

**Petition for approval of
Capital Investment Plan
For FY 2022-23 to FY 2024-25**

BEFORE

**THE HON'BLE CHHATTISGARH STATE ELECTRICITY REGULATORY
COMMISSION, RAIPUR, CHHATTISGARH**

Submitted By:

CHHATTISGARH STATE POWER GENERATION COMPANY LIMITED

November, 2021

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List of Abbreviations

Acronym	Definition
Capex	Capital Expenditure
CHP	Coal Handling Plant
CIP	Capital Investment Plan
CERC	Central Electricity Regulatory Commission
COD	Commercial Date of Operation
CSERC	Chhattisgarh State Electricity Regulatory Commission
CSEB	Chhattisgarh State Electricity Board
CSPGCL	Chhattisgarh State Power Generation Company Limited
CSR	Corporate Social Responsibility
DPR	Detailed Project Report
DSPM TPS	Dr.Shyama Prasad Mukherjee Thermal Power Station
EA 2003	Electricity Act 2003
E&M	Electrical & Mechanical
ESP	Electrostatic Precipitator
FD	Forced Draft
FY	Financial Year
GoCG	Government of Chhattisgarh
GFA	Gross Fixed Assets
Genco	Generation Company
HEP	Hydro Power Plant
HTPS KW	Hasdeo Thermal Power Station Korba West
KTPS KEB	Korba Thermal Power Station Korba East Bank
kV	Kilovolt
LE	Life Extension
MoEF	Ministry of Environment & Forest
MYT	Multi Year Tariff
MW	Megawatt
O&M	Operations and Maintenance
ODS	Ozone Depletion Substance
PLF	Plant Load Factor
PFC	Power Finance Corporation
R&M	Renovation and Modernisation
R&M Expenses	Repair & Maintenance Expenses
RoE	Return on equity
TPP	Thermal Power Plant

**BEFORE THE HON'BLE CHHATTISGARH STATE ELECTRICITY REGULATORY COMMISSION
RAIPUR, CHHATTISGARH**

IN THE MATTER OF:

Approval of Capital Investment Plan of Chhattisgarh State Power Generation Co. Ltd. (CSPGCL) for the next control period i.e. FY 2022-23 to 2024-25.

The petition is filed under Section 62 and 86 of the Electricity Act, 2003 read with 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 Regulation 2021) and orders / guidelines of the Hon'ble Commission.

THE APPLICANT:

Chhattisgarh State Power Generation Co. Ltd. CSPGCL: -

A Company incorporated under the provisions of the Companies Act, 1956 and having its registered office at Vidyut Sewa Bhawan, Dangania, Raipur. CSPGCL is one of the Successor Companies of erstwhile Chhattisgarh State Electricity Board.

LEGAL PROVISIONS

The Hon'ble Commission communicated the CSERC MYT Regulation 2021, on or around, 7th October 2021. The control period is from 1st April 2022 to 31st March 2025. CSPGCL files the instant petition in reference to the said provisions and prays for approval of the instant Capital Investment Plan for FY 22-23 to FY 24-25.

PRAYER

CSPGCL prays the following before the Hon'ble Commission:

- 1) Approve the instant Capital Investment Plan.
- 2) Condone any inadvertent omissions/ errors/ shortcomings and permit to add/ change/ modify/ alter this filing and make further submissions as may be required at a future date.
- 3) Allow recovery of petition filing fee and advertisement expenses.
- 4) Pass any other suitable relief which Hon'ble Commission may find deem fit.

Dated

**For
Chhattisgarh State Power Generation Co. Ltd., Raipur**

INTRODUCTION

COMPANY OVERVIEW

1. The Chhattisgarh State Power Generation Company Limited became functional w.e.f. 1st January 2009 subsequent to reorganization of Chhattisgarh State Electricity Board by the Govt. of Chhattisgarh.

HISTORY

2. For the current control period (FY 2016-17 to FY 2020-21), Hon'ble Commission approved the Capital Investment Plan vide order Dt. 16.03.16 in CSPGCL's Petition no 05 of 2016(M), read with order dated 02/05/2020 in the petition no 77 of 2018 and order dated 31.07.21 in the petition no 63 of 2020. Subsequently, Hon'ble Commission extended the control period to FY 21-22. Accordingly CSPGCL filed a petition for FY 21-22 which was registered petition no 10 of 2021. Hon'ble Commission passed the order on the same on 31st July 2021.
3. The instant petition is for the next control period and includes some of the carry over schemes too.

Approach to Instant Capital Investment Plan Petition

4. The instant petition is in accordance to the CSERC MY Regulations 2021. The instant CIP is being filed for the control period FY 22-23 to FY 24-25. For each of the plant, the schemes are listed under following two categories:
 - a. Schemes approved by the Commission in the previous order for the control period and expected to continue in the ensuing control period. However, for sake of brevity the schemes related to compliance of revised emission standards and submitted for in-principal approval in the petition number 63 of 2020, approved by the Hon'ble Commission vide order dated 31st July 2021, have not been included in the instant petition. For the ratio covered in the said petition and the order, leave is carved for submission of details of such schemes, after the discovery of market determined prices through open competitive bidding process.
 - b. New Schemes for the ensuing control period. Such schemes also include the schemes which are expected to commence during the control period but completion is expected in future years.

Under both the heads, further bifurcation has been made in two sub groups i.e E&M schemes and Civil schemes.

5. Apart from the above generic categorisation, in light of the typical constraints and circumstances, plant specific prayers have been made in the relevant section.

Capital Structure

6. The debt equity structure has been considered 70:30 on normative basis.

Plant wise Description

7. 2X250 MW DSPM TPS (Dr. Shyama Prasad Mukherjee Thermal Power Station) has installed capacity of 500 MW with 2 units of 250 MW each. The plant was commissioned in year 2008. The schemes proposed for the plant are submitted in the Annexure – I.
8. The 1 X 500 MW KWTPP (Korba West Thermal Power Plant) achieved COD on 5th September 2013. The cut off date for the plant is 31st March 2022. The schemes proposed for the plant are submitted in the Annexure – II.
9. The 2 X 500 MW ABVTPS (Atal Bihari Vajpai Thermal Power Station) achieved COD on 31st July 2016. The cut off date for the plant is 31st March 2022. The schemes proposed for the plant are submitted in the Annexure – III.
10. The 4 X 210 MW HTPS (Hasdeo Thermal Power Station) is the oldest serving thermal station. The last unit of the plant was commissioned in March 1986. The plan for the station is submitted in detail in the subsequent chapter. For the reasons detailed in the chapter, in the instant petition only the schemes related to ash disposal / utilisation and one pre approved E&M scheme i.e. procurement of GT (which are must for keeping the plant in operation) are submitted in the Annexure – IV.
11. The 3 X 40 MW Minimata Hasdeo Bango Hydro Electric Plant (also known as HEP Bango) is the only conventional hydro power plant in the state. The last unit of the plant was commissioned in January 1995. It provides cheapest power to the state at a tariff of less than Rs 1/- per unit. In addition, the plant also contributes to the state exchequer by way of water tax. No capital Investment has been prayed up to CIPs for FY 20-21. After more than 20 years of continuous service, some Capital Investment has become inevitable. The proposals are submitted as Annexure – V.

Capital Investment Plan for 4x210MW HTPS Korba West

12. The 4x210MW HTPS Korba West Plant is the veteran war horse in the CSPGCL stable providing cheapest power to the state. The last unit of the plant was commissioned in 1986. The TG (Turbine-Generator) of all the 4 units is of BHEL make while boilers of 2 units (Unit-I & II) are BHEL make and the other 2 units have boilers of ABL make. The plant has completed more than 35 year of continuous service without any package base Renovation and Modernization which may lead to PI (Performance Improvement) and LE (Life Extension).
13. It is submitted that any life extension for a considerable period (say more than 5 years) may also attract installation of FGD, NO_x control systems etc. Depending upon the consideration by CPCB there may be requirement for installation of cooling towers too. Further for life extension capital investments on replacement/repair of many equipments/auxiliaries would also be required. All these activities would be capital intensive and may require shutdown of units too. Leave is humbly craved to make detail submission in this regard through a separate petition, once the internal deliberations are completed and a final view is taken by the competent authority.
14. In the order dated 31.07.2021 on petition 63 of 2020, Hon'ble Commission held:-
- “.....regarding HTPS utility to note that Commission has already advised during hearing in the petition to conduct the RLA study and come up with comprehensive plan for balance life of the plant. Only after assessment of cost benefit analysis of such comprehensive investment plan, a judicious view can be taken by the Commission. Therefore, for HTPS it is directed that firm up plan for FGD and DeNOx systems should be submitted along-with composite future plan based on RLA study. This will be in the best interest of all the stakeholders in general and for CSPGCL in particular. Meanwhile, CSPGCL may continue to explore the options and take enabling actions to expedite the process, however commitment to big ticket capital investment is not advisable before prior approval.”*
15. In the above context, it is submitted that in compliance of the directions, the utility is actively exploring all options. Already RLA has been completed on 1 TG set and 1 boiler of BHEL make and 1 boiler of ABL make. Based on the reports and other critical inputs, a high level committee of experienced HOD's is currently deliberating all options and as such in the instant petition no big capital investment has been included for HTPS. Only the proposals for ash disposal / ash utilization (under the Regulation 19.2) are submitted as Annexure – IV. It may be useful to submit that the aspect of indispensability of such Ash related schemes for HTPS

has already been appreciated by the Commission in the above cited order dated 31.07.2021 on petition 63 of 2020 as well as even dated order on petition 10 of 2021. In the instant petition, CSPGCL has religiously followed the principle adopted by the Hon'ble Commission.

16. At this juncture, it is pertinent to submit that in the order dated 31.07.2021 on the petition no 10 of 2021, Hon'ble Commission allowed continuation of the seven schemes. These schemes were approved for the current control period and currently in progress. Some of the schemes are expected to be completed in the current financial year and some others may spill over to the next control period. The status and prayers in respect of each of the seven such schemes is as under:

SN	Scheme description	Status	Prayer
1	Augmentation of ESP	Work of all the 4 units is expected to be completed in the current FY, however, some residual works, PG test etc. may spill over to the next control period.	Leave may kindly be granted for completion of balance works and payments towards un-discharged liabilities in the next control period.
2	Procurement of 6.6KV VCB for replacement of old MOCB	The work is expected to be completed within the current financial year.	-
3	DDCMIS (DCS)	Completion of Work of units I & II is expected in the current control period. Some balance works and PG test of the two units may spill over to the next control period.	Leave may please be granted for completion of balance works of unit 1 & II and payment towards un-discharged liabilities in the next control period and re-submission of plan for unit III & IV along with the comprehensive plan.
4	Refurbishment of HPT/ IPT Module	A part of the proposed scheme has been undertaken in the current control period.	Leave is craved for submission of the plan for the balance work along with the comprehensive plan.
5	Procurement & replacement of LPT rotor blades.		
6	Refurbishment of HP Stop valves & Servomotor		

SN	Scheme description	Status	Prayer
7	New GT for Unit 1	Order for the GT has been placed however it is reported that due to pandemic there is shortage of imported CRGO Steel. Difficulty in procurement by the manufacturer, may result in delay in supply.	<u>It is prayed that spill over to the next control period may please be allowed.</u> Further due to global rise in metal indices the cost may rise as per the settled PV formula. Leave is humbly prayed for submission of revised price at the time of True Up.

17. At the same time, with all the humility at its command and with undiminished respect to the directives of the Hon'ble commission, most humbly it is submitted that decision on the separate comprehensive plan based on RLA and other inputs, covering the capital investments required for LE/PI and compliance of statutory requirement laid down in the MOEF&CC notification may take its own time. However, looking to the vintage of the plant, technological obsolescence, for safe operation of the units, some capital nature investments would be inevitable. Forecasting specific requirements, for such an old plant, for the whole control period, is extremely difficult. As such, it may be extremely prudent and rational to consider some allowance for such capital nature works (in lieu of consideration of pre-defined specific schemes) so that the utility may take urgent action to mitigate any threat to life and property in timely manner. Such consideration will not only be in the interest of all the stake holders but would also meet the pith and the substance of regulation 7 read with regulation 21.4 of the MYT regulation 2021.
18. CSPGCL humbly prays for grant of an allowance of Rs. 4.75 Lakhs per Megawatt per year for the old HTPS Plants. It may please be appreciated that the proposed allowance is half of the allowance stipulated in the regulation 21.4 of the MYT regulations. Hon'ble Commission is prayed to approve the same.
19. In the above context it is also submitted that in the present condition, CEA has presumed these units as retiring units. MOEF&CC has issued a new notification on 31st March 2021 which has prescribed new timelines for compliance of the emission norms based on the location / area. It is submitted that Korba region falls in the category B with the timeline for compliance of the new environment norms as 31st December 2025. Thus, irrespective of the extended future plan of HTPS, the units are very well expected to serve during the next control period i.e. upto 31st

March 2025. Further the notification also allows that if such unit continue to operate beyond the date specified in the undertaking of retirement, they shall be levied environment compensation at the rate of Rs. 0.20 per unit electricity generated. It may please be appreciated that if the conditions require so, than even after loading of the environment compensation, the net effective rate on the bus bar may still be the cheaper than any other substitute power. Thus continuation of the plant in the next control period is undisputedly in the interest of all the stake holders. Hon'ble Commission is requested to allow the prayers in the pre-paras.

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Installation of Emission Control Systems at CSPGCL Thermal Power Stations

20. While matter related to installation of new emission control systems at HTPS has been dealt in the previous chapter, CSPGCL respectfully submits that for rest of its Thermal Power Stations the Hon'ble Commission in the order dated 31.07.2021 on petition 63 of 2020, held:-

“10. Based on the scrutiny of the petition, additional submission made by the petitioner and information gathered during TVS, Commission agrees that the proposed works are necessary to comply with the revised environmental norms. Commission also finds that submission of the petitioner is only for in-principle approval and the petitioner has craved leave for separate submission of final cost based on competitive bidding, impact of Tariff, APC, O&M cost and other such aspect after discovery of rates and finalization of the regulation. Commission, therefore grants in principle approval for installation of FGD & DeNOx systems at DSPM TPS, KWTPP & ABVTPS plants and leave is granted for submission of separate petition under the applicable regulation with the firmed up cost derived on the basis of transparent bidding process. Till then, no tariff consideration on account of these schemes would be made.”

21. In the above context it is submitted that the tendering process for all the above named thermal power stations i.e. 2x250MW DSPM TPS, 1x500MW KWTPP and 2x500MW ABVTPS has been initiated. As Korba region falls in the category B area, priority is being given to the tenders for DSPM TPS and KWTPP. In fact after the NIT for DSPM TPS the pre bid conference has also been held last month and bid opening is expected by November end. However discovery of the final prices through the open transparent competitive bidding process may take some time. Therefore in accordance to the Hon'ble Commission's above cited approval CSPGCL is not making any submission in the subject matter and leave is humbly prayed for submission of separate petition under the applicable regulation with the firmed up cost derived on the basis of transparent bidding process.

22. In compliance of the Hon'ble Commission's above cited direction CSPGCL also submits that in the MYT Petition to be filed shortly for the next control period no tariff proposal on account of FGD and DeNOx systems shall be included. Prayer for the same shall be submitted only after filing of the petition for approval of the Capex for the installation of the new emission control systems.

Capital Investment Plan for Dr. Shyama Prasad Mukherjee TPS

All figures in Rs Cr

SN	SCHEME & THE JUSTIFICATION	SCHEME COST	EXPECTED CAPITLISATION SCHEDULE				
			PRIOR TO FY 22-23	FY 22-23	FY 23-24	FY 24-25	AFTER FY 24-25
SCHEMES APPROVED IN THE PREVIOUS ORDER AND EXPECTED TO CONTINUE IN THE ENSUING CONTROL PERIOD							
PRE-APPROVED E& M SCHEMES							
1	<p><u>HMI Up-gradation of Max DNA DCS & Max SCADA</u></p> <p>Approved in the petition no 10 of 2021 vide order dated 31st July 2021 for Rs. 6.60 Cr and after Order the same is revised to Rs 6.30 Cr. Hon'ble Commission has approved the scheme with the ratio - Service / support of Windows XP has been stopped by M/s Microsoft and spare workstations are not available. Further the original supplier M/s BHEL has informed that after replacement of Windows XP by Windows 10 professional, it will not support the existing application software and the upgraded version of Max DNA software would be needed.</p> <p>Partial carry over to next control period is inevitable because installation requires outage and in one year outage of only one unit is feasible.</p>	6.30	3.15	3.15			
SUB TOTAL – PRE-APPROVED E&M SCHEMES		6.30	3.15	3.15			

SN	SCHEME & THE JUSTIFICATION	SCHEME COST	EXPECTED CAPITLISATION SCHEDULE				
			PRIOR TO FY 22-23	FY 22-23	FY 23-24	FY 24-25	AFTER FY 24-25
PRE-APPROVED CIVIL SCHEMES							
1	<p><u>3rd Stage Raising of Lagoon-II of Ash Dyke from R.L. 316.0 m to 319.0 m at village Gorhi/Pandripani.</u></p> <p>The scheme was approved vide order dated 31st July 2021 in petition no 10 of 2021. As per original approval also the work amounting to Rs 2.80 Cr was expected in the current control period with balance in future. There is no cost / time overrun.</p> <p>The approval is in accordance to the Regulation 19.2(iii) of the prevailing regulation and 19.2 (v) of the CSERC MYT Regulation 2021.</p> <p>The scheme is pre-approved and submitted for comprehensive presentation of facts.</p>	3.63	2.80	0.83			
2	<p><u>Creation of capacity for Ash slurry disposal by Strengthening/ Buttressing of embankment and outer raising of Lagoon No-1, Phase-I (for 450 mtr length) of Ash dyke at Village Gorhi / Pandripani.</u></p> <p>Like the scheme mentioned at SN 1, this scheme was also approved in accordance to the same regulations vide previous order dated 31st July 2021. As per original approval, the work had to start in FY 21-22, but capitalisation was expected later. There is</p>	7.05		7.05			

SN	SCHEME & THE JUSTIFICATION	SCHEME COST	EXPECTED CAPITLISATION SCHEDULE				
			PRIOR TO FY 22-23	FY 22-23	FY 23-24	FY 24-25	AFTER FY 24-25
	no cost / time overrun. The scheme is pre-approved and submitted for comprehensive presentation of facts.						
SUB TOTAL – PRE-APPROVED CIVIL SCHEMES		10.68	2.80	7.88			
SUB TOTAL – ALL PRE-APPROVED SCHEMES		16.98	5.95	11.03			
NEW SCHEMES EXPECTED TO COMMENCE IN THE ENSUING CONTROL PERIOD							
NEW E&M SCHEMES							
1	<p><u>Second Raw Water Line for DSPM TPS from KTPS and installation of filters & laying of drinking water lines</u></p> <p>The Scheme was approved ‘in-principle’ in previous CIP. Now, after exploring the options, and in view of closure of KTPS, the scheme is proposed for implementation. The proposal includes EPC for laying additional 800 NB new pipeline from intake canal of KTPS and also installation of additional filters at WT Plant of DSPM TPS with laying of drinking water lines to colony. Due to closure of KTPS alternate arrangement of drinking water is essential.</p> <p>Thus the proposal squarely qualifies as under the Regulation 19.2(x) as indispensable work.</p>	7.02			7.02		

SN	SCHEME & THE JUSTIFICATION	SCHEME COST	EXPECTED CAPITLISATION SCHEDULE				
			PRIOR TO FY 22-23	FY 22-23	FY 23-24	FY 24-25	AFTER FY 24-25
2	<p><u>Installation of CCTV Surveillance system</u></p> <p>For better safety and security of the plants, installation of CCTV surveillance system is now considered quite essential.</p> <p>CSPGCL prays for approval of the scheme under the Regulation 19.2 (vii) i.e “<i>Need for higher security and safety of the plant in line with approvals accorded by the Central Commission;</i>”</p> <p>It is submitted that CERC has approved CCTV installation for NTPC Talcher vide order dated 16/02/17 in the petition no 29/GT/2014. Approval was also granted for NTPC Ramgundam in the order dated 08.08.2016 in petition no 219/GT/2014 and for Simhadri TPS vide order dated 27.01.17 in review petition no 36/RP/2016. Further, in the two cases where such expense was not allowed by CERC, Hon’ble APTEL allowed the same. For VSTPS stage II & III, Hon’ble APTEL decided in favour of NTPC on 09.05.19 in the Appeal no 125 of 2017 and on 29.01.20 in Appeal no 93 of 2017.</p> <p>Now, as the need for higher security and safety has been specifically recognised in the Regulation, the instant case qualifies under the Regulation 19.2 (vii).</p>	4.94			4.94		
SUB TOTAL – NEW E&M SCHEMES		11.96	0	0	11.96	0	0

SN	SCHEME & THE JUSTIFICATION	SCHEME COST	EXPECTED CAPITLISATION SCHEDULE				
			PRIOR TO FY 22-23	FY 22-23	FY 23-24	FY 24-25	AFTER FY 24-25
NEW CIVIL SCHEMES							
	<p>Creation of capacity for Ash slurry disposal by Strengthening/ Buttressing of embankment & outer raising of Lagoon No-1 (Phase-II) of Ash dyke at village Gorhi / Pandripani.</p> <p>The proposal is in accordance to the Regulation 19.2 (v) of the CSERC MYT Regulation 2021. Approval is humbly prayed.</p>	6.75			6.75		
	<p>4th Stage Raising of Lagoon-I of Ash Dyke from R.L. 319.0 m to 322.0 m at village Gorhi/Pandripani.</p> <p>The proposal is in accordance to the Regulation 19.2 (v) of the CSERC MYT Regulation 2021. Approval is humbly prayed.</p>	4.87			4.0	0.87	
SUB TOTAL – NEW CIVIL SCHEMES		11.62	0.00	0.00	10.75	0.87	0.00
TOTAL – ALL NEW SCHEMES		23.58	0.00	0.00	22.71	0.87	0.00
TOTAL – ALL E&M SCHEMES		18.26	3.15	3.15	11.96	0.00	0.00
TOTAL – ALL CIVIL SCHEMES		22.30	2.80	7.88	10.75	0.87	0.00
<u>GRAND TOTAL – ALL SCHEMES</u>		<u>40.56</u>	<u>5.95</u>	<u>11.03</u>	<u>22.71</u>	<u>0.87</u>	<u>0.00</u>

CAPITAL INVESTMENT PLAN FOR 1X500 MW KWTPP

All figures in Rs Cr

SN	SCHEME & THE JUSTIFICATION	SCHEME COST	EXPECTED CAPITLISATION SCHEDULE				
			PRIOR TO FY 22-23	FY 22-23	FY 23-24	FY 24-25	AFTER FY 24-25
SCHEMES APPROVED IN THE PREVIOUS ORDER AND EXPECTED TO CONTINUE IN THE ENSUING CONTROL PERIOD							
PRE-APPROVED CIVIL SCHEMES							
1	<p>2nd stage Raising the height of pond 1-B from RL 313 M to 316 M of ash dyke at Dindolbhata</p> <p>The scheme proposed for height Raising of dyke, Raising of decantation well, construction of WBM road, on bund top and ancillary works was approved vide previous order dated 31st July 2021 in petition no 10 of 2021 for Rs 4.66 Cr. As per original approval, the work had to start in FY 21-22, but capitalisation was expected later. There is no cost / time overrun rather there is a cost reduction after LOI.</p> <p>As the regulatory provision in the current Regulation and the MYT Regulation 2021 remains same, (only change being shift from 19.2 (iii) to 19.2 (v)), it is prayed that the approval may please be retained.</p>	3.67		3.67			
SUB TOTAL – ALL PRE-APPROVED SCHEMES		3.67		3.67			

SN	SCHEME & THE JUSTIFICATION	SCHEME COST	EXPECTED CAPITLISATION SCHEDULE				
			PRIOR TO FY 22-23	FY 22-23	FY 23-24	FY 24-25	AFTER FY 24-25
NEW SCHEMES EXPECTED TO COMMENCE IN THE ENSUING CONTROL PERIOD							
NEW E&M SCHEMES							
1	<p><u>Installation of CCTV Surveillance system</u></p> <p>For better safety and security of the plants, installation of CCTV surveillance system is now considered quite essential.</p> <p>CSPGCL prays for approval of the scheme under the Regulation 19.2 (vii) i.e “<i>Need for higher security and safety of the plant in line with approvals accorded by the Central Commission;</i>”</p> <p>It is submitted that CERC has approved CCTV installation for NTPC Talcher vide order dated 16/02/17 in the petition no 29/GT/2014. Approval was also granted for NTPC Ramgundam in the order dated 08.08.2016 in petition no 219/GT/2014 and for Simhadri TPS vide order dated 27.01.17 in review petition no 36/RP/2016. Further, in the two cases where such expense was not allowed by CERC, Hon’ble APTEL allowed the same. For VSTPS stage II & III, Hon’ble APTEL decided in favour of NTPC on 09.05.19 in the Appeal no 125 of 2017 and on 29.01.20 in Appeal no 93 of 2017.</p>	2.33			2.33		

SN	SCHEME & THE JUSTIFICATION	SCHEME COST	EXPECTED CAPITLISATION SCHEDULE				
			PRIOR TO FY 22-23	FY 22-23	FY 23-24	FY 24-25	AFTER FY 24-25
	Now, as the need for higher security and safety has been specifically recognised in the Regulation, the instant case qualifies under the Regulation 19.2 (vii).						
2	<p>Procurement of 2 No fire tender</p> <p>Two old fire tenders are in service at HTPS since 1986 and have completed their useful life and need urgent replacement. The fire tenders are providing service to the old 4X210 MW plant as well as the new 1X500 MW KWTPP. The new plant has much longer remaining life in comparison to the old plant therefore in accordance to the rational adopted by the Hon'ble Commission in the order dated 31.03.2012 in the petition no 01 of 2012 on the scheme related to procurement of ambient air quality monitoring system at KTPS/DSPM, in the interest of lower loading on the beneficiaries though the write off shall be from HTPS, in the CIP the booking is proposed against KWTPP.</p> <p>In view of the above, Commission is prayed to approve the procurement under Regulation 19.2(x) of MYT Regulation 2021.</p>	1.2		1.2			
SUB TOTAL – NEW E&M SCHEMES		3.53		1.20	2.33		

SN	SCHEME & THE JUSTIFICATION	SCHEME COST	EXPECTED CAPITLISATION SCHEDULE				
			PRIOR TO FY 22-23	FY 22-23	FY 23-24	FY 24-25	AFTER FY 24-25
NEW CIVIL SCHEMES							
1	<p>2nd stage Raising the height of pond no. 1 A from RL 313 M to 316 M of ash dyke of 1 x 500 MW KWTPP</p> <p>The proposal is in accordance to the Regulation 19.2 (v) of the CSERC MYT Regulation 2021. Approval is humbly prayed.</p>	3.54		3.54			
2	<p>2nd stage Raising the height of Pond No-2 from RL 313 M to 316 M of ash dyke of 1 x 500 MW KWTPP.</p> <p>The proposal is in accordance to the Regulation 19.2 (v) of the CSERC MYT Regulation 2021. Approval is humbly prayed.</p>	3.87			3.87		
3	<p>Providing, laying and jointing inter connection, testing and commissioning of 300 mm dia main drinking water ductile iron pipeline from W.T. plant to OHT no. 03 at colony and renovation of water supply system of colony complex zone AB, CD, EFG and public buildings.</p> <p>The original pipeline was laid during the time of construction of HTPS plant & colony. With time the wear & tear has occurred, and frequent rupture of pipe is occurring causing hindrance in supply of water. Therefore, a new pipeline need to be laid to provide drinking water supply and the colony network also need</p>	4.35		2.00	2.35		

SN	SCHEME & THE JUSTIFICATION	SCHEME COST	EXPECTED CAPITLISATION SCHEDULE				
			PRIOR TO FY 22-23	FY 22-23	FY 23-24	FY 24-25	AFTER FY 24-25
	<p>renovation. As the colony of the new KWTPP plant is same as the old HTPS plant, hence irrespective of future plan for HTPS, the drinking water system is also common. The new plant will serve for minimum about 20 years; as such, renovation of water supply system is a must and in line with the philosophy adopted by the Hon'ble Commission in previous orders, the scheme is proposed to be booked to the new KWTPP plant.</p> <p>It is submitted that drinking water is an essential requirement, and the colony is integral part of a power station, the work is indispensable. The proposal is submitted under Regulation 19.2 (x) of the CSERC MYT Regulation 2021. Approval is humbly prayed.</p>						
SUB TOTAL – NEW CIVIL SCHEMES		11.76	0.00	5.54	6.22	0.00	0.00
TOTAL – ALL NEW SCHEMES		15.29	0.00	6.74	8.55	0.00	0.00
TOTAL – ALL E&M SCHEMES		3.53	0.00	1.20	2.33	0.00	0.00
TOTAL – ALL CIVIL SCHEMES		15.43	0.00	9.21	6.22	0.00	0.00
GRAND TOTAL – ALL SCHEMES		<u>18.96</u>	<u>0.00</u>	<u>10.41</u>	<u>8.55</u>	<u>0.00</u>	<u>0.00</u>

CAPITAL INVESTMENT PLAN FOR 2X500 MW ABVTPS

All figures in Rs Cr

SN	SCHEME & THE JUSTIFICATION	SCHEME COST	EXPECTED CAPITLISATION SCHEDULE				
			PRIOR TO FY 22-23	FY 22-23	FY 23-24	FY 24-25	AFTER FY 24-25
SCHEMES APPROVED IN THE PREVIOUS ORDER AND EXPECTED TO CONTINUE IN THE ENSUING CONTROL PERIOD							
PRE-APPROVED CIVIL SCHEMES							
1	<p>Construction of RCC drain in cutting portion of Railway line between chainage 10/800 and 13/070, and currently provided with Kachha drains.</p> <p>Considering the difficulty faced in disposal of the storm water proposal for preventive and permanent solution by construction of RCC drain was approved vide previous order dated 31st July 2021. On petition no 10 of 2021. As per original approval, the work had to start in FY 21-22 and Rs 1.30 Cr is to be capitalised in FY 21-22. Balance capitalisation is proposed in this control period. There is no cost / time overrun.</p> <p>As the regulatory provision in the current Regulation and the MYT Regulation 2021 remains same, it is prayed that the approval may please be retained under regulation19.2(x).</p>	3.61	1.30	2.31			

SN	SCHEME & THE JUSTIFICATION	SCHEME COST	EXPECTED CAPITLISATION SCHEDULE				
			PRIOR TO FY 22-23	FY 22-23	FY 23-24	FY 24-25	AFTER FY 24-25
SUB TOTAL – ALL PRE-APPROVED SCHEMES		3.61	1.30	2.31			
NEW SCHEMES EXPECTED TO COMMENCE IN THE ENSUING CONTROL PERIOD							
NEW E&M SCHEMES							
	-	-	-	-	-	-	-
NEW CIVIL SCHEMES							
	-	-	-	-	-	-	-
SUB TOTAL – NEW CIVIL SCHEMES		0.00	0.00	0.00	0.00	0.00	0.00
TOTAL – ALL NEW SCHEMES		0.00	0.00	0.00	0.00	0.00	0.00
TOTAL – ALL E&M SCHEMES		0.00	0.00	0.00	0.00	0.00	0.00
TOTAL – ALL CIVIL SCHEMES		3.61	1.30	2.31	0.00	0.00	0.00
GRAND TOTAL – ALL SCHEMES		<u>3.61</u>	<u>1.30</u>	<u>2.31</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>

Capital Investment Plan for Hasdeo Thermal Power Station (HTPS)

All figures in Rs Cr

SN	SCHEME & THE JUSTIFICATION	SCHEME COST	EXPECTED CAPITLISATION SCHEDULE				
			PRIOR TO FY 22-23	FY 22-23	FY 23-24	FY 24-25	AFTER FY 24-25
SCHEMES APPROVED IN THE PREVIOUS ORDER AND EXPECTED TO CONTINUE IN THE ENSUING CONTROL PERIOD							
PRE-APPROVED E& M SCHEMES							
1	<p>New GT for Unit 1</p> <p>Approved in the petition no 77 of 2018 (T) vide order dated 02.05.2020 at cost of Rs 11 Cr. which was later on reduced to Rs 8 Cr. Order on petition no 10 of 2021 dtd 31.07.2021. Order for the GT was placed on M/s TELK (PSU) in August 2020; however, the manufacturer has made a representation for allowing the delay due to pandemic. It is also reported that there is shortage of imported CRGO Steel with steep price rise in material cost. In this regard, IEEMA has also made a generic representation to the Secretary Power GoI.</p> <p>Thus, for the reasons beyond control of CSPGCL inspite of best-efforts commissioning may spill over to next financial year and the</p>	8.00		8.00			

SN	SCHEME & THE JUSTIFICATION	SCHEME COST	EXPECTED CAPITLISATION SCHEDULE				
			PRIOR TO FY 22-23	FY 22-23	FY 23-24	FY 24-25	AFTER FY 24-25
	savings in the cost as anticipated earlier (from Rs 11 Cr approved in order dated 02.05.2020) may also not materialise fully.						
SUB TOTAL – PRE-APPROVED E&M SCHEMES		8.00		8.00			
PRE-APPROVED CIVIL SCHEMES							
1	Raising the height of pond A from RL 343 m to 346 m at Ash Bund Lotlota at HTPS. Earlier approved cost was 3.13 Cr, post LOI it is revised to 2.70 Cr.	2.7		2.7			
SUB TOTAL – PRE-APPROVED CIVIL SCHEMES		2.7		2.7			
SUB TOTAL – ALL PRE-APPROVED SCHEMES		10.7		10.7			
NEW SCHEMES EXPECTED TO COMMENCE IN THE ENSUING CONTROL PERIOD							
NEW CIVIL SCHEMES							
1	Creation of capacity for Ash Disposal by strengthening / buttressing of embankment and outer Raising of Pond-B, Phase-I (for 400 m length) of Lotlota Ash Dyke at HTPS. The proposal is in accordance to the Regulation 19.2 (v) of the CSERC MYT Regulation 2021. Approval is humbly prayed.	4.99			4.99		

SN	SCHEME & THE JUSTIFICATION	SCHEME COST	EXPECTED CAPITLISATION SCHEDULE				
			PRIOR TO FY 22-23	FY 22-23	FY 23-24	FY 24-25	AFTER FY 24-25
2	<p>Creation of capacity for Ash Disposal by strengthening / buttressing of embankment and outer Raising of Pond-B, Phase-II (for 500 m length) of Lotlota Ash Dyke at HTPS.</p> <p>The proposal is in accordance to the Regulation 19.2 (v) of the CSERC MYT Regulation 2021. Approval is humbly prayed.</p>	4.97			4.97		
3	<p>9th Raising the height of pond B from RL. 342 to 345 m at Ash bund of Lotlota at HTPS.</p> <p>The proposal is in accordance to the Regulation 19.2 (v) of the CSERC MYT Regulation 2021. Approval is humbly prayed.</p>	3.46				3.46	
4	<p>IInd Stage raising of lagoon - I A from RL 313 M to 318 M at ash bund at village Jhabu at HTPS.</p> <p>The proposal is in accordance to the Regulation 19.2 (v) of the CSERC MYT Regulation 2021. Approval is humbly prayed.</p>	7.16				6.00	1.16
SUB TOTAL – NEW CIVIL SCHEMES		20.58	0.00	0.00	9.96	9.46	1.16

SN	SCHEME & THE JUSTIFICATION	SCHEME COST	EXPECTED CAPITLISATION SCHEDULE				
			PRIOR TO FY 22-23	FY 22-23	FY 23-24	FY 24-25	AFTER FY 24-25
	TOTAL – ALL NEW SCHEMES	20.58	0.00	0.00	9.96	9.46	1.16
	TOTAL – ALL E&M SCHEMES	8.00	0.00	8.00	0.00	0.00	0.00
	TOTAL – ALL CIVIL SCHEMES	23.28	0.00	2.70	9.96	9.46	1.16
	<u>GRAND TOTAL – ALL SCHEMES</u>	<u>31.28</u>	<u>0.00</u>	<u>10.70</u>	<u>9.96</u>	<u>9.46</u>	<u>1.16</u>

NOTE – Apart from the above, there may be un-discharged liabilities towards ESP& DDCMIS U#1&2. Further as prayed in the chapter on HTPS, leave is craved for detailed filing on comprehensive plan for HTPS including carryover of pre-approved schemes specified in the chapter.

CAPITAL INVESTMENT PLAN FOR 3x40 MW HASDEO BANGO HYDRO POWER STATION

All figures in Rs Cr

SN	SCHEME & THE JUSTIFICATION	SCHEME COST	EXPECTED CAPITLISATION SCHEDULE				
			PRIOR TO FY 22-23	FY 22-23	FY 23-24	FY 24-25	AFTER FY 24-25
SCHEMES APPROVED IN THE PREVIOUS ORDER AND EXPECTED TO CONTINUE IN THE ENSUING CONTROL PERIOD							
1	<p><u>New Microprocessor based DEHG System</u></p> <p>Approved in the petition no 10 of 2021 vide order dated 31st July 2021 with the ratio -</p> <p><i>“The old governing system is Electro Hydraulic Governor (EHG) system type-G-40 BHEL Make consisting of EHG cabinet and Hydro Mechanical Cabinet (HMC). The system has already completed more than 25 years life and has become obsolete and spares are also not available. It is proposed to retrofit existing analog version EHGC (EHG & HMC cubical) with new Digital Electro Hydraulic Governor (DEHG) for guide vane control. It would ensure smooth and safe operation with compliance of the prevailing norms.”</i></p> <p>Originally it was planned that one unit work may be undertaken in</p>	3.06		1.02	1.02	1.02	

SN	SCHEME & THE JUSTIFICATION	SCHEME COST	EXPECTED CAPITLISATION SCHEDULE				
			PRIOR TO FY 22-23	FY 22-23	FY 23-24	FY 24-25	AFTER FY 24-25
	FY 21-22, however because of second wave of Covid, the same was not possible and now with coal shortages, shut down of hydro plant may not be feasible. As such in the instant petition all three units are considered in ensuing control period.						
	<p><u>New Digital Excitation system in unit 1 & 2</u></p> <p>Approved in the petition no 10 of 2021 vide order dated 31st July 2021 with the ratio -</p> <p><i>“The units are equipped with analog version BHEL make Static Excitation System. The system is running for more than 25 years without any modification till date. However of late problems such as tripping of unit due to malfunctioning of AVR cards, frequent failure of Field Breaker Trip Coil, field flashing equipment etc have been encountered. At present the system has become obsolete and spares are not available with the OEM too. Replacement of the system with new digital system has become a must. The instant proposal is for replacement of the system for the other two units i.e Unit 1 & Unit 2.”</i></p> <p>In this case too, originally it was planned that one unit work may be undertaken in FY 21-22, however for the reasons stated at SN 1, rephasing has been done and in the instant petition both the units are considered in ensuing control period.</p>	4.09		2.05	2.04		

SN	SCHEME & THE JUSTIFICATION	SCHEME COST	EXPECTED CAPITLISATION SCHEDULE				
			PRIOR TO FY 22-23	FY 22-23	FY 23-24	FY 24-25	AFTER FY 24-25
	<p><u>Procurement of one number Turbine runner</u></p> <p>This scheme was also approved in the petition no 10 of 2021 vide order dated 31st July 2021 with the ratio -</p> <p><i>“During COH of unit no 3, heavy pitting and erosion in runner blades has been observed. Repair of Hydro Turbine runner is possible only at OEM (BHEL) works, which would require large span of time. As all the three units have served more than 25 years, refurbishment of runners would be required. As no spare rotor is available, to avoid, long outages procurement of a spare rotor is a must.”</i></p> <p>As runner takes a long gestation period, in the previous order too, capitlisation was considered in the next control period only. The same timeline is maintained in the instant petition. Though Capex may start in FY 21-22 (by way of issue of advance to BHEL) and material may reach to site in FY 22-23, looking to the outage required capitlisation has been considered in FY 24-25.</p>	8.00				8.00	
SUB TOTAL – PRE APPROVED SCHEMES		15.15		3.07	3.06	9.02	

SN	SCHEME & THE JUSTIFICATION	SCHEME COST	EXPECTED CAPITLISATION SCHEDULE				
			PRIOR TO FY 22-23	FY 22-23	FY 23-24	FY 24-25	AFTER FY 24-25
NEW SCHEMES EXPECTED TO COMMENCE IN THE ENSUING CONTROL PERIOD							
1	<p>Procurement of Generator Transformer for unit No 3 of HB HPS, on priority basis from OEM M/s BHEL</p> <p>The units of 3X40 MW Hasdeo Bango Hydro Power Station Machadoli were commissioned during march 1994 to January 1995. All three GTs have served more than 25 years. As per standard industry practice the DGA testing of oil is done from time to time. On 25th February 2021, testing was done at special testing lab of PGCIL at Raipur. The DGA test report (copy enclosed) revealed very high level of ethylene and acetylene, which indicate localised internal heating within the GT and which in turn implies limitation on continuous loading of machine. In such situation, procurement of one GT on urgent basis has become imperative. Normally the supply takes about 2 years.</p> <p>In view of the above, Commission is prayed to approve the procurement under Regulation 19.2(viii) of MYT Regulation 2021.</p>	5.50			5.50		

SN	SCHEME & THE JUSTIFICATION	SCHEME COST	EXPECTED CAPITLISATION SCHEDULE				
			PRIOR TO FY 22-23	FY 22-23	FY 23-24	FY 24-25	AFTER FY 24-25
2	<p>Procurement of 1 No fire tender</p> <p>The fire tender of HBHPS was manufacture in 1994 and is in service since 1996. It has already completed its useful life and needs to be replaced.</p> <p>In view of the above, Commission is prayed to approve the procurement under Regulation 19.3(a) of MYT Regulation 2021.</p>	0.6		0.6			
3	<p>Procurement of Generator Stator Air Coolers and Bearing Housing Oil Coolers</p> <p>All 3 units of HBHPS are installed with 8 nos Generator stator cooler and 8 Nos Bearing oil coolers in each unit. These units are providing cheapest green power to state since commissioning and have never undergone any major capital repair. To provide required cooling, each unit is equipped with 8 Nos Generator Stator Air Coolers and 8 Nos Bearing Housing Oil Coolers in each</p>	1.34		1.34			

SN	SCHEME & THE JUSTIFICATION	SCHEME COST	EXPECTED CAPITLISATION SCHEDULE				
			PRIOR TO FY 22-23	FY 22-23	FY 23-24	FY 24-25	AFTER FY 24-25
	<p>unit. Each of the Coolers has 73 tubes and with choking of more than 10% tubes the effectiveness gets compromised. Over the years considerable number of have choked which require replacement of coolers. The coolers are in very deteriorated condition with plugged tubes, punctures at casing joints, hard scaling & corrosion, causing poor heat transfer.</p> <p>CSPGCL humbly submits that considering the importance and deteriorated condition of the auxiliary as mentioned above, to avoid any damage to associated equipment & generation loss, 8 Nos Generator Stator Air Coolers and 8 Nos Bearing Housing Oil Coolers were replaced during COH of Unit #1 in FY 2020-2021 at total cost of Rs. 1.31 Cr. Further in the ensuing control period, procurement of 8 nos Generator stator cooler and 8 Nos Bearing oil coolers for replacement of highly deteriorated coolers.</p> <p>In view of the above, Commission is prayed to approve the procurement in ensuing control period under Regulation 19.2(viii)</p>						

SN	SCHEME & THE JUSTIFICATION	SCHEME COST	EXPECTED CAPITLISATION SCHEDULE				
			PRIOR TO FY 22-23	FY 22-23	FY 23-24	FY 24-25	AFTER FY 24-25
	and 19.3(a) of MYT Regulation 2021 along-with ex-post facto approval of the replaced Coolers in Unit #1, under Regulation 19.2 and the Regulation 7.6 of MYT Regulation 2015.						
SUB TOTAL – NEW SCHEMES		7.44		1.94	5.5		
<u>GRAND TOTAL – ALL SCHEMES</u>		<u>22.59</u>		<u>5.01</u>	<u>8.56</u>	<u>9.02</u>	
