सत्यमेव जयते

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केंद्रीय विद्युत प्राधिकरण
Central Electricity Authority
जल विद्युत अभियांत्रिकी व प्रौद्योगिकी विकास एवं नवीनीकरण व आधुनिकीकरण प्रभाग
Hydro Engineering & Technology Development and Renovation & Modernization Division

जल विद्युत परियोजनाओं का नवीनीकरण एवं आधुनिकीकरण

अवधि 2022-27 व 2027-32 का कार्यक्रम तथा यथास्थिति

Renovation & Modernisation of Hydro Power Stations

Status/Programme for the period 2022-27 & 2027-32

QUARTERLY PROGRESS REPORT

(January-March, 2024)

(4th Quarter of 2023-24)

C O N T E N T S

Index of Schemes

Renovation & Modernisation (R&M) Schemes of Hydro Power Stations

Programme for the period 2022-27 & 2027-32

INDEX OF SCHEMES

Programmed for completion during 2022-27

S. No.	State	Name of Scheme in the Sector		Agency	Completion Schedule	Remarks	Page No.
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2.		-	Bhabha Power House	HPSEB	2022-23	Completed	2
3.		Bhakra LB	-	BBMB	2023-24	Completed	3
4.		-	Giri	HPSEB	2025-26	Under Tendering	3
5.		Pong PH	-	BBMB	2026-27	Under RLA Studies	4
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VII.	**Madhya Pradesh**						
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VIII.	**Gujarat**						
20.		-	Kadana PSS	GSECL	2025-26	Under Tendering	16

IX.	**Maharashtra**						
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23.		-	Koyna St-3	MSPGCL	2026-27	Under RLA Studies	17
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25.		-	Nagarjunasagar Right Canal Power House	APGENCO	2025-26	Under Implementation	18
26.		-	Tungabhadra HE (J) Dam	APGENCO	2025-26	Under Implementation	19
27.		-	Hampi Canal PH	APGENCO	2025-26	Under Implementation	20
28.		-	Lower Sileru	APGENCO	2026-27	Under DPR Preparation/ Finalisation/Approval	20
29.		-	Machkund St.I & St.II	APGENCO	2026-27	Under RLA Studies	21
XI.	**Telangana**						
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31.		-	Nagarjuna Sagar Left Canal Power House	TSGENCO	2022-23	Completed	23
32.			Pochampad Hydro Power Station	TSGENCO	2026-27	Under Implementation	24
XII.	**Tamil Nadu**						
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Programmed for completion during 2027-32

S. No.	State	Name of Scheme in the Sector		Agency	Completion Schedule	Remarks	Page No.
		Central	State				
Northern Region							
I.	**Jammu & Kashmir**						
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II.	**Himachal Pradesh**						
2.		Chamera-I	-	NHPC	2027-32	Under RLA Studies	51
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5.		-	Khodri	UJVNL	2027-32	Under RLA Studies	
Western Region							
IV.	**Madhya Pradesh**						
6.		-	Gandhi Sagar	MPPGCL	2029-30	Under Tendering	53
7.		-	Pench	MPPGCL	2026-28	Under DPR Preparation/ Finalisation/Approval	54
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19.		-	Aliyar				
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Background
&
Plan-wise Summary

RENOVATION, MODERNISATION & UPRATING OF HYDRO ELECTRIC POWER PROJECTS

BACKGROUND

Renovation & Modernisation (R&M) of the existing old Hydro Electric Projects is considered a cost effective option for retaining the operational capacity at end of its useful life by undertaking requisite R&M works to extend its operational life and also utilizing this opportunity for having uprated capacity, if feasible, by exploring the technological advancement. These type of works are also undertaken during the useful life of plant/ equipment for improvement in operational efficiency, reliability, security and on obsolescence of technology.

Recognizing the benefits of R&M of hydroelectric power projects, Govt. of India set up a National Committee in 1987 and a Standing Committee in 1998 and thereafter had identified the projects/ schemes to be taken up for implementation under R&M. The National Perspective Plan document for R&M of hydroelectric power projects in the country was also prepared in CEA during the year 2000. The status of various projects/ schemes already identified for implementation/ completion till the end of XI Plan, i.e. March, 2012 had been incorporated in the National Perspective Plan.

Achievements during VIII, IX, X, XI, XII Plan and Period 2017-22

The R&M works at 118 (26 in Central and 92 in State Sector) hydro power plants (13 up to the VIII Plan, 20 in the IX Plan, 32 in the X Plan, 18 in the XI Plan, 21 in the XII Plan & 14 during 2017-22) with an aggregate installed capacity of 22634.7 MW had been completed by the end of the year 2017-22 and total a benefit of 4139.56 MW through Life Extension (LE), Uprating (U) and Renovation had been accrued. The State-wise list of Hydro RM&U Schemes completed during VIII, IX, X, XI XII Plans and 2017-22 are given at Annex-I, II, III, IV,V and VI respectively.

Programme during the period 2022-27

The Renovation, Modernization, Uprating and Life Extension works at 57 Hydro Electric Plants (HEPs) with an aggregate installed capacity of 10583.9 MW is programmed for completion during the year 2022-27 with its break-up as 2041.8 MW through R&M at 12 HEPs, 6399.1 MW through Life Extension at 32 HEPs and 2143 MW through Life Extension and Uprating at 13 HEPs. The 13 HEPs where both Life Extension & Uprating are envisaged, the aggregate installed capacity of 2143 MW shall get uprated after completion of R&M works to 2395.5 MW resulting in additional benefit of installed capacity of 252.5 MW. As such, the revised aggregate installed capacity after completion of RMU&LE works of these 57 projects would be 10836.4 MW. The State-wise list of hydro R&M schemes expected for completion during the year 2022-27 is given at Annex-VII.

Out of these 57 Schemes, Ten (10) Schemes with an aggregate installed capacity of about 2390.8 MW have been completed till March 2024 which has resulted in benefit of 1101 MW through Life Extension and 90 MW through Uprating.

Programme during the period 2027-32

The Renovation, Modernization, Uprating and Life Extension works at 23 Hydro Electric Plants (HEPs) with an aggregate installed capacity of 3129.20 MW is programmed for completion during 2027-32 through Life Extension and Uprating. The State-wise list of hydro R&M schemes expected for completion during 2027-32 is given at Annex-VIII.

जल विद्युत परियोजनाओं का
नवीनीकरण, आधुनिकीकरण और उन्नयन

पृष्ठभूमि

संसाधनों के इष्टतम उपयोग, कुशल संचालन, बेहतर उपलब्धता सुनिश्चित करने के साथ-साथ देश में क्षमता वृद्धि (उन्नयन) करने के लिए मौजूदा पूर्वस्थापित जल विद्युत परियोजनाओं का नवीनीकरण और आधुनिकीकरण, तथा उन्नयन और जीवन विस्तार (आरएमयू एंड एलई) को एक लागत प्रभावी विकल्प माना जाता है।

जलविद्युत परियोजनाओं के नवीनीकरण और आधुनिकीकरण के लाभों को समझते हुए, भारत सरकार ने 1987 में एक राष्ट्रीय समिति और 1998 में एक स्थायी समिति का गठन किया था। इसके उपरांत आर एंड एम के तहत कार्यान्वयन आरंभ करने के लिए परियोजनाओं/योजनाओं को चिह्नित किया था। वर्ष 2000 के दौरान केंद्रीय विद्युत प्राधिकरण में देश में जलविद्युत परियोजनाओं के नवीनीकरण और आधुनिकीकरण के लिए राष्ट्रीय परिप्रेक्ष्य योजना दस्तावेज भी तैयार किया गया था। ग्यारहवीं योजना के अंत, अर्थात् मार्च, 2012 तक कार्यान्वयन/पूरी करने के लिए पूर्व में चिह्नित विभिन्न परियोजनाओं/योजनाओं की स्थिति को राष्ट्रीय परिप्रेक्ष्य योजना में शामिल किया गया था।

आठवीं योजना से बारहवीं योजना और 2017-2022 अवधि के दौरान उपलब्धियां

12वीं योजना के अंत तक 118 (26 केंद्रीय और 92 राज्य क्षेत्र में) जल विद्युत संयंत्रों (आठवीं योजना तक 13, नौवीं योजना में 20, दसवीं योजना में 32, ग्यारहवीं योजना में 18 ,बारहवीं योजना में 21, 2017-2022 के दौरान 14) जिनकी कुल स्थापित क्षमता 22634.7 मेगावाट थी में नवीनीकरण और आधुनिकीकरण का कार्य पूरा किया गया था, जिसके फलस्वरूप जीवन विस्तार, उन्नयन और पुनरुद्धार के माध्यम से 4139.56 मेगावाट का लाभ हुआ था। आठवीं, नौवीं, दसवीं, ग्यारहवीं ,बारहवीं योजनाओं और 2017-2022 के दौरान पूरी की गई जल विद्युत आरएम एंड यू स्कीमों की राज्यवार सूची क्रमशः अनुलग्नक- I, II, III, IV ,V और VI में दी गई है।

2022-27 की अवधि के दौरान कार्यक्रम

2022-27 के दौरान 10583.9 मेगावाट की कुल स्थापित क्षमता के साथ 57 जल विद्युत संयंत्रों पर नवीनीकरण, आधुनिकीकरण, उन्नयन और जीवन विस्तार का काम पूरा करने के लिए कार्यक्रम बनाया गया है, जिसमे से 12 जल विद्युत संयंत्रों में 2041.8 मेगावाट की क्षमता नवीनीकरण एंव आधुनिकीकरण के माध्यम से, 32 जल विद्युत संयंत्रों में 6399.1 मेगावाट की क्षमता जीवन विस्तार के माध्यम से और 13 जल विद्युत संयंत्रों में 2143 मेगावाट की क्षमता जीवन विस्तार और उन्नयन के माध्यम से कार्य किया जाएगा। जिन 13 जल विद्युत संयंत्रों में जीवन विस्तार और उन्नयन दोनों की परिकल्पना की गई है, उनमें 2143 मेगावाट की कुल क्षमता में 2395.5 मेगावाट तक वृद्धि होगी, जिसके परिणामस्वरूप 252.5 मेगावाट स्थापित क्षमता का अतिरिक्त लाभ होगा। अत:, इन 57 परियोजनाओं की कुल क्षमता नवीनीकरण, आधुनिकीकरण, उन्नयन और जीवन विस्तार (आरएमयू एंड एलई) के समापन के बाद 10836.4 मेगावाट हो जाएगी। 2022-27 के दौरान पूरी की जाने वाली जल विद्युत आर एंड एम स्कीमों की राज्यवार सूची अनुलग्नक-VII में दी गई है।

इन 57 **योजनाओं में से,** (10) स्कीमों की कुल स्थापित क्षमता 2390.8 मेगावाट की है, जो मार्च 2024 तक पूरी हो चुकी है, **जिसके परिणामस्वरूप जीवन विस्तार के माध्यम से** 1101 **मेगावाट और** उन्नयन **के माध्यम से** 90 **मेगावाट का लाभ हुआ है।**

2027-32 की अवधि के दौरान कार्यक्रम

3129.20 मेगावाट की कुल स्थापित क्षमता वाले 23 जल विद्युत संयंत्रों में नवीनीकरण, आधुनिकीकरण, उन्नयन और जीवन विस्तार कार्य की योजना 2027-32 के लिए बनाई गई है। 2027-32 के दौरान पूरा होने वाली इन संभावित जलविद्युत आर एंड एम योजनाओं की राज्य-वार सूची अनुलग्नक -VIII में दी गई है।

Summary of R&M of Hydro Electric Projects

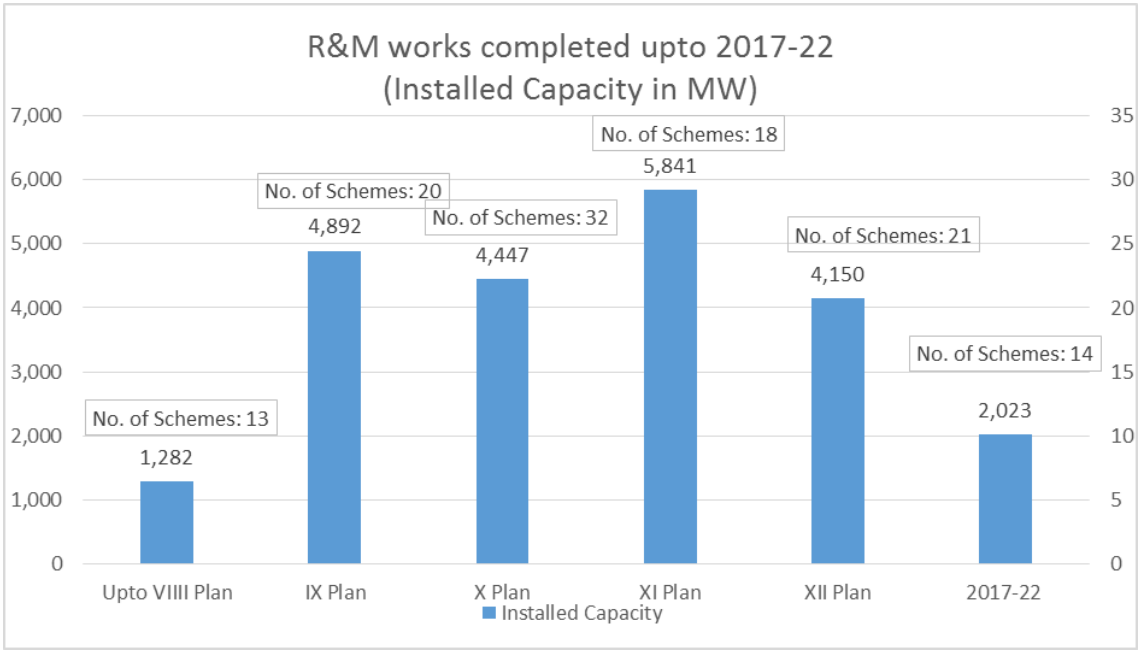
(As on 31.03.2024)

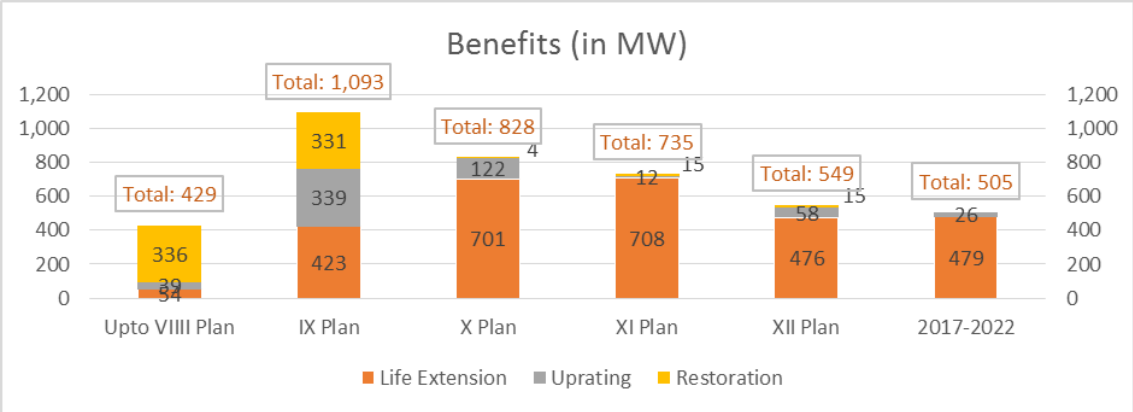
I Hydro R&M schemes completed up to 2017-22

Sl. No.	Plan Period	No. of Projects			Installed Capacity (MW)	Actual Expenditure (Rs. in Crs)	Benefit (MW)
		Central Sector	State Sector	Total			
1.	Upto VIII Plan Schemes	2	11	13	1282.00	127.37	429.00 [39.00(U) + 54.00LE+ 336.00(Res.)]
2.	IX Plan Schemes	8	12	20	4892.10	570.16	1093.03 [339.00(U)+ 423.00(LE) + 331.03(Res.)]
3.	X Plan Schemes	5	27	32	4446.60	1029.24	827.73 [122.05(U) + 701.25 (LE) + 4.43(Res.)]
4.	XI Plan Schemes	4	14	18	5841.20	294.84	735 [12 (U) + 708 (LE) + 15 (Res.)]
5.	XII Plan Schemes	2	19	21	4149.60	1146.02	549.40 [58 (U)+ 476.40 (LE)+15(Res.)]
6.	2017-2022	5	9	14	2023.2	848.68	505.4 [479.2(LE) + 26.2(U)]
	Total	26	92	118	22634.7	4016.31	4139.56 [596.25 (U)+ 2841.85 (LE)+ 701.46 (Res.)]

Abbreviations:

MW – Mega Watt; Res. – Restoration; U – Uprating; LE – Life Extension;





II Programme of R&M works during 2022-27

Sl. No.	Category	No. of Projects			Capacity covered under RMU&LE (MW)	Benefit (MW)
		Central Sector	State Sector	Total		
1.	Programmed	8	49	57	10583.9	8794.60 [8542.1(LE)+ 252.5(U)]
2.	Completed	1	9	10	2300.8	1191 [1101 (LE)+ 90(U)]
3.	Under Implementation	4	19	23	3599.75	2905.25 [2857.75(LE)+ 47.5(U)]
4.	Under Tendering	1	5	6	810	736 [710(LE)+26(U)]
5.	Under DPR Preparation/ Finalisation/ Approval	0	5	5	1385	1391 [1385(LE)+ 6(U)]
6.	Under RLA Studies	2	11	13	2488.35	2571.35 [2488.35(LE)+ 83(U)]

III Programme of R&M works during 2027-32

Sl. No.	Category	No. of Projects			Capacity covered under RMU&LE (MW)	Benefit (MW)
		Central Sector	State Sector	Total		
1.	Programmed	3	20	23	3129.2	3140.03 [3129.2(LE)+ 10.83(U)]
2.	Under Implementation	0	0	0	0	0
3.	Under Tendering	0	1	1	115	125.83 [115(LE)+ 10.83(U)]
4.	Under DPR Preparation/Finalisation/ Approval	0	2	2	250	250 [250(LE)+ 0(U)]
5.	Under RLA Studies	3	17	20	2764.2	2764.2 [2764.2(LE)+ 0(U)]

Abbreviations:
MW – Mega Watt; Res. – Restoration; U – Uprating;
LE – Life Extension; RLA- Residual Life Assessment

IV. Major Developments/achievements during Quarter January-March 2024

Sl. No	Project	Status during last Quarter (October-December) 2023	Latest Status (January-March) 2024
1.	**Dhakrani,** 3x11.25MW UJVNL	• Design related activities are under progress. • Model Test is completed. • Physical Progress-20 %	• Major Design works completed. • Unit-A RMU started on 16.02.2024. Dismantling of Unit completed and civil works activities related to runner chamber are under progress. • Physical Progress-24.5 %
2.	**Rana Pratap Sagar Power Station,** (4x43 MW) RRVUNL	• Dismantling of Generator of Unit#2 is completed. • Replacement of Generator of Unit#2 work is in progress by M/s Andritz Hydro Pvt. Ltd.	• Capital overhauling and augmentation of Governing system and auxiliaries of Unit-2 has been approved.
3.	**Kadana PSS,** 4x60 MW GSECL	• Price bid opened on 17.11.2023. Board approval is required for placement of LOA/LOI of PMC. • Supply started receiving in Dec-2023	• Microprocessor panels' inspection/ FAT done at Bangalore. • Valve Table assembly FAT done at Bhopal Orthography. • All supply received in Jan-2024 • Work will be carry out in shut down of plant.
4.	**Kodayar PH-I,** 1x60 MW TNPGCL	• EOT crane refurbishment work under progress.	• EOT crane refurbishment work completed except load test. • RMU work will be commenced in May 2024 and expected to be completed by May 2025.
5.	**Nagjhari, U-1 to 3,** 3x150 MW KPCL	• CMG has recommended to place the proposal for SCADA System before TAC/TC.	• TAC/ TC recommended to float NIT and preparation of tender document is in progress.
6.	**Kadra Dam Power House,** (3x50MW) KPCL		
7.	**Kodasalli Dam Power House,** (3x40MW) KPCL		
8.	**Supa Dam Power House,** (2x50MW) KPCL		
9.	**Shivasamudram Hydro Power Station,** 6x3 MW 4x6 MW KPCL	• Witnessing of Turbine Model Test and CFD analysis is successfully completed at AH, Rab Linz, Austria.	• Manufacturing and inspection of equipments is under progress. • MDCC issued for equipments like shaft, control panel and runner.

10.	**Sharavathy Generating Station,** (10x103.5MW) KPCL	**Hydro Mechanical Works:** • Pre-bid meeting held on 03.11.2023 and replies to Pre-bid queries are uploaded on 13.11.2023. Cover-1 is scheduled to be opened on 29.01.2024 **Generator and associated components** • Pre-bid meeting conducted on 24.11.2023 and replies to Pre-bid queries are uploaded on 01.12.2023. Cover-1 is scheduled to be opened on 16.01.2024.	**Hydro Mechanical Works:** • Administrative/ technical approval for tendering is accorded. HO accorded to place work order on lowest bidder M/s Voith Hydro Power Ltd., Noida **Generator and associated components** • Technical evaluation completed. Financial evaluation is in progress.
11.	**Sabarigiri, (U1,2,3 & 5)** 4x55 MW KSEB	• Draft report was submitted by CBIP and sought comments over the same. • Final report awaited.	• Final report submitted by CBIP
12.	**Balimela,** 6x60 MW OHPCL	• Unit 3 is scheduled to be synchronized by 31.03.2024. • Unit 4 is scheduled to be synchronized by 31.01.2024.	• For Unit-3, Test synchronization was done on 29.03.2024 and load off test was done on 30.03.2024. Trial run is going on. • Commercial operation of Unit-4 started on 06.02.2024.
13.	**Kopili Power Station,** 4x50 MW NEEPCO	• Unit#2 was synchronized with grid on 07.11.2023 • R&M works of Unit-1 under progress.	• Erection of Unit 1 is in progress. • Expected date of commissioning is May 2024.
14.	**Kuttiyadi,** 3x25 MW KSEB	• Dismantling work of Unit#3 work is completed.	• Erection work of Stator of Unit#3 is completed. • Replaced all four feeder PTs (Other RMU works) • Replaced all three old 28 MVA GTs with new 35 MVA GTs of TELK make.
15.	**Salal Stage-I (Unit 1, 2 & 3),** 3x115 MW NHPC	• Letter of Award for RLA study is expected to place in Jan-2024.	• RLA studies for GSU transformers has been completed and final report is to be submitted.
16.	**Pong Power House,** 6x66 MW BBMB	• The first fortnightly meeting held on 13.09.2023 with M/s WAPCOS. • The firm along with their experts visited the site on 20.09.2023 & 21.09.2023 and 16.11.2023 & 17.11.2023 for collecting information for conducting RLA studies.	• Draft format of DPR including list of chapters and computational calculations for capacity enhancement (uprating) of Generating units from 66 MW to 75 MW submitted. • Draft DPR submitted by M/s WAPCOS Ltd Gurugram is under scrutiny.

17.	**Mukerian HEP,** 3x15 MW (St.-I), 3x15 MW (St.-II), 3x19.5 MW (St.-III) & 3x19.5 MW (St.-IV) PSPCL	• Work order no. 121 dt. 26.05.2023 amounting to Rs. 2.124 Cr. has been placed on M/s WAPCOS Ltd., New Delhi.	• Various tests are being carried out by the firm at site.
18.	**UBDC St.I & St II,** 3x15 MW (St.-I) & 3x15.45 MW (St.-II) PSPCL	• Work order no. 124 dt. 6.11.2023 amounting to Rs. 52.24 Lakhs has been placed on M/s Sharp Hydro Engineering Pvt. Ltd., Faridabad.	• Various tests are being carried out by the firm at site.
19.	**Sharavathy Generating Station,** (10x103.5MW) KPCL	Hydro-mechanical Works: • Cover-1 is scheduled to be opened on 29.01.2024. Generator and associated components. R&M of static Excitation System (SEE). • Cover-1 is scheduled to be opened on 16.01.2024.	• Administrative/ technical approval for tendering is accorded. HO accorded to place work order on lowest bidder M/s Voith Hydro Power Ltd., Noida at negotiated price of Rs 9.997 crore incl. of taxes and duties. LOA placed on 15.03.2024. • Price bid opened on 25.03.2024.

V. <u>Capacity addition during Quarter January-March 2024 through R&M works:</u>

Sl. No	Project/Unit	Benefit (MW)	Remark
1.	Balimela, 6x60 MW OHPCL	60 MW (LE)	Commercial operation of Unit-4 started on 06.02.2024.

Year-wise & State-wise Summary of Original Completion Schedule of R&M Schemes at Hydro Power Stations (During 2022-27)

Year-wise & State-wise Summary of Original & Anticipated Completion Schedule of R&M Schemes at Hydro Power Stations During 2022-27

Year 2022-23	Year 2023-24	Year 2024-25	Year 2025-26	Year 2026-27
Himachal Pradesh: Bhabha Power House, HPSEB, (3x40) =120 MW **(Completed in 2022-23)**	**Himachal Pradesh:** Bhakra LB, BBMB, (5x108) =540 MW **(Completed in 2023-24)**	**Uttar Pradesh:** Obra, UPJVNL (3x33) =99 MW (2024-25)	**Himachal Pradesh:** Giri, HPSEB, (2x30) =60 MW (2025-26) **(Original 2024-25)**	**Jammu & Kashmir:** Salal Stage-I (Unit 1,2 &3) NHPC (3x115)=345 MW (2026-27)
Uttarakhand: Tiloth, UJVNL (3x30) =90 MW **(Completed in 2022-23)**	**Uttarakhand:** Dhalipur, UJVNL (3x17) =51 MW **(Completed in 2023-24)**	**Karnataka:** i) Shivasamudram, KPCL, (6x3+4x6) =42 MW, (2024-25)	**Uttarakhand:** i)Dhakrani, UJVNL, (3x11.25) =33.75 MW, (2025-26)	**Himachal Pradesh:** Pong Power House, BBMB, (6x66) =396 MW (2026-27)
Uttar Pradesh: Rihand, UPJVNL (6x50) =300 MW **(Completed in 2022-23)**	**Karnataka:** Gerusoppa Dam Power House, KPCL (4x60) =240 MW **(Completed in 2023-24)**	ii) Kadra Dam Power House, KPCL (3x50) =150 MW (2024-25)	ii)Chilla Ph B, UJVNL (4x36)=144 MW (2025-26)	**Punjab:** i) Anandpur Sahib, PSPCL, (4x33.5) =134 MW (2026-27)
Karnataka: i) Munirabad Dam Power House, KPCL, (2x9 + 1x10) =28 MW, **(Completed in 2022-23)**		iii) Kodasalli Dam Power House, KPCL (3x40) =120 MW (2024-25)	**Gujarat:** Kadana PSS, GSECL (4x60) =240 MW (2025-26)	ii) Mukerian St.I, St.II, St.III & St.IV, PSPCL, (3x15, 3x15, 3x19.5& 3x19.5) =207 MW (2026-27)
ii) Linganamakki Dam Power House, KPCL (2x27.5) =55 MW **(Completed in 2022-23)**		iv) Supa Dam Power House, KPCL (2x50) =100 MW (2024-25)	**Andhra Pradesh:** i) Tungabhadra Dam, APGENCO, (4x9) =36 MW (2025-26)	iii) Shanan, PSPCL, (1x50+4x15) =110 MW (2026-27)
Telangana: i) Nagarjuna Sagar Ph-II, TSGENCO, (1x110+7x100.8) =815.6 MW (2022-23) **(Completed in 2022-23)**		**Kerala:** Sabarigiri (Unit- 6 & Unit 2), KSEB (1x60+1x55) =115 MW (2024-25)	ii) Hampi Canal PH, APGENCO, (4x9) =36 MW (2025-26)	iv) UBDC St.I & St.II, PSPCL, (3x15+3x15.45) =91.35 MW (2026-27)
ii) Nagarjuna Sagar Left Canal		ii) Moyar PH, TNPGCL (3x12) =36 MW (2024-25)	iii) Nagarjunasagar Right Canal Power	**Uttarakhand:** i) Ramganga, UJVNL

Year-wise & State-wise Summary of Original & Anticipated Completion Schedule of R&M Schemes at Hydro Power Stations During 2022-27

Year 2022-23	Year 2023-24	Year 2024-25	Year 2025-26	Year 2026-27
Power House, TSGENCO (2x30.6)=61.2 MW (2024-25) **(Completed in 2022-23)**		**Odisha:** Balimela, OHPC, (6x60) =360 MW (2024-25)	House, APGENCO (3x30)=90 MW (2025-26)	(3x66)=198 MW (2026-27)
			Tamil Nadu: Kodayar PH-I, TNPGCL (1x60) =60 MW (2025-26) (**Original 2024-25**)	ii) Kulhal, UJVNL (3x10)=30 MW (2026-27)
		Assam: i) Khandong Power Station, NEEPCO (2x23)=46 MW (2024-25)	**Karnataka:** i) Nagjhari U-1 to U-3, KPCL, (3x150) =450 MW, (2025-26)	**Rajasthan:** Rana Pratap Sagar, RRVUNL, (4x43)=172, (2026-27)
		ii) Kopili Power Station, NEEPCO (4x50)=200 MW 2024-25 (**Original 2023-24**)	ii) Sharavathy Generating Station, KPCL (10x103.5) =1035 MW (2025-26)	**Madhya Pradesh:** i) Bansagar Ton-I, MPPGCL, (3x105)=315 MW (2026-27)
			Manipur: Loktak, NHPC, (3x35) =105 MW (2025-26)	**Maharashtra:** i) Vaitarna, MSPGCL (1x60)=60 MW (2026-27)
			Kerala: Kuttiyadi, KSEB, (3x25) =75 MW (2025-26)	ii) Koyna Dam foot (Right Bank), MSPGCL (2x20)=40 MW (2026-27)
			West Bengal: Maithon (U 1& 3), DVC, (2x20) =40 MW 2025-26 **(Original 2024-25)**	iii) Koyna St-3, MSPGCL (4x80)=320 MW (2026-27)
			Jharkhand: Panchet U-1, DVC, (1x40) =40 MW (2025-26) **(Original 2023-24)**	**Andhra Pradesh:** i) Upper Sileru Power House, APGENCO (4x60)=240 MW (2026-27)
				ii) Machkund St.I & St.II, APGENCO, (3x17+3x23)

Year-wise & State-wise Summary of Original & Anticipated Completion Schedule of R&M Schemes at Hydro Power Stations During 2022-27

Year 2022-23	Year 2023-24	Year 2024-25	Year 2025-26	Year 2026-27
				=120 MW (2026-27) iii) Lower Sileru, APGENCO, (4x115) =460 MW (2026-27) **Kerala:** i) Idukki 1st stage & 2nd stage, KSEB, (6 x130) =780 MW (2026-27) ii) Sabarigiri, KSEB (Unit-1,2, 3 & 5) (4x55)=220 MW (2026-27) iii) Idamalayar, KSEB (2x37.5)=75 MW (2026-27) **Telangana:** Pochampad HPS Stage -1, TSGENCO, (3x9) =27 MW (2026-27) **Tamil Nadu:** Kodayar PH-II, TNPGCL (1x40) =40 MW (2026-27) **Jharkhand:** Subernrekha, JUUNL, (2x65) =130 MW (2026-27) **Meghalaya:** i) Umiam St.III (Kyrdemkulai), MePGCL (2x30)=60 MW (2026-27)
1469.8 MW (7 Schemes)	**831 MW (3 Schemes)**	**1268 MW (10 Schemes)**	**2444.75 MW (14 Schemes)**	**4570.35 MW (23 Schemes)**

State-wise Status of R&M Schemes

(During 2022-27)

State-wise Programme/ Status of Renovation and Modernisation Schemes of Hydro Power Stations during 2022-27

NORTHERN REGION

JAMMU & KASHMIR **(Amount in Rs. Crores)**

S. No.	Scheme/ Category/ Completion Schedule (Original/ Anticipated)	Expected Benefit (MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A- SCHEMES ONGOING - Under RLA Studies				
1.	**Salal Stage-I (Unit 1, 2 & 3)** 3x115 MW NHPC Nov 1987 T&G – BHEL **RM&LE** **2026-27**	**345 (LE)** - -	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	RLA studies for GSU transformers has been completed and final report is to be submitted.

State-wise Programme/ Status of Renovation and Modernisation Schemes of Hydro Power Stations during 2022-27

NORTHERN REGION

HIMACHAL PRADESH **(Amount in Rs. Crores)**

S. No.	Scheme / Category/ Completion Schedule	Expected Benefit (MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES COMPLETED				
2.	**Bhabha Power House,** 3x40 MW HPSEBL 1989 T&G - BHEL **RM&LE** **2022-23**	**120 (LE)** 90.14 43.01	• Rehabilitation of Generator of Unit-1. • Replacement of Electro-Hydraulic Transducer (EHT) with handle, Main Distribution Valve (MDV) spool & sleeve assy., Pilot needle & sleeve assy., Duplex filter element only (inner & outer sleeve), Solenoid valve (Size 10) of MIV Hydro Control Panel (HCP), Pilot operating main distributing valve type for MIV HCP, NRV of PP Set, Nozzle Servomotors & Drain Pipe Lines Route of Decompression Valve & Seal Valve of MIV. • Replacement of three (3) nos. Digital governors & Static Excitation and Digital AVR systems complete with accessories. Replacement of Unit Control Boards and providing control & monitoring system (DCS based SCADA). • Supply of 2 nos. Forged Fabricated Pelton Runners (Spares Without coating) having 21 buckets suitable for single runner turbine with two jets developing 41240 KW (55282 HP) at a rated net head of 887.20 mtr and design discharge of 5.67 cumecs per unit.	• Rehabilitation works completed by BHEL and Unit commissioned on 09.03.2018. • Works completed. • Works awarded to M/s. GE Power India Ltd. on 19.07.2018 and has been completed. • The tender has been awarded to M/s.Voith Hydro Pvt. Ltd. on 04.07.2019. One runner installed during March, 2021 and second runner kept as spare.

3.	**Bhakra LB,** 5x108 MW BBMB 1985 5x90 MW (Original) 1960-61 **RMU&LE** **2023-24**	**540(LE)+ 90(U)** 489.77 583.86	**Turbine** Replacement of runners, guide vanes, guide vane operating mechanism, GV pads, turbine shaft sleeve and coupling cover, head cover, shaft sealing box. Governor oil pr. Motor pump, aeration pipe, instrument panel etc. **Generator** Replacement of stator winding, stator core and frame assembly, rotor pole assembly, thrust collar, air coolers, thrust bearing pads, upper and lower guide bearings, upper and lower bracket, braking system, generator temp. monitoring panel, excitation system, slip ring, NGT etc. **nwa** **Auxiliaries** Control & Protection panels, Generator Transformers, Bus Bars with CTs, PTs etc. LAVT cubicle, switchyard equipments, control cables etc.	- Works awarded to consortium led by M/s Sumitomo Corporation, Japan (with other members i.e. M/s Hitachi Ltd. Japan and VA Tech Hydro, Gmbh, Austria) on 27.10.2007. - Contract agreements were signed on 02.11.2007 at a total cost of Rs. 489.77 Crores (including Rs. 29.57 Crores towards replacement of turbine & generator shafts). **<u>Unit 2</u>** - The unit was synchronized on 23.06.2013. - BBMB issued TOC to consortium on 29.11.2018. **<u>Unit 5</u>** - Machine put on continuous load run for 72 hours on 12.06.2018. Unit commissioned on 15.06.2018. . The Unit was commissioned after modification of runner profile on 16.5.2022. TOC issued by BBMB for this Unit on 27.06.2022 **<u>Unit 4</u>** Unit is running with output of 126 MW. BBMB issued TOC to the consortium on 23.07.2019. **<u>Unit 3</u>** Unit is running with output of 126 MW. The TOC was issued by BBMB on 16.03.2022. **<u>Unit 1</u>** The enhanced capacity test for 12 hrs at MCR on 07.12.2023 has been carried out and capability testing was carried out on 14.12.2023.
B - SCHEMES ONGOING – Under Tendering				
4.	**Giri,** 2x30 MW HPSEBL 1978 T&G - BHEL **RM&LE** **2025-26**	**60 (LE)** 440.12 Nil	Brief description of work proposed to be undertaken are as given below: - **1. Civil works:** Repair of power house building & Control Room area and Tail Race Channel. Restoration of Flexible apron, protection works on left bank of upstream side of barrage. Replacement of Spherical roller	Revised scheme amounting to Rs.139.80 crore has been framed on the basis of negotiated rates offered by M/s BHEL (OEM) for EM equipment's& balance plant items. Revised administrative approval for Rs. 139.80 Cr. accorded on 30.12.2015. HPERC

			bearing of spillway gates. Improvement of trash rake, stop logs. Centralized Control of operation of barrage gates from Barrage control room. Strengthening of civil works at 132 kV Switchyard. **2. Mechanical works:** Replacement of Guide vanes with stainless steel guide vanes of Unit - 1, Overhauling of MIV, Add. Penstock gate in Surge Shaft, Replacement of Governors with modern digital governors, Revamping of Cooling water system, Provision of online discharge measurement and head measurement for both machines, replacement of penstock drainage valves and pipes, 3 Nos. new Francis runner (2+1 spare) with high efficiency ranging from (18 to 33) MW capacity. **3. Electrical works:** Replacement of 11 KV PILC cable with bus duct, Overhauling of 2x40 MVA, 11/132kV Generator Transformers and Unit Auxiliary Transformers, Replacement of Control and Protection panels, Replacement of rotor field windings with class "F" insulation and complete Overhauling of Generators, Replacement of semi-static exciter system by static excitation system. Replacement of ABCBs with SF6 breakers, Replacement of 33 kV MOCB with SF6 breaker, Replacement of Batteries and battery charging system, Aug. of 16/20 MVA, 132/33 kV Transformer into 25/31.5 MVA etc.	has accorded 'in principle' approval on 23.05.2017. PFC has funded the scheme on dated 18.05.2020. Revised scheme has been prepared to cover the scope of additional items which were not covered in earlier schemes. Administrative approval amounting to Rs. 440.123 Cr is accorded by HPSEBL on 12.08.2022 Funds are being tied up from PFC for revised scheme. Revised scheme was submitted for approval of Hon'ble HPERC on 02.12.2022. Hon'ble HPERC on 22.06.2023 has disposed off the petition as withdrawn with liberty to file a fresh petition.
C- SCHEMES ONGOING – Under RLA Studies				
5.	**Pong Power House,** 6x66 MW BBMB 1977-83 T&G-BHEL **RMU&LE** **2026-27**	**396 (LE) + 54 (U)** 402 -	Hiring the consultant for preparation of DPR, Tender Specification and to finalise EPC contractor for carrying out RM&U along with Life Extension of 6 Units.	NIT No. 492/PHD/Pong- 359 dated 23.02.2022 has been floated on e-proc.punjab.gov.in and Part-I of the Tender has been opened on 23.06.2022. Contract Agreement No. 765/PHD/Pong-359 dated 23.08.2023 signed with M/s WAPCOS Ltd. Kick of meeting

				conducted on 23.08.2023. The first fortnightly meeting held on 13.09.2023. The firm along with their experts visited the site on 20.09.2023 to 21.09.2023, 16.11.2023 to 17.11.2023 and 22.01.2024 to 25.01.2024 for collecting information for conducting RLA studies. Draft format of DPR including list of chapters and computational calculations for capacity enhancement (uprating) of Generating units from 66 MW to 75 MW submitted. Draft DPR submitted by M/s WAPCOS Ltd Gurugram is under scrutiny.

State-wise Programme/ Status of Renovation and Modernisation Schemes of Hydro Power Stations during 2022-27

NORTHERN REGION

PUNJAB **(Amount in Rs. Crores)**

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW) / Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES ONGOING – Under RLA Studies				
6.	**Anandpur Sahib Hydel Project – I&II,** 4x33.5 MW (2x33.5 MW PH-I ,2x33.5 MW PH-II) PSPCL 1985-86 T&G – BHEL **RM&LE** **2026-27**	**134 (LE)** - -	Studies for Renovation, Modernization & Uprating (RMU) & Life Extension (LE) work of 4x33.5 MW Hydro Generating Machines of Anandpur Sahib Hydel Project -Preparation of DPR including measurement of input energy parameters (head, discharge etc), Scope of work, Technical Specifications & Tender Document.	T.E No. 286/ASHP/ DPR dt. 30.05.2022 was dropped as per decision of competent authority due to lack of eligible firms on dated 09.02.2023. Part-I and II of Fresh TE no. 301 dt. 17.05.2023 opened on 14.09.2023. Techno-commercial evaluation of following 3 no. bids is under process: i) M/s Sharp Hydro Engineering Pvt. Ltd., Faridabad ii) M/s WAPCOS Ltd., New Delhi iii) M/s MECON Limited, Ranchi Price bids have been opened on 09.01.2024. Approval has been accorded by competent authority to place order on L-1 firm M/s Sharp Hydro Engineering Pvt. Ltd., Faridabad against TE no. 301 dt. 17.05.2023. However, placement of order is suspended due to enforcement of model code of conduct.
7.	**Mukerian HEP,** 3x15 MW (St.-I), 3x15 MW (St.-II), 3x19.5 MW (St.-III) & 3x19.5 MW (St.-IV) PSPCL 1983 (St.-I), 1988-89 (St.-II), 1989 (St.-III) & (St.-IV) T&G - BHEL **RM&LE** **2026-27**	**207 (LE)** 2.5 -	Preparation of feasibility studies for uprating, study of available input energy, head & discharge, preparation of DPR as per latest CEA guidelines, preparation of complete Scope of Work & Technical Specification, Bid/Tender stage Document	Administrative approval to carry out RLA & RMU study has been accorded by WTDs. Following 3 no. tenders were received and opened on 06.12.2022 against TE no. 296 dated 28.10.2022: i) M/s Tata Consulting Engineers Limited., Mumbai ii) M/s Mecon Ltd. Ranchi. iii) M/s WAPCOS Ltd., New Delhi. Work order no. 121 dt. 26.05.2023 amounting to Rs. 2.124 Cr. has been placed on M/s WAPCOS Ltd., New Delhi. Various tests are being carried out by the firm at site.

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW) / Estimated Cost/ Expenditure	Scope of work	Present Status
8.	**Shanan HEP,** 4x15 MW+1x50 MW PSPCL 1932(U1 to U4) T - GanzMavag, Hungary G – BTH, UK 1982 (U5-extn) T&G - BHEL **RM&LE** **2026-27**	**110 (LE)** 8.02 -	To conduct RLA studies, detailed feasibilities studies and preparation of Detailed Project Report along with specifications for :- a) up-rating of 4x15 MW & 1x50 MW machines, b) rehabilitation & uprating of House Generator Set of 648 KVA , c) Setting up a mini/ small hydel power plant at existing head works at Barot, PSPCL, Joginder Nagar (H.P.).	Administrative approval to carry out RLA & RMU study has been accorded by WTDs. Two number of tenders were received and opened on 09.11.2022 against TE no. 287 dated 30.05.2022: i. M/s Sharp Hydro Engineering Pvt. Ltd. ii. M/s WAPCOS Ltd., New Delhi. TE no. 287 dt. 30.05.2022 dropped due to unsuitability of bids. Part-I and II of Fresh TE no. 305 dt. 04.08.2023 opened on 23.02.2024. Techno-commercial evaluation of following 2 no. bids is under process: i) M/s WAPCOS Ltd., New Delhi ii) M/s MECON Limited, Ranchi
9.	**UBDC St.I & St II,** 3x15 MW (St.-I) & 3x15.45 MW (St.-II) PSPCL 1971-73 (St.-I) & 1989-92 (St.-II) St. I T&G-AEI, UK St.-II T&G-BHEL **RM&LE** **2026-27**	**91.35 (LE)** 1.71 -	RLA and RMU Study of UBDC Stage-I Power Houses and preparation of DPR, Technical Specs and commercial Specs.	Administrative approval to carry out RLA & RMU study has been accorded by WTDs. 2 no. tenders having TE 288 dt. 30.06.2022 and TE 297 dt. 1.12.2022 dropped on due to high prices offered by the L-1 firm. Price Bids of 3 no. bids against Fresh TE no. 300 dt. 16.05.2023 opened on 03.10.2023 and Reverse Auction conducted on same day. M/s Sharp Hydro Engineering Pvt Ltd., Faridabad is L-1. Final Price Summeries are awaited from 2 No. bidders for further processing of the case. Work order no. 124 dt. 6.11.2023 amounting to Rs. 52.24 Lac. has been placed on M/s Sharp Hydro Engineering Pvt. Ltd., Faridabad. Various tests are being carried out by the firm at site.

State-wise Programme/ Status of Renovation and Modernisation Schemes of Hydro Power Stations during 2022-27

NORTHERN REGION

UTTARAKHAND **(Amount in Rs. Crores)**

S. No.	Scheme/ Category/ Completion Target	Expected Benefit (MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES COMPLETED				
10.	**Tiloth (Maneri Bhali-I),** 3x30 MW UJVNL 1984 T&G – BHEL **RM&LE** **2019-20** **2022-23**	**90(LE)** 384.66 189.45	-Refurbishment of turbine, three nos. new runners& one spare runner, new sets of guide vanes. Repairing of various gates and gantry cranes. -Refurbishment of generators with new class F insulated stator & rotor winding. New SEE, Replacement of ABCBs by SF6 breakers, 11 kV Switchgear. Installation of numerical type protection system. -Civil works of barrage, power channel, power station & Tail race channel.	Agreement for Rs.139.9 Cr. signed with M/s. Andritz Hydro Pvt. Ltd. (AHPL) on 14.12.2016. **Works Completed** **Unit 1** • Commissioning date : 17.04.2020 **Unit 3** • Machine no. 3(RMU 2nd Unit) taken over by UJVN Ltd. for commercial operation on 06.07.2021. Machine is capable of running continuously at 34.1 MW. **Unit 2** • Machine no. 2 taken over by UJVN Ltd. for commercial operation on 08.09.2022.
11.	**Dhalipur,** 3x17 MW UJVNL 1965-70 T - Litostroj, Yugo. G - Rade Konkar,Yugo **RM&LE** **2023-24**	**51 (LE)** 152.65 110.13	-Replacement of turbine, new governors, new sets of guide vanes. Repairing of various gates and gantry cranes. -Refurbishment of generators with new stator core and new class F insulated stator & rotor winding. New SEE, Replacement of 11 kV Switchgear. Installation of numerical type protection system. -Civil works of barrage, power channel, power station & Tail race channel.	Order placed on M/s. Gogoal Energo Pvt. Limited (GEPL), New Delhi for Rs. 78.25 Crs. on 28.12.2016. • After RMU Unit-A commissioned on 26.10.2022. • After RMU Unit-B commissioned on 07.06.2021. • After RMU, Unit-C commissioned on 07.10.2023.

B - SCHEMES ONGOING - Under Implementation				
12.	**Chilla (Ph-B),** 4x36 MW UJVNL 1980(U-1 to 3) 1981(U-4) T&G – BHEL **RMU&LE** **2025-26**	**144 (LE) +** **12 (U)** 490.56 7.39	-Replacement of existing Kaplan turbine and their complete auxiliaries, refurbishment of existing generators. Complete replacement of switchyard equipment along with Power Transformer, Replacement of 11 kV system, New Excitation system, New Electronic Governors, new control metering & protection system & SCADA, HM Works and Civil Works. -Uprating from 4x36 MW i.e. 144 MW to 4x39 i.e. 156 MW.	• DPR prepared by M/s SNC Lavlin and approved by the Board. However, GoU cancelled signing of agreement. Revalidation of DPR was done by AHEC, IIT Roorkee and approved by UJVN Board on 26.11.13. • Capital Investment approval accorded by UERC on 29.01.2016. Revised Tender floated. • Tender cancelled after BoD order dated 31.12.2018. • New tender uploaded on 09.01.2019 and Pre-bid meeting held on 11.02.2019. • Techno-commercial Bid opened on 30.05.2019. • Price bid opened on 22.08.2019. • BoD accorded financial approval of Rs. 212 Cr. including insurance, freight and duties & taxes for award of contract. • LOI issued to L-1 bidder M/s BHEL on 30.10.2019 & UJVN Ltd., received acceptance letter from M/s BHEL on 07.11.2019. • Agreement between M/s BHEL and UJVN Ltd signed on 22.01.2020. • Reverse engineering work has been completed. • M/s BHEL has submitted approval request to Cabinet Secretariat, Govt. of India to allow global tender enquiry for placing the order (Value less than 200 Cr) on foreign party. GoI has been granted conditional approval on 30.03.2021. BHEL informed that tender has been floated on 27.07.2021. • M/s BHEL has informed that Purchase order for Turbine Model Test is placed on 22.04.2022. Model testing has been carried out in the month of April, 2023 by IIT, Roorkee. • Load Test on 50/10 T EOT crane performed successfully on 06.11.2023. • Load Test on 200/30 T EOT crane performed successfully on 17.02.2024. • At present design engineering and procurement works are in progress. • Unit-1 Shutdown proposed on 01.06.2024. • **Physical progress:** 26.00%

13.	**Dhakrani,** 3x11.25MW UJVNL 1965-70 T - Litostroj, Yugoslavia. G - Rade Konkar, Yugoslavia **RM&LE** **<u>2020-21</u>** **2025-26**	**33.75 (LE)** 137.31 10.69	-Replacement of turbine, new governors, new sets of guide vanes. Repairing of various gates and gantry cranes. -Refurbishment of generators with new class F insulated stator & rotor windings. New SEE, Replacement of ABCBs by SF6 breakers, 11 kV Switchgear. Installation of numerical type protection system. -Civil works of barrage, power channel, power station & Tail race channel	• Decision was taken to cancel KfW loan. Approval accorded for inviting fresh bids on National Competitive Bidding (NCB) route through domestic funding. • DPR was revised based on present price level and Specifications were reframed. Revised DPR was approved by Board on 30.09.2015. • UERC accorded approval on 27.06.2017. • Financial approval accorded by CPC on 16.11.2017. BoD directed to put up the proposal again with modifications. Revised e-tender uploaded on e-portal on 16.09.2019. E-tender has been extended on 18.11.2019. Due to CORONA pandemic E-Tender extended on dated 27.06.2020 on e-procurement portal. Last date for submission of bid on website is 15.07.2020 & opening date of bid on website is 20.07.2020. • LOI has been issued to M/s Flovel on 25.06.2021 and Agreement inked on 05.07.2021. • Unit#A handed over to M/s Flovel for reverse engineering on 02.02.2022. Work of measurements has been completed on 15.03.22. • LOI for additional works for restoration work of Unit A was placed to M/s Flovel on 19.04.2022. Restoration works of Unit A has been completed on 09.08.2022 • Design related activities are under progress. • Model Test is completed. • Major Design works completed. • Unit-A RMU started on 16.02.2024. Dismantling of Unit completed and civil works activities related to runner chamber are under progress. • Physical Progress-24.5 %
C - SCHEMES ONGOING - Under Tendering				
14.	**Ramganga,** 3x66 MW UJVNL 1976 T&G-BHEL **RM&LE** **<u>2017-18</u>** **2026-27**	**198 (LE)** 455.20 NIL	-Replacement of runner, rehabilitation of generators, installation of intake hoisting arrangement, installation of DT gantry crane, 11 kV Circuit Breakers, control protection and replacement of Switchyard equipment, instrumentation, governors, pumps and life extension of units based on RLA studies.	• DPR was prepared in-house and was reviewed by AHEC, IIT Roorkee. Specifications were vetted by AHEC. Tender on turnkey basis floated on e-portal. • Tender has been scrapped as UERC declined Investment approval on 12.02.2016. • Appeal has been filed in Hon'ble Appellate Tribunal, New Delhi on 23.03.2016. Matter is under hearing.

D- SCHEMES ONGOING - Under DPR Preparation/Finalisation/Approval				
15.	**Kulhal,** 3x10 MW UJVN LTD. 1975 T&G - BHEL **RM&LE** **2026-27**	**30(LE)** 115.24 NIL	-Replacement of turbine, new governors, new sets of guide vanes. Repairing of various gates and gantry cranes. -Refurbishment of generators with new stator core and new class F insulated stator & rotor windings. New SEE, Replacement of 11 kV Switchgear. Installation of numerical type protection system. -Civil works of barrage, power channel, power station & Tail race channel	• LoI issued to M/s Gogoal-Emeco (Consortium) on 04.03.2014. UERC declined approval vide order dtd. 13.03.2015 with the advice that on account of obsolescence of protection equipment, suitable proposal be mooted. UJVNL approached commission with suitable modifications. However, UERC declined Investment approval vide order dated 11.02.2016 due to better availability of the machines. • Appeal has been filed in the Appellant Tribunal New Delhi on 23.03.2016. • Reply related to Kulhal power house as required by Hon'ble Appellate Tribunal New Delhi submitted on 29.02.2020. Matter is under hearing. • Bank Guarantee has been extended by the firm up to 30.07.2024.

State-wise Programme/ Status of Renovation and Modernisation Schemes of Hydro Power Stations during 2022-27

NORTHERN REGION

UTTAR PRADESH **(Amount in Rs. Crores)**

S. No.	Scheme/ Category/ Completion Schedule (Original/ Anticipated)	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES COMPLETED				
16.	**Rihand,** 6x50 MW UPJVNL 1962 (U-1to5) 1966 (U-6) T&G - EE, UK **RM&LE** **2022-23**	**300 (LE)** 132.20 (Revised) 129.67	- Replacement of Stator Core, and Coils insulation with Class F. - Replacement of insulation of field coils with Class F - Replacement of Governors - Replacement of Excitation Equipment, 60 MVA generator transformers by 67.5 MVA Transformers, switchyard equipments, Bus bars and under water parts - New Air Cooler and Ventilation system.	Works of all six units completed by BHEL (Units Commissioned on: U-1: 16.09.2016, U-2: 14.02.2018, U-3: 15.06.2015, U-4: 04.08.2014, U-5: 23.04.2011 and U-6: 31.05.2017). All works completed except some overhauling works of intake gates along with alignment of T-Guide and their hoisting for Unit#1, Unit#5 & Unit#6 and SCADA under common works. Scheme is declared completed in 2022-23

S. No.	Scheme/ Category/ Completion Schedule (Original/ Anticipated)	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
B - SCHEMES ONGOING - Under Implementation				
17.	**Obra,** 3x33 MW UPJVNL 1970 (U-1&2), 1971 (U-3) T&G - BHEL **RM&LE** **<u>2017-18</u>** **2024-25**	**99 (LE)** 58.80 48.15	- Replacement of Stator coil, core & rotor pole etc. (Unit#1, 2& 3). - Replacement of rotor spider arm (Unit# 1&3). - Replacement of digital governor (Unit#1, 2& 3). - Supply of Gov. oil pump (Unit#1, 2& 3). - Supply & installation of Static Excitation System (Unit#1, 2& 3). - Supply of Gen. Air coolers (Unit#1). - Rehabilitation of Intake gate of Units - Rehabilitation of stop logs, draft tube gates. - Refurbishment of draft tube gate crane. - New earthing of Switchyard - Station battery. - Replacement of 132KV Breakers. - Overhauling of 132KV Isolator (32 Set). - Supply of replacement of 132KV CT&PT. - Replacement of numeric relay panels of Units & Feeders. - Replacement of station battery - Installation of Radio Remote Control of both EOI cranes. - Smoke Fire detection system. - Supply of dewatering pumps, air compressor. - Supply & replacement of Elevator (1 No.). - Supply of 1 No. Electrostatic Liquid Cleaner (ELC) & 1 No. Low Vacuum Dehydration (LVDH) Machine. - SCADA - Other works covered in various packages approved by ETF.	**<u>UNIT No. 1</u>** **All work executed except the following:** Capital overhauling along with replacement of vapour seal, spring mattress, support of thrust bearing, brake-jack system, carbon segment gland; inception of HS lube oil system, backwash type cooling water strainer, centralized self-lubricating system, refurbishment of runner, runner chamber, GV & Stay vanes, liner of pivot ring etc. **<u>UNIT No. 2</u>** **All work executed except the following:** Capital overhauling along with replacement of vapour seal, spring mattress support of thrust bearing, brake-jack system, carbon segment gland; inception of HS lube oil system, backwash type cooling water strainer, centralized self-lubricating system, refurbishment of runner, runner chamber, GV & Stay vanes, liner of pivot ring etc. The R&M Works of this unit 2 will be taken up after completion of similar works of Unit 1. **<u>UNIT No. 3</u>** All works completed. **COMMON WORKS:** 1. Provision of station supply from Obra HEP 132 KV Bus- Under Progress 2. SCADA

State-wise Programme/ Status of Renovation and Modernisation Schemes of Hydro Power Stations during 2022-27

NORTHERN REGION

RAJASTHAN **(Amount in Rs. Crores)**

S. No.	Scheme/ Category/ Completion Schedule (Original/ Anticipated)	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES ONGOING - Under Tendering				
18.	**Rana Pratap Sagar,** 4x43 MW RRVUNL 1970 T- Johnson & Co. G- General Electric, Canada **RMU&LE** **2026-27**	**172 (LE)** + **6 (U)** 548.11 -	RLA study of Unit No. 1, 2, 3& 4. Scope of works under finalization.	1. Detailed Project Report of RMU Work for Generators of RPSPS has submitted by M/S SHEPL-BHEC (Joint Venture), Faridabad. 1. Dismantling of Generator of Unit#2 is completed. Replacement of Generator of Unit#2 work is in progress by M/s Andritz Hydro Pvt. Ltd. 2. Capital overhauling and augmentation of Governing system and auxiliaries of Unit-2 has been approved by WTD's of RVUNL. 3. Final Detailed Project Report for RLA study of Turbine and associated equipments of one unit (43 MW) & complete Civil Structure of RPSPS has been submitted by M/s MECON Ltd. After considering recommendation of CEA, uprating of 1.5 MW/ unit has been envisaged. Accordingly, DPR finalized and approved. Preparation of tender documents under progress.

State-wise Programme/ Status of Renovation and Modernisation Schemes of Hydro Power Stations during 2022-27

WESTERN REGION

MADHYA PRADESH **(Amount in Rs. Crores)**

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES ONGOING - Under RLA Studies				
19.	**Bansagar Tons-I,** 3x105 MW MPPGCL 1991-92 T&G – BHEL **RM&LE** **2026-27**	**315 (LE)** - - 	RLA study of Unit No. 1, 2 & 3.	• The RLA Study of Unit#2 to be taken up in 2024. Tender for RLA studies of unit #2 is opened on 04th Oct'23. • Tentative Timeline: ✓ RLA-Oct'24 ✓ DPR-Apr'25 ✓ Tender Doc Preparation-Dec'25 ✓ NIT publish-Dec'25 ✓ Award of contract- Jul'26

State-wise Programme/ Status of Renovation and Modernisation Schemes of Hydro Power Stations during 2022-27

WESTERN REGION

GUJARAT **(Amount in Rs. Crores)**

S. No.	Scheme/ Category/ Completion Schedule (Original/ Anticipated)	Expected Benefit (MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES ONGOING - Under Tendering				
20.	**Kadana PSS,** 4x60 MW GSECL Units 1&2 1989-90 T&G-Skoda Units 3&4 1998-99 T&G-BHEL **RMU&LE** **2025-26**	**240 (LE) +20 (U)** 750.25 -	Plant Design, Engineering, Manufacture, Shop testing, Supply, Transportation, Storage, Erection, Testing, Commissioning and PG Test for Renovation, Modernization & Uprating of 4x60 MW i) RLA of Civil Structure of Power House	GSECL had published tender GSECL/ PP/PMI/Kadana/PSP/ on 18.10.2022 for EPC basis for complete R&M work of 4x60MW KHEP Units. The tender did not achieve the expected outcome. Hence, the tender under reference stands cancelled with effect from 03.06.2023. A new tender for Appointment of Project Management Consultancy (PMC) service provider for Preparation of R&M Feasibility Study & Detailed Project Report, EPC tender preparation, tender evaluation, finalization of EPC, Design, Engineering, E&C Supervision till completion of project with uprating of 4x60 MW of Pumped Storage Hydro Power (PSP) Station of GSECL at Kadana, Gujarat was published on 12.06.2023 by GSECL. Pre-bid meeting is completed on 27.06.2023 and Amendments are under approval. Technical Bid opened on 17.08.2023. Technical Scrutiny completed and approved. Price bid opened on 17.11.2023. Board approval is required for placement of LOA/LOI of PMC. KHEP has sent the enquiry for budgetary offer to Dr. J D Rathod, HoD of Structural Engg. M.S.U. of Baroda and they have visited site on 03.03.2023. LOI for Rs. 2.96 lac placed to Dr. J D Rathod on 22.06.2023. WO issued. Commencement letter will be given separately.

State-wise Programme/ Status of Renovation and Modernisation Schemes of Hydro Power Stations during 2022-27

WESTERN REGION

MAHARASHTRA (**Amount in Rs. Crores**)

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES ONGOING - Under RLA Studies				
21.	**Vaitarna,** (1x60) MSPGCL, 1976 **RM&LE** **2026-27**	**60 (LE)** - -	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	Budgetary offers for preparation of cost estimate of RLA and Uprating study and DPR Preparation is invited from various agencies. Estimate for RLA study is under scrutiny. • Completion of RLA study & DPR preparation – Feb 2025 to July 2025. • Bidding process and Finalization of contract after tendering – Aug 2025 to Dec 2025. • Completion of RMU Work –Jan 2026 to Dec 2026.
22.	**Koyna Dam foot (Right Bank),** (2x20) MSPGCL, 1980-81 **RM&LE** **2026-27**	**40 (LE)** - -	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	RLA Study to be taken up. • Completion of RLA study & DPR preparation – Jan 2025 to June 2025. • Bidding process and Finalization of contract after tendering – July 2025 to Nov 2025. • Completion of RMU Work –Dec 2025 to Nov 2026.
23.	**Koyna St-3,** (4x80) MSPGCL, 1975-78 **RM&LE** **2026-27**	**320 (LE)** - -	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	RLA Study to be taken up. • Completion of RLA study & DPR preparation – Nov 2024 to April 2025. • Bidding process and Finalization of contract after tendering – May 2025 to Sept 2025. • Completion of RMU Work –Oct 2025 to Dec 2026.

State-wise Programme/ Status of Renovation and Modernisation Schemes of Hydro Power Stations for completion during 2022-27

SOUTHERN REGION

ANDHRA PRADESH **(Amount in Rs. Crores)**

S. No.	Scheme/ Category/ Completion Target	Expected Benefit (MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES ONGOING - Under Implementation				
24.	**Upper Sileru Power House,** 4x60 MW APGENCO 1967-1968 (St.-I) & 1994-1995 (St.-II) St.-I: T- Excherwyss, Charmilies Switzerland G - Oerlikon, Switzerland St.-II: T - BHEL G - BHEL **R&M** **2026-27**	- 10.53 4.53	a) Supply, Erection, Testing & Commissioning of Micro Processor based Dual Channel Static Excitation System (Digital AVR's). b) Supply, Erection, Testing & Commissioning of SCADA system including field instruments for Unit No. 1 to 4, common auxiliary equipment and switchyard .	Purchase order was placed on M/s. Andritz Hydro Pvt. Ltd. and work completed in 2022. Tender for SCADA floated and cancelled due to poor response. Re tendering is to be carried out with estimated cost of Rs. 5 crore
25.	**Nagarjuna Sagar Right Canal Power House,** 3x30 MW APGENCO 1983 (Unit – 1 & 2) 1990 (Unit – 3) T- M/s. BOVING, U.K G-M/s. GEC Large Machines Ltd., U.K **R&M** **2025-26**	- 10.1 4.54	a) DVR: Replacement AVRs with Modern Digital Voltage Regulator based Static Excitation System. b) SCADA: Replacement of relay logic based automatic system with SCADA system along with GPS for all the 3 units and Power House. c) Penstock Intake Gate: Overhauling of Penstock intake gates. d) Replacement of Governors for two units.	Purchase order was placed on M/s. ABB India Ltd. and work completed in 2022 with total cost of 2 Crore. Tender for SCADA floated with estimated cost of Rs. 1.05 crores and cancelled due to poor response. Retendering is to be carried out with fresh estimates. Replacement of Penstock Intake gate of Unit No. 2 and Unit No. 1 is completed. Tenders for Penstock Intake gate of Unit No. 3 are in progress. Total estimate cost for all three units is 4.70 Crores. Tenders will be floated for the new Governors after the completion of SCADA works with an estimated cost of 2.4 crores for two units

S. No.	Scheme/ Category/ Completion Target	Expected Benefit (MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
26.	**Tungabhadra Dam,** (4x9 MW) APGENCO 1957-64 Unit-1&2 T-Escherways, Zurich G- Browin Bovert, Switzerland Unit-3&4 T- Hitachi, Japan G- Toshiba,Japan **RM&LE** **2025-26**	**36 (LE)** 6.6525 2.517	Partial renovation works involves Capital Overhaul works on all units for replacement of equipment/components worn out over a period of 60 years along with replacement of equipment like governors & Excitation systems, which are affecting the station performance	The main objective of Tungabhadra HEP is being irrigation and electricity generation is dependent on water releases as per irrigation requirements. Because of this the average load factor of TBHES is less than 30% for past 5 years. Due to the limitation in discharge capacity of canal that leads to Hampi Power House, the max generation possible in Hampi is 21 MW against 36 MW installed capacity. The investment for RMU works out to be 330 Cr. excluding IDC (as per budgetary offer of M/s Andritz Hydro) which doesn't yield required benefit economically. In view of above limitations, Tungabhadra board has given consent to carry out partial renovation works only. At present capital overhauling works on Unit # 3 and #4 at Tungabhadra HEP is completed and Order for capital over hauling works of unit 1 is awarded to M/s Hi-Power Associates and work commenced from Nov 2023 and likely to be completed by May 2024. Unit-2 capital overhaul works will be taken up after completion of the works on Unit-1. The replacement of Governor, Excitation equipment for Stage-1 (Unit 1&2) of Dam PH with latest art of new technology, is programmed during FY 2024-25 and tenders are to be floated.

S. No.	Scheme/ Category/ Completion Target	Expected Benefit (MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
27.	**Hampi Canal PH,** (4x9 MW) APGENCO 1958-64 Unit-1&2 T-Charmilles, Switzerland G- Browin Bovert,Switzrland Unit-3&4 T- Hitachi, Japan G- Toshiba,Japan **RM&LE** **2025-26**	**36 (LE)** - -	R, M & U of units of Hampi Power House	The proposal as suggested by CEA for R, M & U of first two units of Hampi Power House was submitted to Tungabhadra Board with a request to permit to call for budgetery offers from reputed manufacturers.
B - SCHEMES ONGOING - Under DPR Preparation/ Finalisation/Approval				
28.	**Lower Sileru,** (4x115 MW) APGENCO **RM&LE** **2026-27**	**460 (LE)** 698.94 1.8 (for RLA studies)	Residual Life Assessment (RLA)/ Life Extension Studies and Preparation of Detailed Project Report along with technical specifications for R, M & U of Lower Sileru Hydro Electric Project.	The 175th board meeting of APGENCO approved to conduct the RLA/ LE studies and Preparation of DPR for R, M & U of all four units (4x115 MW) of LSHEP. Work has been awarded to M/s MECON for Rs 1.8 Crore to carry out RLA. RLA studies of all four units completed. DPR has been furnished in March 2023 by M/s MECON. Commissioning of 2 Nos. new units (U#5 & 6, 2x115 MW) are likely to be completed by April 2024. R&M works of the existing four units will be taken up by the time of completion of new units 5 & 6 due to space & EOT constraints. APGENCO has placed an order for Erection, Testing & commissioning of 2 Nos, of 115 MW additional units in the existing power house and scheduled to be commissioned by April 2024.

S. No.	Scheme/ Category/ Completion Target	Expected Benefit (MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
				Tentative schedule of R&M Works: a) Proposed time required for R&M works: 48 Months. b) Finalisation of contract: Contract will be finalized by the time of commencement of new units.
C - SCHEMES ONGOING - Under RLA Studies				
29.	**Machkund,** 3x17 MW (St.-I) & 3x23 MW (St.-II) APGENCO 1955-56 (St.-I) & 1959 (St.-II) St.-I: T - M.Smith, USA G - W.House,USA St.-II: T - J.M.Voith, W. Germany G - Westing House, USA **RMU&LE** **2026-27**	**120 (LE)+ 9 (St.-I) (U)** 1.98 Crs./Nil (approx.) -	Residual Life Assessment studies (RLA) on Civil structures, penstocks, Hydro Mechanical and all Electrical & Mechanical equipment of all six units. **Note:** Three units of Stage-I each rated at 17 MW are proposed to be uprated to 20 MW.	The Govt. of AP (APGENCO) & Govt. of Odisha (OHPC) mutually agreed for carrying out RM&U by sharing the costs & benefits in the ratio of 50:50. Modified agreement was entered on 23.10.2020 by both APGENCO and OHPC officials. In Machkund HEP, Stage-I Units were running at derated capacity of 16 MW and Stage –II Units were running at derated capacity of 21 MW against their original capacity of 17 MW and 23 MW respectively. Work awarded to M/s Tata Consulting Engineers (TCE), Bangalore for carrying out RLA Study. RLA studies on Unit- 1, 4, 6 and Civil structures completed. RLA studies of Unit-2, 3& 5 completed partially. PAC comprising of members from both the Govts of AP & Odisha was constituted in new agreement for taking decisions on all administrative and technical issues. RLA/LE studies are being carried out to prepare comprehensive DPR for carrying out R, M & U works. Tentative Schedule of R&M works: a) Completion of RLA Studies & finalisation of DPR: August, 2024. b) Finalisation of Tender for RM& U: November 2024. c) Completion of R&M of first unit, 12 months from Zero date: November 2025. d) Balance five units @06 months/Unit: November 2028.

State-wise Programme/ Status of Renovation and Modernisation Schemes of Hydro Power Stations during 2022-27

SOUTHERN REGION

TELANGANA **(Amount in Rs. Crores)**

S. No.	Scheme/ Category/ Completion Target	Expected Benefit (MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A – SCHEMES COMPLETED				
30.	**Nagarjuna Sagar Phase II works,** 1x110 + 7x100.8 MW, TSGENCO 1978-85 Unit-1: T&G - BHEL Units 2 to 8: PT - Hitachi, Japan MG - MELCO, Japan **R&M** **2022-23**	- 21.67 14.34	1. Replacing existing AVRs with latest DVRs along with thyristor modules for 7 units at NSPH. 2. Replacement of all L.T. Breakers of all units and SABs of NSPH. 3. Retrofitting of Numerical Relays of Generator Protection Schemes of Units 2 to 8. 4. Overhauling of EOT Cranes and Gantry cranes at NSPH. 5. Procurement of control cables of different sizes for units 1 to 8, common auxiliaries, Switchyard equipments and switchyard marshalling boxes and laying of Power Cables and Control Cables for Penstock Inlet Gates from main control room for NSPH. 6. Servicing and reconditioning/ procurement of new Isolators required for motoring mode operation for 89G, 89M, 189S1 and 189S2 for units-1 to 8. 7. Procurement of 245 KV SF6 Circuit Breakers. 8. Overhaul of stop log gates, penstock gates and seals replacement for draft tube gates for all units of NSPH including trash rack at tail race. 9. Replacement of switchyard equipment that have completed 25 years of service of 220 KV CVTs (10 Nos.),	Scheme is declared completed in 2022-23

			132 KV CVTs (17 Nos.), 220 KV PTs (5 Nos.), 132 KV PTs (8 Nos.), 220 KV LAs (13 Nos.) and 132 KV LAS (13 Nos.) for NSHES. 10. Procurement of 220 KV CTs (18 Nos.) for units (silicon rubber composite type).	
31.	**Nagarjuna Sagar Left Canal Power House (NSLCPH),** 2x30.6 MW TSGENCO 1992 T-Boving, UK G-General Electric, UK **R&M** **2022-23**	- 30.99 1.5	1. Replacing existing AVRs with latest DVRs along with thyristor modules for 2 units. 2. Capital overhauls on generator and turbine and its auxiliaries including spares and consumables for all 2 units. 3. Modification in design of runner for both units for operating at lower heads. 4. Overhauling of EOT Cranes and gantry cranes. 5. Procurement of 132KV SF6 Circuit Breakers for both units and its feeders. 6. Implementation of SCADA. 7. Providing of latest version of EHG System for 1 Unit. 8. Cooling water line erections.	Scheme is declared completed in 2022-23 1. It is proposed to postpone the work of replacing existing AVRs with latest DVRs along with thyristor modules for Unit-2 in to the R&M works. 2. Unit-1 overhauling completed. Unit found normal and taken into service on 20.11.17. The capital overhauling works of Unit-2 has been deferred as the unit running hours are less and there is no major problem in Turbine & Generator. 3. Not feasible, hence the proposal has been dropped. 4. Completed. 5. Completed (Siemens) 6. Completed (ABB) 7. Completed (BHEL) 8. Completed.

B- SCHEMES ONGOING - Under Implementation				
32.	**Pochampad HPS Stage -1,** 3x9 MW TSGENCO 1987-88 T- BHEL G-BHEL **R&M** **2026-27**	- 8.44 -	1. Supply, erection, testing and commissioning of 3 sets of Digital Automatic Voltage Regulator (DAVR) based Static excitation equipment (SEE) for Generating Units # 1, 2 & 3 and Dismantling of Existing AVRs of HPS 2. Supply, erection, testing and commissioning of New Microprocessor based Digital Governor Controller (EHGC) and dismantling of existing old EHGC panels 3. Supply, erection, testing and commissioning of advanced numerical protection relay panels with Time synchronizing feature along with DR Evaluation Unit with required hardware and software along with recommended spares for protection of generator, generator transformer and UAT/Excitation transformer for Units # 1,2 and 3 4. Procurement of Latest auto Sequencer System 5. Procurement of Field Instrument for Unit-1,2 &3	1. LOI issued to BHEL. Purchase order is to be placed at HQ. MQP and FQP are approved. LOI. D.No.493/2021, Dt.15.12.2021 was cancelled with the approval of CMD and approval of refloating of tender in open tender system is also taken. 2. Indent is submitted to HQ. Revised MQP duly attending remarks along with FQP is submitted to HQ. 3. PO Placed to M/s. Scope T&M Pvt. Ltd., Mumbai. Erection, testing and commissioning of protection panels for Unit-I, II & III are completed. 4. Indent is submitted to HQ. Revised MQP and FQP after attending remarks is submitted to HQ. 5. Indent for procurement is prepared and procurement is in progress.

State-wise Programme/ Status of Renovation and Modernisation Schemes of Hydro Power Stations for completion during 2022-27

SOUTHERN REGION

TAMILNADU (**Amount in Rs. Crores**)

S. No.	Scheme/ Category Completion Target	Expected Benefit (MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES ONGOING - Under Implementation				
33.	**Moyar PH,** 3x12 MW TNPGCL 1952-53 T – Boving,UK G -Metropolitan Vickers Electric Co. limited,UK **RMU&LE** **2024-25**	**36 (LE)+ 6 (U)** 121.127 74.02	Planning, design, model testing, engineering, manufacture, procurement/ supply of new components and spares at site, painting including penstock (internal and external), insurance, dismantling, capital repairs, erection, testing and commissioning of 3 nos. hydro generating units including P.G. Test in any one of the units. Associated technological, civil, mechanical, electrical works as required with new TG set from 3x12MW to 3x14 MW and Plant, Equipment & facilities.	The work for conducting RLA study and uprating study on Turbine, Generator and other auxiliaries for Rs. 82.8 lakhs was awarded to M/s MECON, Ranchi on 17.06.2013. MECON submitted final DPR for works on 07.02.15. Administrative approval accorded on 04.06.2016. Techno-commercial Bid opened on 15.02.2019. TNPGCL Board in its 91st Meeting held on 22.11.2019 for Placing Orders on L1 tenderer M/s. Andritz Hydro Private Limited, New Delhi and Letter of Intent (LOI) has been issued on 28.11.2019. Contract agreement has been executed on 14.01.2020. Unit-2 handed over to M/s. AHPL for Reverse Engineering works on 27.01.2020 & completed on 02.12.2020. Drawings submitted by M/s AHPL and approved by TNPGCL. Dispatch clearance issued for items inspected and test certificates approved. All materials for Unit-1 & common items have been supplied by M/s AHPL. Unit-1 has been handed over for RMU works on 28.03.2022 and the work is under progress. Most of Unit-2 materials supplied.

S. No.	Scheme/ Category Completion Target	Expected Benefit (MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
34.	**Kodayar PH-I,** 1x60 MW TNPGCL 1970 T-Vevey Engg. works, Switzerland G-Alstom, France **RMU&LE** **2025-26**	**60 (E)+ 10 (U)** 80.96 2.30	Planning, design, CFD/model testing, engineering with RE, manufacture, procurement/ supply of new components and spares at site, painting-penstock, insurance dismantling, capital repairs, erection, testing and commissioning of P.G. Test. Associated technological, civil, mechanical, electrical works as required with new TG set from 1x60MW to 1x70MW and Plant, Equipment & facilities.	Contract was awarded to M/s MECON Ltd., Ranchi for Rs. 91 lakhs on 22.09.2014 for conducting RLA study and uprating study on Turbine, Generator and other auxiliaries. They have completed the study and furnished the final DPR. Administrative approval accorded on 03.02.2017. Techno-commercial Price-Bid opened on 05.09.2019. The BLTC in its 314th Meeting held on 18.11.2019 approved and recommended the proposal for placing works contract order on the L1 tenderer i.e. BHEL, New Delhi to TNPGCL Board. The proposal was approved by TNPGCL board on 26.02.2020. Letter of Intent issued to M/s BHEL on 09.03.2020. Agreement has been executed on 22.10.2020. Reverse Engineering Works completed on 10.08.2021. Drawings being submitted by BHEL and approved by TNPGCL. Materials are being dispatched by BHEL at site. EOT crane refurbishment work completed except load test. RMU work will be commenced in May 2024 and expected to be completed by May 2025.
B - SCHEMES ONGOING – Under DPR Preparation/ Finalisation/ Approval				
35.	**Kodayar PH-II,** 1x40 MW TNPGCL 1971 T-Yugoslavia G- Yugoslavia. **RMU&LE** **2026-27**	**40 (LE)+ 6 (U)** - Nil	Replacement of stator core & winding, rotor winding, poles, Excitation system, Governing system, Runner, guide vanes, Cooling water & De-watering systems, Generator Transformers, Generator protection, LT switch gear, lubrication system, 11 KV LAVT, Neutral Grounding Transformer, Annunciation system, power and control cable, UAT, fire-fighting system for generator, yard, cable gallery yard, Refurbishment of turbine inlet valves and Butterfly valves, Air admission system, brake & jack and bearings.	M/s MECON submitted RLA study report in 2006 and proposed to uprate from 40 to 46 MW. TNPGCL decided to take up RMU works of Kodayar PH-II on completion of RMU works of Kodayar PH-I as the water of PH-I is used for PH-II.

State-wise Programme/ Status of Renovation and Modernisation Schemes of Hydro Power Stations for completion during 2022-27

SOUTHERN REGION

KARNATAKA **(Amount in Rs. Crores)**

S. No.	Scheme/ Category/ Completion Schedule (Original/ Anticipated)	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES COMPLETED				
36.	**Munirabad Dam Power House,** 2x9 MW (U-1&2), 10 MW ,(U-3), KPCL 1962(U-1&2) 1965 (U-3) T-Hitachi Ltd, Japan G- U-1&2: Hitachi U-3: Voest Alpine, Austria **R&M** **2022-23**	**28 (LE)** 4.60 2.20	Generator protection and DCS based SCADA system for Unit 1, 2&3. 2 nos. 11kV Tee-off cubical of Units 1&2 and 11kV Gescom UAT switchgear cubicle.	PO placed on M/s ABB India Ltd., on 26.03.2018 for Rs. 4.87 crore. Contract agreement was signed on 04.05.2018. Work completed. Supply, erection and commissioning of panel completed by M/s Amar Raja power systems Ltd., Tirupati at a total cost of Rs. 71,19,395.00.
37.	**Linganamakki Dam Power House (LDPH),** (2x27.5MW) KPCL 1979-1980 T – Electrosilla, USSR G - Electrosilla, Energomach-USSR **R&M** **2022-23**	**-** 2.75 2.75	Relay and control panels & DCS based SCADA system.	PO placed on M/s. ABB for modification of released panels of SGS to suit LPH at a total cost of Rs. 29.02 Lakhs. Commissioning of panels completed for U#2 for both lines. LOA is issued to M/s ABB limited at the cost of Rs. 2,45,97,408/- on 23.11.2017. Erection, Testing & commissioning of panels for 1 no. Bus coupler, lines (4 no.) and U# 1&2 is completed.
38.	**Gerusoppa Dam Power House (Sharavathy Tail Race),** (4x60MW) KPCL 2001-2002 T&G - BHEL **R&M** **2023-24**	- 59.66 2.026	Midlife replacement of switchyard equipment's planned R&M works of Turbine and generator	Ordered issued to M/s APPSIL on 21.05.2021. 4 sets 245 kV CB's & 23 nos. of 245 kV CTs received at site. Erection of switchyard equipment completed. Based on AOH reports and in house studies and the condition of the equipments, R&M works of turbine and Generator will be taken up at later stage.

S. No.	Scheme/ Category/ Completion Schedule (Original/ Anticipated)	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
B - SCHEMES ONGOING - Under Implementation				
39.	**Nagjhari, U-1 to 3,** 3x150 MW (uprated from 135 MW) KPCL 1979 (U-1), 1980 (U-2), 1981 (U-3) T&G - BHEL **RM&LE** **2025-26**	**450 (LE)** 266 80.5	R&M of Turbine of Unit-1, 2 & 3. Supply of major components, spares of turbine like Top cover, Pivot ring, labyrinth, MIV seals, guide vanes, aeration valves, runner, guide apparatus, GV servomotor regulating ring, rotary valve, shaft coupling bolt, spare guide vanes, runner & shaft etc. Replacement of Generator gauge panel, Brake & Jack assembly, oil coolers, Thrust collar, unit auxiliary panels, Generator coupling bolts, HS lubrication system, LEB ring. Replacement of 6 nos. of Unit Auxiliary Panels (UAPs) and retrofitting of 4 nos. breakers, replacement of electro-mechanical relays by numerical	• Order placed on M/s BHEL on 24.02.2018 for Rs. 99.25 Crores (Excluding taxes, freight and insurance) for Turbine, MIV, Governor & its accessories for Units 1, 2&3. Ordered materials are being received at site. Unit-2 will be handed over for R&M works, once all the materials of the unit are received at site. • Revised DPR with additional scope, submitted by KERC for approval. • The proposal of implementing new design generator rotor of BHEL for units 1, 2 & 3 is approved. • Additional order dated 14.12.2022 for implementation of split shaft design Generator rotor placed with BHEL. Contract agreement executed on 29.12.2022 and 10% advance amount released on 31.12.2022. The zero date for both Main and additional contracts starts from 31.12.2022. • Verification of items received at site & supply of items is in progress. • M/s BHEL has submitted drawings/documents for additional order dated 14.12.2022.Reviewing and approval of drawings/ documents for additional order of split shaft design generator is in progress. • Order placed on M/s. Balaji Electro Controls Pvt. Ltd. on 19.05.2018 at a total cost of Rs.3,32,14,777.00/-.

S. No.	Scheme/ Category/ Completion Schedule (Original/ Anticipated)	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
			relays in 5 incomers, bus coupler & 4 nos. outgoing feeders in common auxiliary panel.	• Erection and commissioning works of UAPs for all Units completed. Erection and Commissioning of panels, retrofit of equipment in CAP completed.
			SCADA System which includes erection & commissioning of Auto sequencer, installation of Dynamic disturbance recorder, online vibration monitoring system planned in phased manner, fire protection system, Commissioning of Thermo signaling devices in addition to RTD's, replacement of hydraulically operated valves by electrically operated Solenoids.	Proposal has been revised and technical specifications finalized. The proposal was placed before CMG. CMG has recommended to place the proposal before TAC/TC. TAC/TC recommended to float NIT and preparation of tender document is in progress.
40.	**Shivasamudram Hydro Power Station,** 6x3 MW 4x6 MW KPCL 1920-38 T - Boving, UK (U1 to U6) Escher Wyess, Switzerland (U7 to U10) G - GEC, USA **RM&LE** **2024-25**	**42 (LE)** 169.18 3.27	Model test, design engineering, manufacturing, supply of Turbine & its auxiliaries, Excitation system, Governing system, and dismantling, erection, testing & commissioning.	LOA dated 29.11.2018 issued to M/s Andritz Hydro for Model test, design engineering, manufacturing supply of Turbine & its auxiliaries, Excitation system, Governing system, SCADA system, Controls & protection System and dismantling, erection testing & commissioning. Contract agreement executed on 31.10.2019. Consultancy services are being availed from IIT, Roorkee, for review of Model test. Model test procedure for 6 MW turbine and CFD analysis procedure for 3 MW unit are approved. Final approval to model test and CFD reports issued on 19.01.2023. Drawings/ Documents submitted by the firm reviewed and approval of drawings/ documents is under process. Witnessing of Turbine Model Test and CFD analysis is successfully completed at AH, Rab Linz, Austria. Manufacturing and inspection of equipments is

S. No.	Scheme/ Category/ Completion Schedule (Original/ Anticipated)	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
				under progress. Some of equipments like shaft, control panel and runner MDCC issued.
41.	**Kadra Dam Power House,** (3x50MW) KPCL 1997-1999 T&G - BHEL **R&M** **2024-25**	**-** 44.47 2.627	• 220 kV Switchyard - Replacement of breakers, protective painting of switch yard structures. • Relays and control panels - replacement of numerical relays of control panels, GT panel, auto synchronous panel. • SCADA - New SCADA System is to be implemented.	Order issued to M/s. APPSIL on 21.05.2021 and entered into agreement on 17.06.2021. Erection of switchyard equipment completed. Proposal has been revised and technical specifications finalized. The proposal was placed before CMG and CMG has recommended to place the proposal before TAC/TC. TAC/TC recommended to float NIT and preparation of tender document is in progress.
42.	**Kodasalli Dam Power House,** (3x40MW) KPCL 1998-1999 T&G - BHEL **R&M** **2024-25**	**-** 50.60 2.654	• Replacement of UAP, ACDB and CAP. • 220kV Switchyard - Replacement of breakers, protective painting of switch yard structures. • Relays and control panels - replacement of numerical relays of control panels, GT panel, auto synchronous panel. • SCADA - New SCADA System is to be implemented.	LTAC Panels: UAP, ACDB and CAP: Work order dated 21.12.2020 was placed on M/s Lotus power gear. Supply of Panels to site completed. Erection & commissioning of 5 ACDBs, 3 UAPs& CAP completed. PLC programming and communication work completed. Order issued to M/s APPSIL on 21.05.2021 and entered into agreement on 17.06.2021. Erection of switchyard equipment completed. Proposal has been revised and technical specifications finalized. The proposal was placed before CMG and CMG has recommended to place the proposal before TAC/TC. TAC/TC recommended to float NIT and preparation of tender document is in progress.

S. No.	Scheme/ Category/ Completion Schedule (Original/ Anticipated)	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
43.	**Sharavathy Generating Station,** (10x103.5MW) KPCL 1964-77 T- U:1-8 - Neyrpic, France, U:9-10- BHEL, G- U:1&2-Hitachi, Japan, U:3to8 –GE Co, USA, U:9&10- BHEL, **RM&LE** **2025-26**	**1035 (LE)** 196.56 -	**Hydro-mechanical Works:** Overhauling of tunnel Stop log gates, Gates and gantry crane of surge shaft, R&M of BF valves, Civil structure (rails) for movement of gantry crane, cleaning and painting of internal and exterior surfaces of all penstocks, etc. R&M and Automation of BF & By-pass valves at valve house and incorporation of remote operation by extending the SCADA/ DCS System from SGS **Generator and associated components**. R&M of static Excitation System (SEE).	Overhauling of U#1 to 3 & 5 BF Valves completed. Renovation of 20T capacity gantry and stop log gates completed. The work of replacement of rubber seals for gates was taken up. Painting work for penstocks completed NIT published on 13.10.2021. Technical Bid (Cover-I) opened on 10.02.2022. Price bid opened on 27.04.2022. TAC/TC meeting held on 16.08.2022 and recommended for modification in scope for the works of Renovation of operating system. Discussed with site officials and scope finalized. Administrative approval for tendering is accorded. NIT issued on 18.10.2023 at an estimated cost of Rs.9.655 Cr. Pre-bid meeting held on 03.11.2023 and replies to Pre-bid queries are uploaded on 13.11.2023. Administrative/ technical approval for tendering is accorded. HO accorded to place work order on lowest bidder M/s Voith Hydro Power Ltd., Noida at negotiated price of Rs 9.997 crore incl. of taxes and duties. LOA dtd. 15.03.2024 placed on said firm. e-NIT floated on 03.07.2023 replacement of all 10 Units SEE at an estimated cost of Rs. 13.21 Cr. Tender recalled on 09.11.2023 with modified PQR and Techno-commercial conditions, at an estimated cost of Rs. 13.21 Cr. Pre-bid meeting conducted on 24.11.2023 and replies to Pre-bid queries are uploaded on 01.12.2023.

S. No.	Scheme/ Category/ Completion Schedule (Original/ Anticipated)	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
				Cover-1 opened on 13.02.2024. Technical evaluation completed. Price bid opened on 25.03.2024. Financial evaluation is in progress.
C - SCHEMES ONGOING - Under Tendering				
44.	**Supa Dam Power House,** (2x50MW) KPCL 1985 T&G - BHEL **R&M** **2024-25**	- 47.91 -	• Replacement of UAP &CAP • **SCADA** -All instrumentation and field devices of E&M equipment, new annunciation system for units, auto & manual synchronizer and temperature recorder at machine hall, etc.	• Order placed on M/s. Balaji Electro Controls Pvt. Ltd. on 19.05.2018 at a total cost of Rs. 15529505.00. Erection &commissioning of all UAP's and CAP's completed. Proposal has been revised and technical specifications finalized. The proposal was placed before CMG and CMG has recommended to place the proposal before TAC/TC. TAC/TC recommended to float NIT and preparation of tender document is in progress.

State-wise Programme/ Status of Renovation and Modernisation Schemes of Hydro Power Stations for completion during 2022-27

SOUTHERN REGION

KERALA **(Amount in Rs. Crores)**

S. No.	Scheme/ Category/ Completion Schedule (Original/ Anticipated)	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES ONGOING - Under Implementation				
45.	**Kuttiyadi** 3x25 MW KSEB 1972 T&G-Fuji, Japan **RMU&LE** **2025-26**	**75 (LE)+ 7.5 (U)** 377.41 31.43	Inspection and rectification of Trash rack. Butterfly valve operation to be made electrically and mechanically with remote. New penstock, MIV replacement with PLC controls. PMG replacement with SSG. Pelton turbine runner's replacement. Replacing Generators, Static excitation with AVR. Replacing Cooling water system. Replacement of DG set. Integrated SCADA, New fire protection system, Store and AC system modification of switchyard. New 11 kV switch gear	1. Proposal for new penstock is kept in abeyance. 2. Work order for new Electro-Mechanical work is awarded to BHEL. 3. Model Test of Turbine completed and payment issued. 4. Testing of EHGC Panel completed. 5. Bus Bar Strengthening completed. 6. Work order issued for constructing new 11 kV control room building from CMSD/ Kakkayam 7. Material delivery to site is in progress. 8. Dismantling work of Unit#3 for RMU completed. 9. Stator Assembly of Unit#3 is completed. 10. Turbine shaft erected, centering and alignment work in progress. 11. Dummy nozzle and dummy runner fixing for nozzle and shaft alignment work completed. 12. LGB bracket erection work in progress. 13. Distributor pressure test at design pressure completed successfully. 14. Arrangement of panels for Unit#3 such as PP Set, MIV and Gov, UCB, HMC, Gauge Panel, Temperature panel are underway. 15. MIV erection and MIV outlet pipe erection work completed. 16. MIV inlet pipe fixing work in progress. 17. Fixing of runner pit central frame with rail work in progress.

				Other Works 1. Replaced all four feeder PTs (Other RMU works) 2. Replaced all three old 28 MVA GTs with new 35 MVA GTs of TELK make. Completion Schedule Unitwise: Unit #1: 01.10.2023-30.06.2024 Unit #2: 01.07.2024-28.02.2025 Unit #3: 01.03.2025-31.10.2025
46.	**Sabarigiri (U#6& U#2),** 1x60 MW+ 1x55 MW KSEB 1966 **R&M** **2024-25**	- -	Refurbishment of Stator core, Replacement of turbine shaft of Unit #6 Replacement of Generator and Turbine shaft of Unit #2	Work order for Refurbishment of Stator core of U#6 issued to M/s Coral Rewinding India Pvt. Ltd, Erode, Tamilnadu. Work completed and unit commissioned on 11.02.2023. Under Planning stage. Due to deteriorated condition of the winding of unit -2, the work to be taken up before waiting for the RLA study in order to avoid outage. Tender for replacement of stator winding and stator core revarnishing and restacking was floated, however single bid has been received. Proposal for revival by complete replacement of stator core and frame including winding after cancelling the tender already invited. DPR for total Rewinding, replacing Stator core, Stator frame is under processing.
B - SCHEMES ONGOING - Under DPR Preparation/ Finalisation/Approval				
47.	**Idukki 1st stage and 2nd Stage,** 6x130 MW KSEB **RM&LE** **2026-27**	**780 (LE)** - -	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	Work order for RLA study including uprating study and preparation of DPR for RMU issued to M/s. Mecon Limited, Ranchi on 1.09.2022. RLA study started from 03.12.2022 and completed on 12.10.2023 for all units. RLA study report and DPR to be submitted by the contractor.

48.	**Idamalayar,** 2x37.5 MW KSEB 1987 **RM&LE** **2026-27**	**75 (LE)** - -	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	Work awarded to M/s. MECON Ltd., Ranchi on 03/04/2023. M/s. MECON has started work of Unit#2 on 26.06.2023. RLA study of both units carried out along with its annual maintenance and completed the study in November 2023. The draft of the RLA study report is submitted by the firm on 16.12.2023. Extended date of submission of DPR is on 30.04.2024.
C - SCHEMES ONGOING - Under RLA Studies				
49.	**Sabarigiri, (U1,2,3 & 5)** 4x55 MW KSEB 1966 **RMU&LE** **2026-27**	**220 (LE) + 20(U)** - -	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	Finalisation of scope of RLA study in progress. Steps were taken for obtaining in principal approval for conducting Technical Audit of Sabarigiri HEP by Central Board of Irrigation & Power (CBIP), New Delhi, before conducting full-fledged RLA. Final report submitted by CBIP

State-wise Programme/ Status of Renovation and Modernisation Schemes of Hydro Power Stations for completion during 2022-27

EASTERN REGION

ODISHA (**Amount in Rs. Crores**)

S. No.	Scheme/ Category/ Completion Schedule (Original/ Anticipated)	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES ONGOING –Under Implementation				
50.	**Balimela,** 6x60 MW OHPCL 1973-77 T-LMZ, USSR G-Electrosila, USSR **RM&LE** **2019-20** **2024-25**	**360(LE)** 382.91 167.6013	**Replacement of** i) The Turbine & Generator with new ones except the water conductor system. ii) The auxiliaries of the Units including the common auxiliaries. iii) Existing Governors with micro-processor based Digital Governor. iv) Exciter and AVR with Static Excitation System. v) New Thrust bearing pads self-lubricated PTFE Type. vi) C&I system. vii) Protection system by state of the art Numerical Relays. viii) Replacement, 11/220 kV Generator Transformer, Bus Duct system. ix) New Station Auxiliary Transformer. x) Control Power cable with FRLS type cable. xi) Architectural works including interior decoration of Power House. xii) Extension of 1No. 220kV bay in Switchyard. Refurbishment of Intake gates, Draft Tube gates and civil works.	Contract Agreement signed with M/s BHEL on 21.09.2016. M/s BHEL took over the units on 18.12.2017. OHPC engaged M/s WAPCOS Ltd. as consultant. **Works Completed:** **Unit 1 &2** - 220 kV Switchyard bay extension work completed on 15.06.22. Loading of Station Transformer completed on 15.06.2022. - Commercial operation of Unit 2 started from 29.12.2021. - Commercial operation of Unit 1 started from 15.04.2022. - Final Takeover of Unit 1& 2 completed on 12.09.2023 **Unit 3 &4** - Handed over to BHEL for R&M work on 16.08.2022 & 10.08.2022 respectively. - Dismantling of TG set Unit 3 & 4 completed. - Refurbishment work of Draft Tube Cone, Spiral Casing, Stay Ring, Stay Vanes etc. of Unit-3&4 completed. - Installation of SRV of Unit 3&4 completed. - Final Guide Apparatus assembly of Unit 3&4 completed. - Stator Assembly and Rotor Assembly of Unit 3 completed. - Rotor of Unit 3 lowered in Pit. - Stator assembly and Rotor assembly of unit-4 completed. - Lowering of Generator Rotor of unit-4 inside the Barrel pit has been completed.

S. No.	Scheme/ Category/ Completion Schedule (Original/ Anticipated)	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
				- Trial Mechanical Spinning of Unit 4 completed. - SCC test of Unit 4 completed. - MIV, BFV, Governing system pipeline work of unit 4 is under progress. - Unit 4 GT Erection work is completed. - Installation of IPBD of Unit 4 is completed. - Pre commissioning activity of Unit 4 completed. - Commercial operation of Unit-4 started on 06.02.2024. - For Unit-3, Test synchronization was done on 29.03.2024 and load off test was done on 30.03.2024. Trial run is going on. **Unit 5&6** - Unit 5 is scheduled to be synchronized by 05.02.2025. - Unit 6 is scheduled to be synchronized by 26.02.2025.

State-wise Programme/ Status of Renovation and Modernisation Schemes of Hydro Power Stations for completion during 2022-27

EASTERN REGION

WEST BENGAL (**Amount in Rs. Crores**)

S. No.	Scheme/ Category/ Completion Target	Expected Benefit (MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES Ongoing - Under Tendering				
51.	**Maithon U-1&3,** 2x20 MW + 1x23.2 MW DVC 1957-58 T - Neyrpic, France G - Siemens, W.Germany **RM&LE** **2025-26**	**40 (LE)** 109.29 7.76	• Replacement of Turbine & Accessories, Generator & Associated equipment, Protection & Control System, Generator Transformer, Circuit Breaker, Isolator, CTs, PTs, Surge protection equipment, HT bus duct, Unit Auxiliary Board, DC distribution Board etc.. • Implementation of balance Control, Monitoring & Protection system of Power Plant in Existing DCS (ABB Supplied). • Refurbishment of Water conductor system consisting of Penstock, spiral casing, stay vanes, Draft tube etc. • Repair, refurbishment and strengthening etc. of Unit-1 & 3 foundations, Power House Building civil /structural component.	• Work order for RLA study, uprating study, preparation of DPR, specification etc. placed on M/s MECON on 11.04.2019. RLA study of Unit-1 completed in October'19 and of Unit-3 on 06.01.2020. • DPR was submitted for techno-economic clearance. Civil & Electromechanical BOQ and estimated cost has been approved by CEA on 13.09.2022. • Board approval accorded. Administrative approval is in progress. • NIT Document prepared. • Revisiting of NIT Doc. in respect of recent directives of MoP, dated 16 March 2023 for incorporation of the recommendation made in the committee report for Hydro Power Project completed. • NIT floated on 20.10.2023. • Techno-commercial evaluation is under process.

State-wise Programme/ Status of Renovation and Modernisation Schemes of Hydro Power Stations for completion during 2022-27

EASTERN REGION

JHARKHAND **(Amount in Rs. Crores)**

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES ONGOING - Under Implementation				
52.	**Panchet U-1,** 2x40 MW DVC 1959 T - NOHAB, Sweden G - AEG, West Germany **RMU&LE** **2025-26**	**40 (LE)** **+6(U)** 121.85 2.19	• Replacement of main Electro-Mechanical Equipment (Design, CFD, Model testing, supply Erection, Testing, commissioning and PG Test) consisting of Vertical Full Kaplan Turbine, Generator, Excitation System & AVR etc. and associated auxiliaries other plant Equipment/ system essential for life extension of the unit as well as station. • Implementation of Control, Monitoring & Protection system of Power Plant such as DCS, Electronic Governors, Static Excitation System, numerical relays, SCADA etc. • Refurbishment of water conducting system consisting of Penstock, spiral casing, stay vanes, Draft tube etc.	• LOA placed on BHEL for RMU work of Unit#1 on 17.01.2022. Completion period is 24 (twenty-four) month from LOA date. • Kick-off meeting held with BHEL on 07.02.2022. • Manufacturing of model completed. Turbine model testing commenced from 30.11.2022 and completed on 09.12.2022. • Basic engineering completed in Jan 2023. • 90% detail engineering completed.
B- SCHEMES ONGOING - Under RLA Studies				
53.	**Subernrekha,** 2x65 MW JUUNL 1977-80 **RM&LE** **2026-27**	**130(LE)** **-** **-**	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	RLA studies is proposed. a Committee has been constituted vide office order dated 23.05.2023 for visit at different site of similar hydro Plant for study to do RLA and R&M works at 2x 65 MW Hydro plant at SRHP sikidiri, Ranchi. Accordingly after submission of the report by the committee, further action will be taken.

State-wise Programme/ Status of Renovation and Modernisation Schemes of Hydro Power Stations for completion during 2022-27

NORTH EASTERN REGION

MANIPUR **(Amount in Rs. Crores)**

S. No.	Scheme/ Category/ Completion Target	Expected Benefit (MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES ONGOING – Under Implementation				
54.	**Loktak,** 3x35 MW NHPC USSR 1983 LMZ T-LMZ G-Leningrade, (U-1) T&G – BHEL(U-2&3) **RM&LE** **2025-26**	**105 (LE)** 273.59 69.72	i) Activities covering main equipments i.e. turbine, generator, generator transformers, other plant equipments essential for life extension of the units as well as station. ii) Activities required for ensuring efficient and sustained performance of unit as well as station. iii) Implementation of Control, Monitoring & Protection system of Power Plant such as Electronic Governors, Static Excitation System, numerical relays, SCADA. iv) Refurbishment of water conductor system and associated Civil/HM works including infrastructure works.	Petition filed in CERC on 08.08.2018 at total Estimated Cost of Rs. 273.59 crores including IDC & FC (Price Level: Sep'17). Petition on the appeal filed by respondent state Assam (APDCL) was heard in CERC on 27.02.2019. CERC has approved the proposal of R&M of Loktak Power Station on 24.07.2019. a) **E&M:** Three out of four E&M Packages i.e. EM-2 (Bus Duct), EM-3 (EOT Crane) & EM-4 (DG Set) are awarded. EM-1 (Main) package further subdivided into 13 Nos. out of which LOA for 10 Nos. sub-packages placed i.e. • EM-1(i)(Main Package-Turbine & Generator)-Awarded. • EM-1(ii)(GSU Transformer & Axuiliary Transformer)-Awarded. • EM-1(iii)(132 kV Outdoor Switchyard System)-Awarded • EM-1(iv) (MV & LV Switchgear)-Awarded • EM-1(v) (DC system) -Awarded. • EM-1(vi) (Illumination system) -Awarded. • EM-1(vii) (HVAC System) -Awarded. • EM-1 (viii) (Firefighting system) -Awarded. • EM-1(xii) (Oil handling system) -Awarded. • EM-1(ix) (PLCC System)-Under tendering. • EM-1(x)(Communication System)-Under tendering • EM-1(xi)(Electrical Workshop) - Under tendering • EM-1(xiii)(Mechanical workshop)-Awarded. The work under package EM-3 (EOT Crane) has been completed & Work of EM-4 (DG Set) is in progress. Supply under package EM-1 (vii) - Oil Handling system has been completed & Supply under package EM-1 (viii) (Firefighting system) is under progress. b) **Civil:** Three out of five Civil packages i.e. "Restoration of Drainage system & Slope Protection at By-Pass Tunnel Area & Penstock area (C1)", "Construction of

				vertical bored cast-in-situ pile work at bye pass tunnel area (C2)"and "Civil works of Ithai barrage and power channel (C4)" are awarded. The work under package C1 and C2 has been completed and work under package C4 is in progress. Tendering of remaining two civil packages i.e. "Civil works of power house complex including valve house, surge shaft and tail pool (C3)" and "Under water concrete repair and restoration at barrage, intake structures, emergency gate (C5)" is under process. c) **HM:** HM Package has been awarded and work is in progress. **Misc. & Infrastructure works:** Dredging of Khordak Channel has been completed by Loktak Development Authority (LDA). As intimated by LDA, dredging of certain stretches could not be carried out due to prohibition by the Forest Department. LOA for hiring of consultancy services for construction of residential and non-residential building has been awarded and is in progress. Drawing with cost estimate has been submitted by the consultant. Total estimated cost for the work is coming to the tune of Rs 86.33 cr. (2023 PL) against the total sanctioned cost of Rs 42.57 cr. (2023 PL). Revised drawing is to be submitted by the consultant. MoEF&CC, GoI directed to obtain prior Environmental Clearance for RM&LE. Accordingly, NHPC is taking needful action. Due to disturbed law and order situation in Manipur, progress of works is seriously hampered.

State-wise Programme/ Status of Renovation and Modernisation Schemes of Hydro Power Stations for completion during 2022-27

NORTH EASTERN REGION

ASSAM **(Amount in Rs. Crores)**

S. No.	Scheme/ Category/ Completion Target	Expected Benefit (MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES ONGOING – Under Implementation				
55.	**Kopili Power Station,** 4x50MW NEEPCO T&G- BHEL 1988 **RM&LE** **2024-25**	**200 (LE)** 1075.19 1207.25	i) Activities covering repair/rectification of tunnel, PPV, replacement of both the penstocks along with related civil works, stability study of civil structures, refurbishment of intake gate, dam etc. ii) Activities covering main equipment i.e. Turbine, generator, GTs, other plant equipment for efficient and sustained performance of the units as well as the station. iii) Activities for integration of Control, monitoring and protection system of power plant such as Electronic/digital Governors, SCADA, SAS etc. iv) Renovation of SY equipment along with replacement of instrument transformers of higher accuracy class, PI, LA SST & SAT etc. v) Activities having direct impact on improvement generator/turbine efficiency, machine availability etc. vi) Implementation of AGC in all the units.	i) CEA/CWC has cleared Cost Estimate of renovation and Modernisation for Rs 824.12 Crs at Jan 2021 PL and Rs. 53.97 Cr (IDC). ii) Financial aspects and levelized tariff finalized as follows:1st year = Rs 2.78/KWH Levelized tariff: - Rs 2.83/KWH iii) 750 KVA DG set successfully commissioned and in service. iv) Erection, Installation & commissioning of UAB & SSB panels completed. v) Commissioning of Rain watering dewatering system and MIV hall flood water dewatering system completed. vi) Commissioning of DT drainage & dewatering system completed. vii) Order for supply of 5 Nos. of 65 MVA Generator Transformers awarded to M/s BHEL. Generator Transformers received at site. Unit#2, 3 & 4 GTs commissioned. Erection of GT for Unit#1 completed. viii) BFVs #1 & 2 commissioned. ix) Unit#2, 3 & 4 MIVs commissioned. Erection of Unit#1 MIV completed. x) Over hauling of 40T EOT at Valve House & 17 T DT crane is completed by M/s BASU & SONS. Modernization & Retrofitting of 150/25 T EOT crane by OEM completed. xi) UATs for UNIT 4, and 2 commissioned. Erection of UAT for unit 1 completed. xii) Two number of Control & Relay panel for 33/0.415 kV

				substation reached site on 13.08.2021. xiii) CFD Study of Water Conductor System along with Under Water Parts by M/s Voith completed. xiv) Starter panel for Sump tank (of Oil pressure system) Electrical Control panel (of Control system and instruments for BFV) received at site. xv) Main E/M package of Andritz Hydro has completed: 100% Overall design, 100 % Overall Procurement and 98% Overall manufacturing and 85% Overall dispatched from their works. xvi) Refurbishment of underwater parts of Unit #2, 3 and 4 units by AHPL is completed. Refurbishment of underwater parts of Unit #1 is under progress. xvii) Order for Procurement of Underwater/ Turbine parts of Unit I placed with Voith. Material reached at site. Erection activities in progress. xviii) 2 banks of 220 V DC battery bank erected and commissioned along with charger panel. 24 V and 48 V DC battery bank erected and commissioned along with charger panel. xix) Erection and commissioning of Bus ducts for Unit# 2, 3 & 4 completed. Erection of Bus duct for Unit#1 completed. xx) All Power and Control cables of different specifications received at site. xxi) LP compressed air system is commissioned. xxii) ACDB for switchyard & BF valve reached site on 17.08.2021. Erection &installation pending. xxiii) Works related to Cooling water system completed. Pre-commissioning works in progress.

				xxiv) Works related to erection of new store at Umrong Nallah was completed. xxv) HVAC System commissioned. xxvi) Firefighting system by Sterling and Wilson for Unit 2, 3 and 4 area completed and for unit 1 is under progress. xxvii) Commissioning of bay equipment of Switchyard works by M/S Techno completed. xxviii) Works on illumination system by M/s Delta Engineering is in progress. xxix) Erection of Unit#1, 2, 3 and 4 draft tube completed. xxx) Stators for all 4 units received at site. Rotors for 3 units received at site. xxxi) Cutting of all Anchor Blocks has been completed. xxxii) PCC in penstock alignment is completed. Up to date Quantity- 32750.45 m3. xxxiii) Fabrication of 5536.59 MT of Ferrule completed in all respect. xxxiv) Erection & Commissioning of steel in liner in HRT & Surface Penstock (both P2 & P1) have been completed. xxxv) HRT: Civil Works Invert surface treatment using cementitious mortar is completed. All civil works completed including Non-Shrink Grouting in Inclined Portion at Penstock-1. xxxvi) Rooftop control room: All civil work completed. xxxvii) 2 Nos. Fire Fighting Tank: All civil work completed. xxxviii) Kiosk Room chequered plate erection work is completed. xxxix) Re-construction of servomotor foundation for BFV & MIV is completed xl) Commercial operation of Unit 4 started w.e.f. 20.08.2023 xli) Commercial operation of Unit 3 started w.e.f. 03.09.2023

				xlii) Commercial operation of Unit 2 started w.e.f. 12.11.2023 xliii) Erection of Unit 1 is in progress. Expected date of commissioning is May 2024.
56.	**Khandong Power Station,** 2x23 MW NEEPCO T&G- BHEL 1984-85 **RM&LE** **2024-25**	**46 (LE)** 277.74 84.50	i) Activities covering main equipment i.e. Turbine, Generator, GTs and other plant equipment for efficient and sustained performance of the units as well as station. ii) Activities for integration of control, monitoring and protection system of power plant such as Electronic/ Digital Governors, SCADA SAS etc. iii) Renovation of Switchyard with capacity enhancement along with replacement of instrument transformers of higher accuracy class, PI, LA, SST etc. iv) Activities having direct impact on improvement of generator/turbine efficiency, machine availability etc. v) Restoration of components damaged by inundation	• DPR from CPRI, Bangalore received in the month of June'2018. Financial aspects and levelized tariff finalized and submitted to Management for approval. • Some BoP items like DG set, Firefighting system, Penstock Protection BFV, etc. procured and installed under R&M budget. • Appraisal to constituents was done. • Petition for R&M proposal has been filed before CERC. • Machine resize and design energy review has been approved by CEA. • CEA has approved Rs. 123.19 Crs. for EM Cost on 05.08.2021 &Rs. 66.62 Crs. for Civil & HM Costs on 02.10.2021 for Renovation and Modernisation. • The plant was inundated in flush flood on 26.03.2022. • A revised estimate for EM package of Rs. 188.42 Crores have been approved by CEA on 18.11.2022. • Revised cost estimate for Civil and HM works amounting to Rs. 90.21 Crores has been approved by the BoD, NEEPCO. • Work for R&M of Khandong E/M Package has been awarded to M/s Voith Hydro Pvt. Ltd. M/s Voith Hydro Pvt Ltd. Team has visited site three times for different measurements, System Engineering drawings are being submitted and approved. Procurement and manufacturing activities have been started by M/s. Voith. • For R&M of Khandong Civil package has been awarded to M/s Vijetha Engineers & Infrastructures Pvt. Ltd..Works in different fronts are in progress.

				• Dismantling of Old EM components is completed. • Work for R&M of Khandong 132 and 33 KV Switchyard has been awarded to M/s Mega Electricals on 31/08/2023.Work in progress. Material delivery commenced in phases. • Price bid for the tender for supply, fabrication & erection of Penstock steel liner opened and subsequently cancelled due to huge difference between estimated and quoted price. Retendering was restored and price bid evaluation is under progress. • Dismantling of old penstocks completed. • Order for Fire Detection and Prevention System (FDAPS) has been placed to M/s Technico, Kolkata. Technico design team has visited the site for taking measurements etc. System designing is in progress. • Order for EOT Crane for Valve House has placed to M/s R.N. Suresh Tools Corporation, Mumbai. Design, Engineering & Drawing approval in progress. • HM Package has been awarded to M/s Abir Infrastructure Pvt. Ltd. on 13.10.2023. Fabrication & erection of site workshop in progress.1st Lot of clad plates from Japan amounting 119MT is expected to reach project site by 2nd week of May'2024. Dismantling of old penstocks completed. The existing Penstock bends 2& 3 at Anchor Block 1 & 2 are made ready for conducting PAUT shortly. • Construction of KIOSK Building in Switchyard is awarded to M/s Pulakesh Kakati, Guwahati. Work is in progress • Detailed Revised Cost Estimate for Civil and HSM Works amounting to Rs. 89.32 Crore at March 2023 PL has been vetted by CEA. • Porch Slab casting work done on 13/02/2024.

				• 1st Floor Slab casting done on 13/03/2024. • R.C.C works of 21nos of Column for Roof Slab has been completed. • Renovation & Modernization of HM Equipment has awarded to M/s Techno Trade. Works in Intake Gate in progress

State-wise Programme/ Status of Renovation and Modernisation Schemes of Hydro Power Stations for completion during 2022-27

NORTH EASTERN REGION

MEGHALAYA **(Amount in Rs. Crores)**

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES ONGOING – Under Implementation				
57.	**Umiam Stage-III,** (Kyredemkulai) 2x30 MW MePGCL 1979 T&G - BHEL **RMU&LE** **2026-27**	**60(LE) +6(U)** 408 53.15	**Mech. Equipments (Turbine & its auxiliaries):** - Replacement of Runners, head cover & bottom ring, facing & wearing rings. Guide vanes, guide vane servomotor & gate operating mechanism. Guide bearings, coolers & bearing housing, turbine shaft, shaft seal & sealing box. Upper draft tube & draft tube liner. Inlet valve along with its servomotor & by-pass valve. Governor and turbine control system, oil pressure supply system, compressed air supply system, cooling water supply, drainage & dewatering system, auxiliary machine control etc. - Refurbishment of spiral case and stay ring, penstock & by-pass valve etc. **Elec. Equipments (Generator & its auxiliaries):** - Replacement of stator cores, stator windings & neutral leads. Rotor spoke & rim, rotor winding & excitation leads & rotor pole, Shaft, thrust & guide collars, thrust runner, coupling bolts & coupling cover. Thrust bearing pads. Segment type upper & lower guide bearings and oil coolers. Brake ring & brake/jack system, air cooler, current transformers, fire protection system, instruments & relays, terminal boxes on control cubicle, all cables, AC excitation system, digital AVR & excitation cubicle, excitation transformer etc. - Refurbishment of upper & lower bearing brackets, top cover, hood and air housing	The feasibility study was conducted and completed by JV of TEPSCO & TEPCO, Japan under JETRO grant and IIT Roorkee submitted head measurement studies. An updated DPR as per CEA's recommendation was prepared by MePGCL and posed the scheme for JICA funding through MoP. The Department of Economic Affairs vide letter dated 20.10.2016 requested to confirm the 20 percent Counterpart Funding of the state and also provide the debt sustainability confirmation/ self-certification in respect of the 10 percent loan component of the external assistance of 80 percent of the project cost. After completion of the preparatory study, Minutes of Discussion signed among MePGCL, MoP and JICA. Bid document for E&M package prepared. Concurrence on the Bidding Document for E&M package received from JICA on 22.12.2021. The tender for E&M package was floated on 03.01.2022. Concurrence from JICA received on 23.12.2022 for issue of LOA and signing of Contract Agreement with M/s AHPL the single bidder. **Electro & Mechanical Equipments (Package-1)** LOA was issued on 12th January 2023 to M/s. Andritz Hydro Pvt. Ltd. and the Contract Agreement was signed between MePGCL and M/s. Andritz Hydro Pvt. Ltd. on 1st March 2023. Reverse engineering of Unit-1 completed.

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
			- Replacement of 11 KV metal enclosed cubicles & unit auxiliary transformers, station battery bank & charger etc. - Replacement of generator transformer & instruments, station service transformers, control and protection boards etc. - Replacement of motorized disconnecting switches, CTs, PTs, conductors & accessories for 132 KV switchyard. - Replacement of 12 KV power cables, 600 V power cables, control cables, paint etc. - Civil & Hydro Mechanical Work - Site Installation - Low Pressure Grouting and lining - Repair of Pressure Tunnel - Steel liner Installation - Recoating of penstock - Repair of trash rack and link tunnel - Repair of intake gate - Repair of trash rack - Repair of radial gate - Investigation and Rehabilitation of Dykes and other related item. **Additional works** - Repairing of spillway - Dismantling and reconstruction of Penstock Valve House - Repairing of Penstock Drains - Land Reclamation	Scrutiny of Drawings/Documents submitted by the Contractor under progress. 90% of design of E&M works completed and procurement has been started. **Hydro Mechanical & Civil facility (Package-2)** The tender was floated on 20th September 2022 with the initial date of opening on the 21st November 2022 and extension was given 4 times due to non-participation of Bidders. The Bidder has not extended the bid validity citing increase in price. Approval being sought from JICA for concurrence against change in scope of works and the same is awaited. Two Potential bidders have confirmed participation in the tender to be floated.

State-wise Status of R&M Schemes (During 2027-32)

State-wise Programme/ Status of Renovation and Modernisation Schemes of Hydro Power Stations for completion during 2027-32

NORTHERN REGION

JAMMU & KASHMIR **(Amount in Rs. Crores)**

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES ONGOING - Under RLA Studies				
1.	**Salal Stage-II,** (Unit 4, 5 & 6) 3x115 MW NHPC Apr-1995 **RM&LE** **2027-32**	**345 (LE)** - -	Detailed scope of works will be arrived after finalization of specifications based on RLA study report.	The RLA Studies shall be taken up during 2028-29.

State-wise Programme/ Status of Renovation and Modernisation Schemes of Hydro Power Stations for completion during 2027-32

NORTHERN REGION

HIMACHAL PRADESH **(Amount in Rs. Crores)**

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES ONGOING - Under RLA Studies				
2.	**Chamera-I,** 3x180 MW NHPC May-1994 **RM&LE** **2027-32**	**540 (LE)** - -	Detailed scope of works will be arrived after finalization of specifications based on RLA study report.	The RLA Studies shall be taken up during 2028-29.

State-wise Programme/ Status of Renovation and Modernisation Schemes of Hydro Power Stations for completion during 2027-32

NORTHERN REGION

UTTARAKHAND **(Amount in Rs. Crores)**

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES ONGOING - Under RLA Studies				
3.	**Tanakpur,** 3x31.4 MW NHPC Apr-1993 **RM&LE** **2027-32**	**94.2 (LE)** - -	Detailed scope of works will be arrived after finalization of specifications based on RLA study report.	The RLA Studies shall be taken up during 2028-29.
4.	**Chibro,** 4x60 MW UJVNL 1975 (Unit 1 to 3) 1976 (Unit 4) T&G-BHEL **RM&LE** **2027-32**	**240 (LE)** 184.88 NIL	Detailed scope of works will be arrived after finalization of specifications based on RLA study report.	Proposed to be taken up after RMU works of Dhalipur & Dhakrani HEP.
5.	**Khodri,** 4x30 MW UJVNL 1984 T&G-BHEL **RM&LE** **2027-32**	**120 (LE)** 169.63 NIL	Detailed scope of works will be arrived after finalization of specifications based on RLA study report.	Proposed to be taken up after RMU works of Dhalipur & Dhakrani HEP.

State-wise Programme/ Status of Renovation and Modernisation Schemes of Hydro Power Stations for completion during 2027-32

WESTERN REGION

MADHYA PRADESH **(Amount in Rs. Crores)**

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES ONGOING - Under Tendering				
6.	**Gandhi Sagar,** 5x23 MW MPPGCL 1960-66 Units 1,2&3 T – JM Voith G – Siemens, WG, Units 4&5 T&G – Hitachi, Japan **RMU&LE** **2029-30**	**115 (LE)** + **10.83 (U)** 433.68 4.17	Replacement of Generator and Turbine along with switchyard equipment & refurbishment of embedded parts.	**All the units with associated auxiliary systems submerged on 14.09.2019 due to over flooding of dam in its catchment area.** Gandhi Sagar HPS was commissioned between 1960 & 1966. All the units with associated auxiliaries system submerged on 14.09.2019 due to over flooding of Dam The RLA studies had been carried out by M/s WAPCOS. Also three units out of five (i.e. unit 1, 4&5) have been revived with the help of M/s WAPCOS. Revival of Unit#2 is under progress. As units have already served their useful life. Hence it decided to go for comprehensive R&M of the units. Services of M/s WAPCOS have been availed as consultant. RLA Study has been completed. DPR of R&M was approved by Board of MPPGCL. However after discussion held with CEA on 07.09.2022 scope of work has been revised. Revised DPR for R&M and Uprating with estimated cost of Rs. 433.68 has been approved. Consent from Rajasthan regarding equally sharing the expenditure to be incurred during R&M is awaited. Tender for comprehensive R&M of Gandhi Sagar HPS has been issued on 22.04.2023. Due Date of opening is 18.01.2023. Pre- bid meeting conducted on 19th July 2023.

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
B - SCHEMES ONGOING - Under DPR Preparation/ Finalisation/Approval				
7.	**Pench** 2x80 MW MPPGCL 1986-87 T&G – BHEL **RM&LE** **2026-28**	**160 (LE)** - -	1. Comprehensive R&M of Pench HPS	1. RLA study has been completed by WAPCOS Ltd. 2. Order for hiring consultant for preparation of DPR & tender document and providing Project Monitoring Consultancy is issued on 10 August' 2023. 3. M/s WAPCOS has submitted the draft DPR on 21st Sep'23. The same is under scrutiny.
8.	**Bargi,** 2x45 MW MPPGCL 1988 T&G – BHEL **RM&LE** **2026-28**	**90 (LE)** - -	RLA Study of Unit-1 & Unit-2	RLA study has been completed by MECON Ltd., Ranchi. Draft DPR has been submitted & same is under scrutiny.

State-wise Programme/ Status of Renovation and Modernisation Schemes of Hydro Power Stations for completion during 2027-32

SOUTHERN REGION

Tamil Nadu **(Amount in Rs. Crores)**

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES ONGOING - Under RLA Studies				
9.	**Kundah-I,** 3x20 MW TNPGCL 1960-64 **RM&LE** **2027-32**	**60 (LE)** - Nil	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	Due to stringent financial status of TENGEDCO, RLA/ RMU work will be taken later in a phased manner during 2027-32
10.	**Kundah-II,** 5x35 MW TNPGCL 1960-65 **RM&LE** **2027-32**	**175 (LE)** - Nil	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	Due to stringent financial status of TENGEDCO, RLA/ RMU work will be taken later in a phased manner during 2027-32
11.	**Kundah-III,** 3x60 MW TNPGCL 1965-78 **RM&LE** **2027-32**	**180 (LE)** - Nil	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	Due to stringent financial status of TENGEDCO, RLA/ RMU work will be taken later in a phased manner during 2027-32
12.	**Kundah-IV,** 2x50 MW TNPGCL 1966-78 **RM&LE** **2027-32**	**100 (LE)** - NIL	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	Due to stringent financial status of TENGEDCO, RLA/ RMU work will be taken later in a phased manner during 2027-32
13.	**Kundah-V,** 2x20 MW TNPGCL 1964-88 **RM&LE** **2027-32**	**40 (LE)** - NIL	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	Due to stringent financial status of TENGEDCO, RLA/ RMU work will be taken later in a phased manner during 2027-32

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
14.	**Mettur Tunnel,** 4x50 MW TNPGCL 1965-66 **RM&LE** **2027-32**	**200 (LE)** - NIL	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	Due to stringent financial status of TENGEDCO, RLA/ RMU work will be taken later in a phased manner during 2027-32
15.	**Sarkarpathy,** 1x30 MW TNPGCL 1966 **RM&LE** **2027-32**	**30 (LE)** - NIL	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	Due to stringent financial status of TENGEDCO, RLA/ RMU work will be taken later in a phased manner during 2027-32
16.	**Sholayar-II,** 1x25 MW TNPGCL 1971 **RM&LE** **2027-32**	**25 (LE)** - NIL	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	Due to stringent financial status of TENGEDCO, RLA/ RMU work will be taken later in a phased manner during 2027-32
17.	**Suruliyar,** 1x35 MW TNPGCL 1978 **RM&LE** **2027-32**	**35 (LE)** - NIL	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	Due to stringent financial status of TENGEDCO, RLA/ RMU work will be taken later in a phased manner during 2027-32
18.	**Kadamparai PH,** 4x100 MW TNPGCL 1987-89 **RM&LE** **2027-32**	**400 (LE)** - NIL	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	Due to stringent financial status of TENGEDCO, RLA/ RMU work will be taken later in a phased manner during 2027-32
19.	**Aliyar** 1x60 MW TNPGCL 1970 **RM&LE** **2027-32**	**60 (LE)** - NIL	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	Due to stringent financial status of TENGEDCO, RLA/ RMU work will be taken later in a phased manner during 2027-32

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
20.	**Lower Mettur-I** 2x15 MW TNPGCL 1988 **RM&LE** **2027-32**	**30 (LE)** - NIL	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	Due to stringent financial status of TENGEDCO, RLA/ RMU work will be taken later in a phased manner during 2027-32
21.	**Lower Mettur-II** 2x15 MW TNPGCL 1988 **RM&LE** **2027-32**	**30 (LE)** - NIL	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	Due to stringent financial status of TENGEDCO, RLA/ RMU work will be taken later in a phased manner during 2027-32
22.	**Lower Mettur-III** 2x15 MW TNPGCL 1988 **RM&LE** **2027-32**	**30 (LE)** - NIL	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	Due to stringent financial status of TENGEDCO, RLA/ RMU work will be taken later in a phased manner during 2027-32
23.	**Lower Mettur-IV** 2x15 MW TNPGCL 1988-89 **RM&LE** **2027-32**	**30 (LE)** - NIL	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	Due to stringent financial status of TENGEDCO, RLA/ RMU work will be taken later in a phased manner during 2027-32

ANNEXURES

Annex- I

State-wise List of Hydro RMU&LE schemes completed upto the VIII Plan

Sl. No.	Project, Agency	CS/ SS	Inst. Cap. (MW)	Est. Cost (Rs. in Crs.)	Actual Exp. (Rs. in Crs.)	Benefits (MW)	Category	Year of Completion
Himachal Pradesh								
1	Bairasiul, NHPC	CS	3x60	25.98	25.98	18 (U)	RM&U	1991-92
2	Giri, HPSEB	SS	2x30	9.85	7.90	6 (U)	RM&U	1995-96
Punjab								
3	UBDC-I, PSPCL	SS	3x15	11.00	8.00	11 (Res)	R&M+Res.	1991-92
Uttar Pradesh								
4	Rihand, UPJVNL	SS	6x50	1.43	1.43	100(Res.)	R&M+Res.	1995-96
Karnataka								
5	Nagjhari, U-2, KPCL	SS	1x135	11.97	11.32	15 (U)	RM&U	1995-96
6	Shivasamudram, VVNL	SS	6x3 + 4x6	8.00	8.00	18 (LE)	RM&LE	N.A.
Kerala								
7	Sholayar, KSEB	SS	3x18	7.58	7.58	-	R&M	1996-97
Tamil Nadu								
8	Kadamparai (Units 3&4), TANGEDCO	SS	2x100	23.17	33.69	200(Res.)	R&M+Res.	1993-95
9	Kundah III (Units 1&2), TANGEDCO	SS	2x60	5.45	3.20	-	R&M	1991-92
10	Moyar, TANGEDCO	SS	3x12	1.62	1.30	36.00 (LE)	RM&LE	1990-91
11	Sholayar-I, TANGEDCO	SS	2x35	1.40	0.85	-	R&M	1994-95
Assam								
12	Khandong, U-1, NEEPCO	CS	1x25	0.62	0.62	25 (Res)	R&M+Res.	1991-92
Tripura								
13	Gumti, TPGL	SS	3x5	17.50	17.50	-	R&M	1994-95
Total			**1282**	**125.57**	**127.37**	**429 [39 (U) + 54(LE) + 336(Res)]**		

Abbreviations: R&M – Renovation & Modernisation;. U – Uprating; LE – Life Extension; Res – Restoration; MW – Mega Watt; CS-Central Sector: SS- State Sector

Annex-II
(Sheet 1/2)

State-wise List of Hydro RMU&LE schemes completed in the IX Plan

Sl. No.	Project, Agency	CS/ SS	Inst. Cap. (MW)	Est. Cost (Rs. in Crs.)	Actual Exp. (Rs. in Crs.)	Benefits (MW)	Category	Year of Completion
Himachal Pradesh								
1	Bhakra RB BBMB	CS	5x132	88.45	90.68	125.00 (U)	RM&U	2000-01
2	Dehar U-2 BBMB	CS	1x165	10.74	10.74	25.00 (Res.)	R&M+Res.	1998-99
3	Bairasiul, NHPC	CS	3x66	18.45	18.45	-	R&M	2000-01
4	Bassi, HPSEB	SS	4x15	5.35	4.34	-	R&M	2000-01
Jammu & Kashmir								
5	Salal St.I, NHPC	CS	3x115	51.50	51.50	-	R&M	2000-01
6	Chenani, J&KSPDC	SS	5x4.66	11.00	11.00	0.93 (Res)	R&M+Res.	2000-01
Punjab								
7	Ganguwal, U-2 BBMB	CS	1x24.2	18.90	15.00	22.00 (LE)+ 2.20 (Res)	RM&LE+Res	1997-98
8	Kotla, U-3, BBMB	CS	1x24.2	18.90	16.90	22.00 (LE)+ 2.20 (Res)	RM&LE+Res	1998-99
9	Ganguwal U-3, BBMB	CS	1x24.2	25.00	43.40	22.00 (LE)+ 2.20 (Res)	RM&LE+Res	2000-01
10	Kotla U-2, BBMB	CS	1x24.2	25.00		22.00 (LE)+ 2.20 (Res)	RM&LE+Res	2001-02
Uttarakhand								
11	Chilla U-1, 3& 4, UJVNL	SS	3x36	4.25	4.11	-	R&M	1998-99
12	Tiloth, UJVNL	SS	3x30	8.02	5.51	6.00 (U)	RM&U	1998-99
Andhra Pradesh								
13	Lower Sileru, APGENCO	SS	4x115	13.35	9.30	24.00 (Res)	R&M+Res.	2001-02
14	Srisailam RB, APGENCO	SS	7x110	16.32	11.40	-	R&M	2001-02
Karnataka								
15	Sharavathy, U-1 to 8, KPCL	SS	8x89.1	65.00	63.49	115.20 (U) +178.20 (Res)	RM&U+Res	1997-98
16	Sharavathy, U-9&10, KPCL	SS	2x89.1	17.96	14.68	28.80(U) +19.10 (Res)	RM&U+Res	1997-98

Sl. No	Project, Agency	CS/ SS	Inst. Cap. (MW)	Est. Cost	Actual Exp.	Benefits (MW)	Category	Year of Completion
				(Rs. in Crs.)				
Orissa								
17	Hirakud-I, U1&2, OHPC	SS	2x37.5	95.10	95.10	24.00(U) +75.00(LE)	RMU&LE	1997-98
Gujarat								
18	Ukai,U-1&3, GSECL	SS	2x75	24.99	24.99	75.00 (Res.)	R&M+Res.	1997-98
Maharashtra								
19	Koyna I&II, MSPGCL	SS	4x65+ 4x75	74.91	74.91	40.00(U) + 260.00(LE)	RM&U of St-I & II & LE of St-I	1999-2000
20	Koyna III, U-10, 11 &12, MSPGCL	SS	3x80	4.65	4.65	-	R&M	1997-98
Total			**4892.10**	**597.84**	**570.16**	**1093.03 [339.0(U) + 423.0(LE) + 331.03(Res.)]**		

Abbreviations: R&M – Renovation & Modernisation;. U – Uprating; LE – Life Extension;
Res – Restoration; MW – Mega Watt; CS-Central Sector: SS- State Sector

Annex- III
(Sheet 1/ 3)

State-wise List of Hydro RMU&LE schemes completed in the X Plan

Sl. No.	Project, Agency	CS/ SS	Inst. Cap. (MW)	Est. Cost (Rs. in Crs.)	Actual Exp. (Rs. in Crs.)	Benefits (MW)	Category	Year of Completion
Himachal Pradesh								
1	Pong, BBMB	CS	6x60	17.70	17.79	36.00(U)	RM&U	2003-04
Punjab								
2	Ganguwal,U-1, BBMB	CS	1x29.25	51.28	81.99	25.89 (LE) +2.10	RM&LE+Res.	2006-07
2	Kotla, U-1, BBMB	CS	1x29.25	51.28		2.33 (Res.)	RM&LE+Res.	2006-07
4	Shanan Ph.A, PSPCL	SS	4x15+ 1x50	11.35	10.93	-	R&M	2003-04
5	Shanan, Ph.B, PSPCL	SS	4x15+ 1x50 $	35.95	13.34	60.00(LE)	RM&LE(LE for 15 MW units+R&M for 50 MW unit	2006-07
6	Anandpur Sahib, PSPCL	SS	4x33.5	3.68	1.04	-	R&M	2006-07
7	UBDC I&II, PSPCL	SS	3x15+ 3x15.45	7.89	2.44	45.00 (LE)	RM&LE(LE for 3x15MW&R &M for 3x15.45 MW	2006-07
8	Mukerian St.I, PSPCL	SS	3x15	6.04	4.38	-	R&M	2006-07
Uttarakhand								
9	Chibro, UJVNL	SS	4x60	10.45	10.52	-	R&M	2006-07
Karnataka								
10	Nagjhari, U-1&3,KPCL	SS	2x135	26.12	21.62	30 (U)	RM&U	2002-03
11	Supa PH, KPCL	SS	2x50	2.64	2.47	-	R&M	2002-03
12	Mahatma Gandhi, VVNL	SS	4x12+ 4x18	44.66	43.13	19.20 (U) +120.00 (LE)	RMU&LE	2002-03
13	Munirabad, VVNL	SS	2x9+ 1x10.3	3.64	3.53	28.30 (LE)	RM&LE	2002-03

Annex- III
(Sheet 2/3)

Sl. No	Project, Agency	CS/ SS	Inst. Cap. (MW)	Est. Cost	Actual Exp	Benefits (MW)	Category	Year of Completion
				(Rs. in Crs.)				
14	Mani Dam, KPCL	SS	2x4.5	1.00	1.00	-	R&M	2002-03
15	Shivasamudram, VVNL	SS	6x3+ 4x6	68.38	73.17	42.00 (LE)	RM&LE	2004-05
16	Bhadra, Ph.II, KPCL	SS	1x2	3.30	2.51	2.00 (LE)	RM&LE	2005-06
17	Varahi, KPCL	SS	2x115	2.57	2.66	-	R&M	2006-07
18	Sharavathy, Ph.A, KPCL	SS	10x103.5	5.22	3.52	-	R&M	2006-07
Kerala								
19	Neriamanga-lam KSEB	SS	3x15	58.00	53.05	7.65 (U) +45.00(LE)	RMU&LE	2006-07
20	Pallivasal, KSEB	SS	3x5+ 3x7.5	94.00	371.71	37.50 (LE)	RM&LE	2002-03
21	Sengulam, KSEB	SS	4x12	114.00		48.00 (LE)	RM&LE	2002-03
22	Panniar, KSEB	SS	2x15	62.00		30.00 (LE)	RM&LE	2002-03
Tamilnadu								
23	Pykara, TANGEDCO	SS	3x6.65+ 1x11+2x	26.06	20.147	58.95(LE)	RM&LE	2004-05
24	Papanasam, TANGEDCO	SS	4x7	27.05	22.61	4.00 (U) + 28.00 (LE)	RMU&LE	2005-06
Orissa								
25	Hirakud-I (Sw.yard), OHPC	SS		9.85	15.88	-	R&M	2006-07
26	Hirakud-I,U-3&4, OHPC	SS	2x24	126.14	108.86	16.00(U)+ 48.00(LE)	RMU&LE	2005-06
West Bengal								
27	Maithon, U-2, DVC	CS	1x20	42.08	36.94	3.20(U)+ 20.00(LE)	RMU&LE	2004-05
Maharastra								
28	Bhira Tail Race, MSPGCL	SS	2x40	1.60	0.70	-	R&M	2003-04
29	Tillari, MSPGCL	SS	1x60	4.50	4.24	6.0 (U)	RM&U	2004-05

Annex- III
(Sheet 3/3)

Sl. No	Project, Agency	CS/ SS	Inst. Cap. (MW)	Est. Cost (Rs. in Crs.)	Actual Exp (Rs. in Crs.)	Benefits (MW)	Category	Year of Completion
30	Koyna Gen. Complex, MSPGCL	SS	4x70+4x 80+4x80	12.00	11.50	-	R&M	2004-05
Meghalaya								
31	Umium St.I, MePGCL	SS	4x9	81.88	84.21	36(LE)	RM&LE	2002-03
Assam								
32	Khandong, NEEPCO	CS	2x25	4.00	3.35	-	R&M	2003-04
Total			**4446.60**	**1016.31**	**1029.24**	**827.73 [122.05(U) +701.25(LE) + 4.43(Res.)]**		

$ - Installed Capacity of Shanan, Ph.B, at Sl. No. 5 not included in the total, as the same has been accounted for at Sl. No. 4.

Abbreviations: R&M – Renovation & Modernisation;. U – Uprating; LE – Life Extension; Res – Restoration; MW – Mega Watt; CS-Central Sector: SS- State Sector

State-wise List of Hydro RMU&LE schemes completed in the XI Plan

Sl. No	Project, Agency	CS/ SS	Inst. Cap. (MW)	Est. Cost (Rs . in crs)	Actual Exp (Rs . in crs)	Benefits (MW)	Category	Year of Completion
Himachal Pradesh								
1	Dehar Ph. A BBMB	CS	6x165	11.00	6.94	-	R&M	2010-11
2	Dehar Ph. B BBMB	CS	6x165	49.00	24.45	330(LE)	RM&LE	2009-10
Uttarakhand								
3	Tanakpur, NHPC	CS	3x31.4	10.77	11.95	-	R&M	2007-08
4	Khodri Ph.A, UJVNL	SS	4x30	5.25	6.39	-	R&M	2008-09
5	Chilla Ph.A, UJVNL	SS	4x36	23.55	21.24	-	R&M	2008-09
Andhra Pradesh								
6	Upper Sileru, APGENCO	SS	4x60	4.20	3.34	-	R&M	2009-10
Karnataka								
7	Nagjhari, U1 to 6, KPCL	SS	5x150 + 1x135	14.75	15.31	-	R&M	2009-10
8	Sharavathy Ph.B, KPCL	SS	10x103.5	20.50	11.14	-	R&M	2009-10
9	Supa, KPCL	SS	2x50	3.45	4.90	-	R&M	2009-10
10	Bhadra, KPCL	SS	2x12	1.44	0.85	-	R&M	2009-10
11	Lingnamakki, KPCL	SS	2x27.5	3.81	2.62	-	R&M	2010-11
Tamil Nadu								
12	Mettur Dam, TANGEDCO	SS	4x10	30.17	24.16	10 (U) + 40 (LE)	RMU&LE	2007-08
Maharashtra								
13	Koyna St.I&II, MSPGCL	SS	4x70 + 4x80	87.50	81.82	-	R&M	2008-09

Annex- IV
(Sheets 2 of 2)

Sl. No	Project, Agency	CS/ SS	Inst. Cap. (MW)	Est. Cost (Rs . in crs)	Actual Exp (Rs . in crs)	Benefits (MW)	Category	Year of Completion
14	Vaitarna, MSPGCL	SS	1x60	16.00	0.14	-	R&M	2009-10
15	Koyna Dam PH, MSPGCL	SS	2x18	5.78	0.25	-	R&M	2009-10
16	Koyna St.III, MSPGCL	SS	4x80	16.65	5.79	320 (LE)	RM&LE	2011-12
Manipur								
17	Loktak, NHPC	CS	3x30 derated	18.55	17.88	15.00 (Res.)	R&M + Res.	2011-12
Meghalaya								
18	Umium St.II, MePGCL	SS	2x9	90.46	55.67	2(U)+18.00(LE)	RMU&LE	2011-12
Total			**5841.2**	**412.83**	**294.84**	**735 [12.00(U) +708.00 (LE)+15.00 (Res)]**		

Abbreviations: R&M – Renovation & Modernisation;. U – Uprating; LE – Life Extension;
Res – Restoration; MW – Mega Watt; CS-Central Sector: SS- State Sector

State-wise list of Hydro RMU&LE schemes completed in the XII Plan

Sl. No	Project, Agency	CS/ SS	Inst. Cap. (No.x.MW)	Est. Cost (Rs . in Crs)	Actual Exp (Rs . in Crs)	Benefits (MW)	Capacity after RMU&LE (MW)	Category	Year of Completion
Himachal Pradesh									
1	Bassi, HPSEB	SS	4x15	124.25	158.26	6.0(U)+ 60(LE)	66	RMU&LE	2013-14
Jammu & Kashmir									
2	Lower Jhelum, J&KSPDC	SS	3x35	101.3	96.10	15.00(Res)	105	R&M+ Res.	2014-15
3	Sumbal Sindh, J&KSPDC	SS	2x11.3	25.00	24.59	-	22.6	R&M	2016-17
Uttarakhand									
4	Pathri, UJVNL	SS	3x6.8	113.25	108.3	20.40(LE)	20.4	RM&LE	2014-15
5	Khatima, UJVNL	SS	3x13.8	256.77	148.88	41.40 (LE)	41.4	RM&LE	2016-17
Uttar Pradesh									
6	Matatila, UPJVNL	SS	3x10.2	10.29	7.21	30.6 (LE)	30.6	RM&LE	2015-16
Andhra Pradesh									
7	Lower Sileru, APGENCO	SS	4x115	8.75	6.77	-	460	R&M	2013-14
8	Srisailam RB, APGENCO	SS	7x110	16.70	17.60	-	770	R&M	2015-16
Telangana									
9	Nagarjuna Sagar Ph-I works, TSGENCO	SS	1x110+ 7x100.8	33.35	13.90	-	815.6	R&M	2012-13
Karnataka									
10	Supa, KPCL	SS	2x50	3.45	3.88	-	100	R&M	2014-15
11	Nagjhari,U-1 to 6, KPCL	SS	1x135 (U-6)	69.21	64.49	15 (U)	150	RM&U	2015-16
12	Sharavathy Genarating Station (Ph B), KPCL	SS	10x103.5	20.00	29.27	-	1035	R&M	2016-17
Kerala									
13	Idamalayar, KSEB	SS	2x37.5	14.50	13.22	-	75	R&M	2012-13

Annex- V
(Sheet 2 of 2)

Sl. No	Project, Agency	CS/ SS	Inst. Cap. (No.x.MW)	Est. Cost	Actual Exp	Benefits (MW)	Capacity after RMU&LE	Category	Year of Completion
				(Rs . in Crs)					
14	Sabarigiri, U-4 KSEB	SS	1x55	52.20	50.41	5(U)	60	RM&U	2014-15
15	Poringalkuthu, KSEB	SS	4x8	88.63	51.90	4 (U)+ 32.00 (LE)	36	RMU&LE	2015-16
Tamil Nadu									
16	Periyar, TANGEDCO	SS	4x35	161.18	133.68	28.00(U)+ 140(LE)	168	RMU&LE	2015-16
Odisha									
17	Rengali Unit-1 OHPC	SS	1x50	47.50	36.76	50(LE)	50	RM&LE	2012-13
18	Rengali Unit-2 OHPC	SS	1x50	25.20	20.73	50(LE)	50	RM&LE	2013-14
West Bengal									
19	Jaldhaka St.I, WBSEDCL	SS	3x9	88.62	79.97	27 (LE)	27	RM&LE	2016-17
Assam									
20	Khandong, NEEPCO	CS	1x25	25.05	29.18	25(LE)	25	RM&LE	2014-15
21	Kopili, NEEPCO	CS	2x50	50.22	50.92	-	100	R&M	2014-15
Total			**4149.60**	**1335.42**	**1146.02**	**549.40 [58(U)+ 476.40 (LE) + 15 (Res)]**	**4207.6**		

State-wise list of Hydro RMU&LE schemes completed during 2017-22

Sl. No	Name of Project, Agency, Inst. Cap. (No. x MW)	CS/ SS	Capacity Covered Under RMU&LE (No.x MW)	Est. Cost (Rs. in Crs.)	Actual Exp. (Rs. in Crs.)	Benefits (MW)	Capacity after RMU&LE (MW)	Category	Year of Completion
A. COMPLETED SCHEMES IN 2017-22									
Jammu & Kashmir (UT)									
1	Salal, NHPC (6x115)	CS	5x115	58.01	51.08	-	575	R&M	Completed in 2019-20
2	Chenani, J&KSPDC (5x4.66)	SS	5x4.66	34.28	21.84	23.30 (LE)	23.3	RM&LE	Completed in 2021-22
3	Ganderbal, (Unit-3) J&KSPDC (2x3+2x4.5)	SS	1x4.5	18.00	3.26	4.5 (LE)	4.5	RM&LE	Completed in 2021-22
Himachal Pradesh									
4	Ganguwal, BBMB (1x29.25+2x24.2) & Kotla, BBMB (1x29.25+2x24.2)	CS	1x24.2 (U-2) 1x24.2 (U-3)	14.19	9.58	48.4 (LE)	48.4	RM&LE	Completed in 2017-18
5	Dehar Power House (Unit-6), BBMB (6x165)	CS	1x165	19.87	16.00	-	165	R&M	Completed in 2017-18
6	Dehar Power House (Unit-3), BBMB (6x165)	CS	1x165	23.00	18.67	-	165	R&M	Completed in 2021-22
7	Baira Siul, NHPC (3x60)	CS	3x60	341.41	330	180 (LE)	180	RM&LE	Completed in 2021-22
Gujarat									
8	Ukai, GSECL (4x75)	SS	3x75 (U-1,2,&4)	7.30	7.30	-	225	R&M	Completed in 2021-22
Karnataka									
9	Bhadra River Bed units, KPCL (2x12)	SS	2x12	23.55	20.12	-	24	R&M	Completed in 2019-20
Tamil Nadu									
10	Sholayar-I, TANGEDCO (2x35)	SS	2x35	90.44	66.94	70 (LE) + 14(U)	84	RMU&LE	Completed in 2019-20
Kerala									
11	Sholayar, KSEB (3x18)	SS	3x18	199.55	84.26	54 (LE)	54	RM&LE	Completed in 2020-21
12	Idukki 1st stage, KSEB (3x130)	SS	3x130	89.90	65.76	-	390	R&M	Completed in 2020-21
Odisha									
13	Hirakud-I OHPCL (2x37.5)	SS	2x37.5 (U5&6)	158.77	101.83	75.00 (LE) + 12.2 (U)	87.2	RMU&LE	Completed in 2021-22
14	Hirakud-II (Chiplima), OHPCL (3x24)	SS	1x24 (U-3)	65.67	52.04	24.00 (LE)	24	RM&LE	Completed in 2019-20
Sub Total (A)			**2023.20**	**1143.94**	**848.68**	**505.4 [479.2(LE) + 26.2(U)**	**2049.40**		

@ This cost includes Scheme I only i.e. Rehabilitation of damaged/burnt equipments.

Abbreviations: R&M – Renovation & Modernisation;. U – Uprating; LE – Life Extension; Res – Restoration;

MW – Mega Watt; CS-Central Sector: SS- State Sector

State-wise List of Hydro RMU&LE schemes programmed for completion during 2022-27

Sl. No	Name of Project, Agency Inst. Cap. (No.x MW)	CS/ SS	Capacity Covered Under RMU&LE (No.x MW)	Est. Cost (Rs. in Crs.)	Actual Exp. (Rs. in Crs.)	Benefits (MW)	Capacity after RMU&LE	Category	Year of Completion
A. Completed Schemes									
Himachal Pradesh									
1	Bhabha Power House, HPSEB (3x40)	SS	3x40	90.14	43.01	120 (LE)	120	RM&LE	Completed in 2022-23
2	Bhakra LB, BBMB (5x108)	CS	5x108	489.77	583.86	540.00(LE)+ 90.00 (U)	630	RMU&LE	Completed in 2023-24
Uttarakhand									
3	Tiloth (Maneri Bhali - I), UJVNL (3x30)	SS	3x30	384.66	189.45	90 (LE)	90	RM&LE	Completed in 2022-23
4	Dhalipur, UJVNL (3x17)	SS	3x17	152.65	110.13	51 (LE)	51	RM&LE	Completed in 2023-24
Uttar Pradesh									
5	Rihand, UPJVNL (6x50)	SS	6x50	132.20	129.67	300 (LE)	300	RM&LE	Completed in 2022-23
Telangana									
6	Nagarjuna Sagar Phase-II works, TSGENCO (1x110+7x100.8)	SS	1x110+7x100.8	21.67	14.34	-	815.6	R&M	Completed in 2022-23
7	Nagarjuna Sagar Left Canal Power House, TSGENCO (2x30.6)	SS	2x30.6	30.99	1.50	-	61.2	R&M	Completed in 2022-23
Karnataka									
8	Munirabad Dam Power House, KPCL (2x9 + 1x10)	SS	2x9 + 1x10	4.60	2.20	-	28	R&M	Completed in 2022-23
9	Linganamakki Dam Power House, KPCL (2x27.5)	SS	2x27.5	2.75	2.75	-	55	R&M	Completed in 2022-23
10	Gerusoppa Dam Power House (Sharavathy Tail Race), KPCL (4x60)	SS	4x60	59.66	2.026	-	240	R&M	Completed in 2023-24
Sub Total(A)			**2300.80**	**1369.09**	**1078.94**	**1191 [1101(LE)+ 90(U)]**	**2390.80**		
B. Ongoing Schemes – Under Implementation									
Uttarakhand									
11	Chilla (Ph B), UJVNL (4x36)	SS	4x36	490.56	7.39	144(LE)+ 12(U)	156	RMU&LE	2025-26
12	Dhakrani, UJVNL (3x11.25)	SS	3x11.25	137.31	10.69	33.75 (LE)	33.75	RM&LE	2025-26
Uttar Pradesh									
13	Obra, UPJVNL (3x33)	SS	3x33	58.80	48.15	99 (LE)	99	RM&LE	2024-25
Telangana									
14	Pochampad HPS Stage -1, TSGENCO (3x9)	SS	3x9	8.44	-	-	27	R&M	2026-27
Andhra Pradesh									
15	Upper Sileru Power House, APGENCO (4x60)	SS	4x60	10.53	4.53	-	240	R&M	2026-27
16	Nagarjunasagar Right Canal Power House, APGENCO (3x30)	SS	3x30	10.1	4.54	-	90	R&M	2025-26
17	Tungabhadra Dam, APGENCO (4x9)	SS	4x9	6.65	2.517	36 (LE)	36	RM&LE	2025-26
18	Hampi Canal PH, APGENCO (4x9)	SS	4x9	-	-	36 (LE)	36	RM&LE	2025-26
Karnataka									
19	Nagjhari (Unit-1 to 3) KPCL (6x150)	SS	3x150 (U-1 to 3)	266.00	80.5	450 (LE)	450	RM&LE	2025-26
20	Shivasamudram, KPCL (6x3+4x6)	SS	6x3+4x6	169.18	3.27	42 (LE)	42	RM&LE	2024-25
21	Kadra Dam Power House,	SS	3x50	44.47	2.627	-	150	R&M	2024-25
22	Kodasalli Dam Power House,	SS	3x40	50.60	2.654	-	120	R&M	2024-25
23	Sharavathy Generating Station, KPCL (10x103.5)	SS	10x103.5	196.56	-	1035 (LE)	1035	RM&LE	2025-26

Sl. No	Name of Project, Agency Inst. Cap. (No.x MW)	CS/ SS	Capacity Covered Under RMU&LE (No.x MW)	Est. Cost	Actual Exp.	Benefits (MW)	Capacity after RMU&LE	Category	Year of Completion
				(Rs. in Crs.)					
Jharkhand									
24	Panchet U-1, DVC (2x40)	CS	1x40 (U-1)	121.85	2.19	40(LE) + 6(U)	46	RMU&LE	2025-26
Tamil Nadu									
25	Moyar PH, TNPGCL (3x12)	SS	3x12	121.127	74.02	36 (LE)+ 6(U)	42	RMU&LE	2024-25
26	Kodayar PH-I, TNPGCL (1x60)	SS	1x60	80.96	2.3	60 (LE)+ 10 (U)	70	RMU&LE	2025-26
Kerala									
27	Kuttiyadi, KSEB (3x25)	SS	3x25	377.41	31.43	75.00 (LE) + 7.5 (U)	82.5	RMU&LE	2025-26
28	Sabarigiri (Unit- 6 & Unit 2), KSEB (4x55+2x60)	SS	1x60 +1 x 55	-	-	-	115	R&M	2024-25
Odisha									
29	Balimela, OHPCL (6x60)	SS	6x60	382.91	167.60	360(LE)	360	RM&LE	2024-25
Assam									
30	Kopili Power Station, NEEPCO (4x50)	CS	4x50	1075.19	1207.25	200(LE)	200	RM&LE	2024-25
31	Khandong Power Station, NEEPCO (2x23)	CS	2x23	277.74	84.5	46 (LE)	46	RM&LE	2024-25
Manipur									
32	Loktak, NHPC (3x35)	CS	3x35	273.59	69.72	105 (LE)	105	RM&LE	2025-26
Meghalaya									
33	Umiam St.III, (Kyrdemkulai) MePGCL (2x30)	SS	2x30	408.00	53.15	60(LE) + 6(U)	66	RMU&LE	2026-27
Sub Total (B)			**3599.75**	**4567.98**	**1859.03**	**2905.25 [2857.75(LE)+ 47.50(U)]**	**3647.25**		
C. Ongoing Schemes – Under Tendering									
Himachal Pradesh									
34	Giri, HPSEBL (2x30)	SS	2x30	440.12	-	60.00 (LE)	60	RM&LE	2025-26
Uttarakhand									
35	Ramganaga, UJVNL (3x66)	SS	3x66	455.20	-	198 (LE)	198	RM&LE	2026-27
Gujarat									
36	Kadana PSS, GSECL (4x60)	SS	4x60	750.25	-	240 (LE) + 20 (U)	260	RMU&LE	2025-26
Rajasthan									
37	Rana Pratap Sagar	SS	4x43	548.11	-	172 (LE) +6 (U)	178	RMU&LE	2026-27
Karnataka									
38	Supa Dam Power House, KPCL (2x50)	SS	2x50	47.91	-	-	100	R&M	2024-25
West Bengal									
39	Maithon, DVC (2x20+1x23.2-U#2)	CS	2x20 (U-1&3)	109.29	7.76	40.00 (LE)	40	RM&LE	2025-26
Sub Total (C)			**810**	**2350.88**	**7.76**	**736 [710(LE)+26(U)]**	**836.00**		

Sl. No	Name of Project, Agency Inst. Cap. (No.x MW)	CS/ SS	Capacity Covered Under RMU&LE (No.x MW)	Est. Cost (Rs. in Crs.)	Actual Exp. (Rs. in Crs.)	Benefits (MW)	Capacity after RMU&LE	Category	Year of Completion
D. Ongoing Schemes – Under DPR Preparation/ Finalisation/ Approval									
Uttarakhand									
40	Kulhal, UJVNL (3x10)	SS	3x10	115.24	-	30(LE)	30	RM&LE	2026-27
Tamil Nadu									
41	Kodayar PH-II, TNPGCL (1x40)	SS	1x40	-	-	40.0(LE)+ 6(U)	46	RMU&LE	2026-27
Kerala									
42	Idukki 1st and 2nd stage, KSEB (6x130)	SS	6x130	-	-	780 (LE)	780	RM&LE	2026-27
43	Idamalayar, KSEB (2x37.5)	SS	2x37.5	-	-	75 (LE)	75	RM&LE	2026-27
Andhra Pradesh									
44	Lower Sileru, APGENCO (4x115)	SS	4x115	698.94	1.8	460(LE)	460	RM&LE	2026-27
Sub Total (D)			**1385.00**	**814.18**	**1.80**	**1391 1385(LE)+ 6(U)]**	**1391.00**		
E. Ongoing Schemes – Under RLA Studies									
Jammu & Kashmir (UT)									
45	Salal Stage-I, (Unit 1,2 &3) NHPC (3x115)	CS	3x115	-	-	345 (LE)	345	RM&LE	2026-27
Himachal Pradesh									
46	Pong Power House, BBMB (6x66)	CS	6x66	402.00	-	396 (LE) + 54 (U)	450	RMU&LE	2026-27
Punjab									
47	Anandpur Sahib Hydel Project, PSPCL (4x33.5)	SS	4x33.5	-	-	134 (LE)	134	RM&LE	2026-27
48	Mukerian St.I, St.II, St.III & St.IV, PSPCL (3x15, 3x15, 3x19.5& 3x19.5)	SS	3x15, 3x15, 3x19.5& 3x19.5	2.5	-	207 (LE)	207	RM&LE	2026-27
49	Shanan HEP, PSPCL (1x50+ 4x15)	SS	1x50+ 4x15	8.02	-	110 (LE)	110	RM&LE	2026-27
50	UBDC St.I & St.II, PSPCL (3x15+ 3x15.45)	SS	3x15+ 3x15.45	1.71	-	91.35 (LE)	91.35	RM&LE	2026-27
Madhya Pradesh									
51	Bansagar Ton-I, MPPGCL (3x105)	SS	3x105	-	-	315 (LE)	315	RM&LE	2026-27
Maharashtra									
52	Vaitarna, MSPGCL (1x60)	SS	1x60	-	-	60 (LE)	60	RM&LE	2026-27
53	Koyna Dam foot (Right Bank), MSPGCL (2x20)	SS	2x20	-	-	40 (LE)	40	RM&LE	2026-27
54	Koyna St-3, MSPGCL (4x80)	SS	4x80	-	-	320 (LE)	320	RM&LE	2026-27
Andhra Pradesh									
55	Machkund St.I & St.II, APGENCO (3x17+ 3x23)	SS	3x17+ 3x23	1.98	-	120 (LE) +9 (U)	129	RMU&LE	2026-27
Kerala									
56	Sabarigiri, (Unit-1,2,3, & 5) KSEB (4x55+2x60)	SS	4x55 (Unit-1,2, ,3, & 5)	-	-	220(LE) + 20 (U)	240	RMU&LE	2026-27

Sl. No	Name of Project, Agency Inst. Cap. (No.x MW)	CS/ SS	Capacity Covered Under RMU&LE (No.x MW)	Est. Cost (Rs. in Crs.)	Actual Exp. (Rs. in Crs.)	Benefits (MW)	Capacity after RMU&LE	Category	Year of Completion
Jharkhand									
57	Subernrekha, JUUNL (2x65)	SS	2x65	-	-	130(LE)	130	RM&LE	2026-27
Sub Total (E)			**2488.35**	**416.21**	**0.00**	**2571.35 [2488.35(LE)+ 83(U)]**	**2571.35**		
Total (A+B+C+D+E)			**10583.90**	**9518.34**	**2947.53**	**8794.60**	**10836.40**		

Abbreviations: R&M – Renovation & Modernisation;. U – Uprating; LE – Life Extension; Res – Restoration;
MW – Mega Watt; CS-Central Sector: SS- State Sector

State-wise List of Hydro RMU&LE schemes programmed for completion during 2027-32

Sl. No	Name of Project, Agency Inst. Cap. (No.X MW)	CS/ SS	Capacity Covered Under RMU&LE (No.x MW)	Est. Cost (Rs. in Crs.)	Actual Exp. (Rs. in Crs.)	Benefits (MW)	Capacity after RMU&LE	Category	Completion Target
A.Ongoing Schemes – Under Tendering									
Madhya Pradesh									
1	Gandhi Sagar, MPPGCL (5x23)	SS	5x23	433.68	4.17	115 (LE) + 10.83 (U)	125.83	RMU&LE	2029-30
Sub Total(A)			**115**	**433.68**	**4.17**	**125.83 115 (LE) + 10.83 (U)**	**125.83**		
B. Ongoing Schemes – Under DPR Preparation/ Finalisation/ Approval									
Madhya Pradesh									
2	Pench, MPPGCL (2x80)	SS	2x80	-	-	160 (LE)	160	RM&LE	2026-28
3	Bargi, MPPGCL (2x45)	SS	2x45	-	-	90 (LE)	90	RM&LE	2026-28
Sub Total(B)			**250**	**0**	**0**	**250**	**250**		
C. Ongoing Schemes – Under RLA Studies									
Jammu & Kashmir (UT)									
4	Salal Stage-II, (Unit 4,5 &6) NHPC (6x115)	CS	3x115	-	-	345 (LE)	345	RM&LE	2027-32
Himachal Pradesh									
5	Chamera-I, NHPC (3x180)	CS	3x180	-	-	540 (LE)	540	RM&LE	2027-32
Uttarakhand									
6	Tanakpur, NHPC (3x31.4)	CS	3x31.4	-	-	94.2 (LE)	94.2	RM&LE	2027-32
7	Chibro, UJVNL (4x60)	SS	4x60	184.88	-	240 (LE)	240	RM&LE	2027-32
8	Khodri, UJVNL (4x30)	SS	4x30	169.63	-	120 (LE)	120	RM&LE	2027-32
Tamil Nadu									
9	Kundah-I, TNPGCL (3x20)	SS	3x20	-	-	60 (LE)	60	RM&LE	2027-32
10	Kundah-II, TNPGCL (5x35)	SS	5x35	-	-	175 (LE)	175	RM&LE	2027-32
11	Kundah-III, TNPGCL (3x60)	SS	3x60	-	-	180 (LE)	180	RM&LE	2027-32
12	Kundah-IV, TNPGCL (2x50)	SS	2x50	-	-	100 (LE)	100	RM&LE	2027-32
13	Kundah-V, TNPGCL (2x20)	SS	2x20	-	-	40 (LE)	40	RM&LE	2027-32
14	Mettur Tunnel, TNPGCL (4x50)	SS	4x50	-	-	200 (LE)	200	RM&LE	2027-32
14	Sarkarpathy, TNPGCL (1x30)	SS	1x30	-	-	30 (LE)	30	RM&LE	2027-32
16	Sholayar-II, TNPGCL (1x25)	SS	1x25	-	-	25 (LE)	25	RM&LE	2027-32
17	Suruliyar, TNPGCL (1x35)	SS	1x35	-	-	35 (LE)	35	RM&LE	2027-32
18	Kadamparai PH, TNPGCL (4x100)	SS	4x100	-	-	400 (LE)	400	RM&LE	2027-32
18	Aliyar, TNPGCL (1x60)	SS	1x60	-	-	60 (LE)	60	RM&LE	2027-32
20	Lower Mettur-I , TNPGCL (2x15)	SS	2x15	-	-	30 (LE)	30	RM&LE	2027-32
21	Lower Mettur-II , TNPGCL (2x15)	SS	2x15	-	-	30 (LE)	30	RM&LE	2027-32
22	Lower Mettur-III , TNPGCL	SS	2x15	-	-	30 (LE)	30	RM&LE	2027-32
23	Lower Mettur-IV , TNPGCL (2x15)	SS	2x15	-	-	30 (LE)	30	RM&LE	2027-32
Sub Total (C)			**2764.20**	**354.51**	**0.00**	**2764.20**	**2764.20**		
Total (A+B+C)			**3129.20**	**788.19**	**4.17**	**3140.03 [3129.20 (LE)+ 10.83(U)]**	**3140.03**		

Abbreviations: R&M – Renovation & Modernisation;. U – Uprating; LE – Life Extension; Res – Restoration;
MW – Mega Watt; CS-Central Sector: SS- State Sector

Abbreviations

1	APGENCO	Andhra Pradesh Generation Corporation Limited
2	BBMB	Bhakra Beas Management Board
3	DVC	Damodar Valley Corporation
4	GSECL	Gujarat State Electricity Corporation Limited
5	HPSEB	Himachal Pradesh State Electricity Board
6	J&KSPDC	Jammu & Kashmir State Power Development Corpn.
7	JSEB	Jharkhand State Electricity Board.
8	KPCL	Karnataka Power Corporation Limited
9	KSEB	Kerala State Electricity Board
10	MSPGCL	Maharashtra State Power Generation Corporation Limited
11	MePGCL	Meghalaya Power Generation Corporation Limited
12	MPPGCL	Madhya Pradesh Power Generation Corporation Limited
13	NEEPCO	North-East Electric Power Corporation Limited
14	OHPC	Odisha Hydro Power Corporation Limited
15	PSPCL	Punjab State Power Corporation Limited
16	RRVUNL	Rajasthan Rajya Vidyut Utpadan Nigam Limited
17	TNPGCL	Tamil Nadu Power Generation Corporation Limited
18	TSGENCO	Telangana State Power Generation Corporation Limited
19	UPJVNL	Uttar Pradesh Jal Vidyut Nigam Limited
20	UJVNL	Uttarakhand Jal Vidyut Nigam Limited
21	VVNL	Vishwesharayya Vidyut Nigam Limited
22	WBSEDCL	West Bengal State Electricity & Distribution Company Limited
23	AVR	Automatic Voltage Regulator
24	BOQ	Bill of Quantity
25	CERC	Central Electricity Regulatory Commission
26	CPRI	Central Power Research Institute
27	DPR	Detailed Project Report
28	DVR	Digital Voltage Regulator
29	JICA	Japan International Co-operation Agency
30	LOA	Letter of Award
31	RLA	Residual Life Assessment