorinarayan	New Work	35.76	0	42.00	84.00	0.00	5.00	28.00	2.76	FY 2023-24
5	**132 kV Substation Bhilmi (Beltara)**	New Work	23.00	2 X 40			0.00	5.00	16.00	2.00	FY 2023-24
	LILO of 132 kV SV Power - Koni line	New Work	11.70	0	15.00	30.00	0.00	2.00	8.00	1.70	FY 2023-24
6	**132 kV S/s Urla Colony (GIS)**	New Work	45.00	2X63			0.00	10.00	35.00	0.00	FY 2023-24
	132 kV DCDS line from 220 KV S/s Urla (HTLS)	New Work	10.00		1.00	1.00	0.00	1.00	1.00	0.00	FY 2023-24
	LILO of 132 kV Borjhra - Urla line	New Work	5.00		1.00	2.00	0.00	1.00	2.00	0.00	FY 2023-24
	Total (C)		**269.30**				**0.00**	**52.00**	**188.00**	**19.30**	
	Other System Improvement Works										
1	400 kV DCDS Raipur Pool (PGCIL Dhamdha) - Kurud line on Quad moose along with 2 Nos. 400 kV feeder bays at 400 kV S/s Kurud (proposed 400 kV line shall be constructed under ISTS scheme)	New Work	10.00		110.00	220.00	0.00	0.00	0.00	5.00	Beyond FY 2024-25
2	LILO of 400 kV Raita - Jagdalpur line at 400	New Work	30.00		1.00	2.00	0.00	15.00	15.00	0.00	FY 2023-24

	kV S/s Kurud along with 2 Nos. 400 kV feeder bays and 50 MVAR Bus reactor at 400 kV S/s Kurud										
3	Construction of 220 kV DCDS transmission line between Korba West and Chhuri S/s along with associated line 2 Nos. 220 kV feeder bays at Korba West and 220 kV S/s Chhuri each	New Work	34.60		20.00	20.00	0.00	10.00	20.00	4.60	FY 2024-25
4	LILO of 220 kV PGCIL Raipur - Urla line at 220 kV S/s Borjhara along with associated line bays at Borjhara	New Work	6.25	0.00	1.00	2.00	0.00	5.00	1.25	0.00	FY 2023-24
5	220 kV DCSS Patan - Doma line along with associated feeder bays at Doma	New Work	35.06		22.00	22.00	0.00	10.00	20.00	5.06	FY 2024-25
6	2nd Circuiting of 132 kV Gurur - Balod Line along with feeder bays at Gurur and Balod each	New Work	13.54	0.00	31.00	31.00	0.00	5.00	8.54	0.00	FY 2023-24
7	LILO of 132 kV Bemetara - Kawardha line at proposed 132 kV S/s Betar along with feeder bays at Betar	New Work	5.34	0.00	3.00	6.00	0.00	3.00	2.00	0.34	FY 2024-25
8	2nd circuiting of Bhanupratappur - Pakhanjur line along with feeder bays at Bhanupratappur and Pakhanjur each	New Work	25.25	0.00	62.5	62.5	0.00	12.00	12.00	1.25	FY 2024-25
9	Connnectivity between 132 kV S/s Sukma and Dornapal along with line and feeder bays at Sukma and Dornapal each	New Work	9.12		18.00	18.00	0.00	5.00	4.00	0.12	FY 2023-24
10	2nd circuiting of 132 kV Jagdalpur - Parchanpal line along with feeder bay at 400/220/132 kV S/s Parchanpal	New Work	5.90		10.00	10.00	0.00	4.00	1.90	0.00	FY 2023-24
11	132 kV DCDS Patan - Bakhara line along with associated line bays at Patan and Bakhara each	New Work	23.60		20.00	40.00	0.00	5.00	15.00	3.60	FY 2024-25
12	2nd circuiting of 132 kV Bhakhara - Kurud line along with feeder bays at Bhakhara and Kurud each	New Work	7.96		12.4	12.4	0.00	5.00	2.96	0.00	FY 2023-24
13	132 kV DCSS line from 220 kV S/s Suhela to 132 kV S/s Tulsi along with feeder bays at Tulsi	New Work	11.35		19.77	19.77	0.00	7.00	4.35	0.00	FY 2023-24

14	LILO of 132 kV Ambikapur - Pathalgaon line at 132 kV S/s Batauli along with feeder bays at Batauli	New Work	2.64		1.13	2.26	0.00	2.00	0.64	0.00	FY 2023-24
15	132 kV DCDS Daldalseoni-Metalpark line alongwith 2 Nos. 132 kV feeder bays at Daldalseoni&Metalpark each.	New Work	42.00				0.00	5.00	35.00	2.00	FY 2023-24
16	2nd circuiting of 132 kV Kanker-Nagri line along with associated line bays at Kanker&Nagri each	New Work	28.00				0.00	14.00	14.00	0.00	FY 2023-24
17	2nd circuiting of 132 kV Dongargaon to Mohla line along with associated line bays at Dongargaon&Mohla each	New Work	25.00				0.00	13.00	12.00	0.00	FY 2023-24
	Total (D)		**315.61**				**0.00**	**120.00**	**168.64**	**21.97**	
18	Additional/Augmentation of Xmer/Reactor in existing and upcoming EHV Substation	New Work	150.00				0.00	50.00	50.00	50.00	FY 2024-25
19	Construction of 220/132/33 kV feeder additional Bays in existing substations as per requirement	New Work	45.00				0.00	15.00	15.00	15.00	FY 2024-25
20	(A) Renovation and modernization of 220/ 132 kV Korba East S/s taken over by CSPTCL from CSPGCL with Scheme Provision of Rs. 19.90 Crore. (B) Capacitor Banks, RTU's, Communication equipment, Renovation & modernisation of existing old EHV S/s, battery, battery chargers, other EHV equipment of S/s, Conductor replacement etc. and other associated equipment, acquisition of land, Survey works, forest clearance, land compensation and Miscellaneous system improvement related with existing/new upcoming substation/PSDF Works/ OPGW works, Testing equipment, Energy meters,CT/PT for metering	New Work	210.00				0.00	70.00	70.00	70.00	FY 2024-25

21	Augmentation/ replacement of conductor by HTLS conductor of existing old EHV lines of state transmission system.	New Work	200.00				0.00	100.00	50.00	50.00	FY 2024-25
22	Smart grid arrangement/SCADA/Automation of existing substation of CSPTCL	New Work	300.00				0.00	100.00	100.00	100.00	FY 2024-25
23	Islanding of Raipur city with Marwa powerhouse (Under PSDF scheme of Rs. 300 Crore With 50 % cost borne by CSPTCL)	New Work	150.00				0.00	50.00	50.00	50.00	FY 2024-25
	Total ND		**2199.75**				**0.00**	**632.00**	**953.64**	**569.81**	
	Grand Total (SO +CS+ ND)		**6679.73**				**230.70**	**1860.98**	**2328.95**	**1242.61**	