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, 2026)

(4th Quarter of 2025-26)

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

Programme for the period 2022-27 & 2027-32

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Background
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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 26 Hydro Electric Plants (HEPs) with an aggregate installed capacity of 4784.55 MW is programmed for completion during the year 2022-27. This will result in benefits in terms of life extension for 11 HEPs of aggregate 2376.75 MW capacity, 6 HEPs of aggregate capacity of 811 MW having both life extension and increase in aggregate installed capacity to 936.5 MW (i.e. capacity addition of 125.5 MW by uprating) and balance 9 HEPs having aggregate installed capacity of 1596.8 MW seeing benefits in terms of enhancement in efficiency, operation reliability, grid security and ease of operation. As such, the revised aggregate installed capacity after completion of RMU&LE works of these 26 projects would be 4910.05 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 26 Schemes, Thirteen (13) Schemes with an aggregate installed capacity of about 2645.80 MW have been completed till March 2026, and which has resulted in benefit including Life Extension of projects with aggregate installed capacity of 1446 MW and Uprating of 90 MW.

Programme during the period 2027-32

The Renovation, Modernization, Uprating and Life Extension works at 60 Hydro Electric Plants (HEPs) with an aggregate installed capacity of 10169.35 MW is programmed for completion during 2027-32. This will result in benefits in terms of life extension for 44 HEPs of aggregate 7068.55 MW capacity, 10 HEPs of aggregate capacity of 1697 MW having both life extension and increase in aggregate installed capacity to 1841.33 MW (i.e. uprating of 144.33 MW) and balance 6 HEPs having aggregate installed capacity of 1403.8 MW seeing benefits in terms of enhancement in efficiency, operation reliability, grid security and ease of operation. As such, the revised aggregate installed capacity after completion of RMU&LE works of these 60 projects would be 10313.68 MW. State-wise list of hydro R&M schemes expected for completion during the year 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

वर्ष 2022-27 के दौरान 4784.55 मेगावाट की कुल स्थापित क्षमता वाले 26 जल विद्युत संयंत्रों (एचईपी) के नवीनीकरण, आधुनिकीकरण, उन्नयन और जीवन विस्तार कार्यों को पूरा करने की योजना है। इसके परिणामस्वरूप कुल 2376.75 मेगावाट क्षमता वाले 11 एचईपी के जीवन विस्तार के संदर्भ में लाभ होंगे, 811 मेगावाट की कुल क्षमता वाले 6 एचईपी के जीवन विस्तार और कुल स्थापित क्षमता में 936.5 मेगावाट की वृद्धि (अर्थात उन्नयन द्वारा 125.5 मेगावाट की क्षमता वृद्धि) दोनों होंगे और शेष 9 एचईपी जिनकी कुल स्थापित क्षमता 1596.8 मेगावाट है, को दक्षता में वृद्धि, संचालन विश्वसनीयता, ग्रिड सुरक्षा और संचालन में आसानी के संदर्भ में लाभ होगा। इस प्रकार, इन 26 परियोजनाओं के आरएमयू और एलई कार्यों के पूरा होने के बाद संशोधित कुल स्थापित क्षमता 4910.05 मेगावाट होगी। वर्ष 2022-27 के दौरान पूरी होने वाली अपेक्षित जल विद्युत अनुसंधान और रखरखाव योजनाओं की राज्यवार सूची अनुबंध- VII में दी गई है।

इन 26 योजनाओं में से, लगभग 2645.8 मेगावाट की कुल स्थापित क्षमता वाली तेरह (13) योजनाएँ मार्च 2026 तक पूरी हो चुकी हैं, और इसके परिणामस्वरूप 1446 मेगावाट की कुल स्थापित क्षमता वाली परियोजनाओं का जीवन विस्तार और 90 मेगावाट का उन्नयन सहित लाभ हुआ है।

2027-32 की अवधि के दौरान कार्यक्रम

10169.35 मेगावाट की कुल स्थापित क्षमता वाले 60 जल विद्युत संयंत्रों (एचईपी) के नवीनीकरण, आधुनिकीकरण, उन्नयन और जीवन विस्तार कार्यों को 2027-32 के दौरान पूरा करने की योजना है। इसके परिणामस्वरूप कुल 7068.55 मेगावाट क्षमता वाले 44 जल विद्युत संयंत्रों के जीवन विस्तार के संदर्भ में लाभ होंगे, कुल 1697 मेगावाट क्षमता वाले 10 जल विद्युत संयंत्रों के जीवन विस्तार और कुल स्थापित क्षमता में 1841.33 मेगावाट (अर्थात 144.33 मेगावाट का उन्नयन) दोनों में वृद्धि होगी और शेष 6 जल विद्युत संयंत्रों की कुल स्थापित क्षमता 1403.8 मेगावाट होगी, जिन्हें दक्षता, संचालन विश्वसनीयता, ग्रिड सुरक्षा और संचालन में आसानी में वृद्धि के संदर्भ में लाभ दिखाई देंगे। इस प्रकार, इन 60 परियोजनाओं के आरएमयू और एलई कार्यों के पूरा होने के बाद संशोधित कुल स्थापित क्षमता 10313.68 मेगावाट होगी। वर्ष 2027-32 के दौरान पूरी होने वाली अपेक्षित जल विद्युत अनुसंधान एवं रखरखाव योजनाओं की राज्यवार सूची अनुबंध-VIII में दी गई है।

Summary of R&M of Hydro Electric Projects

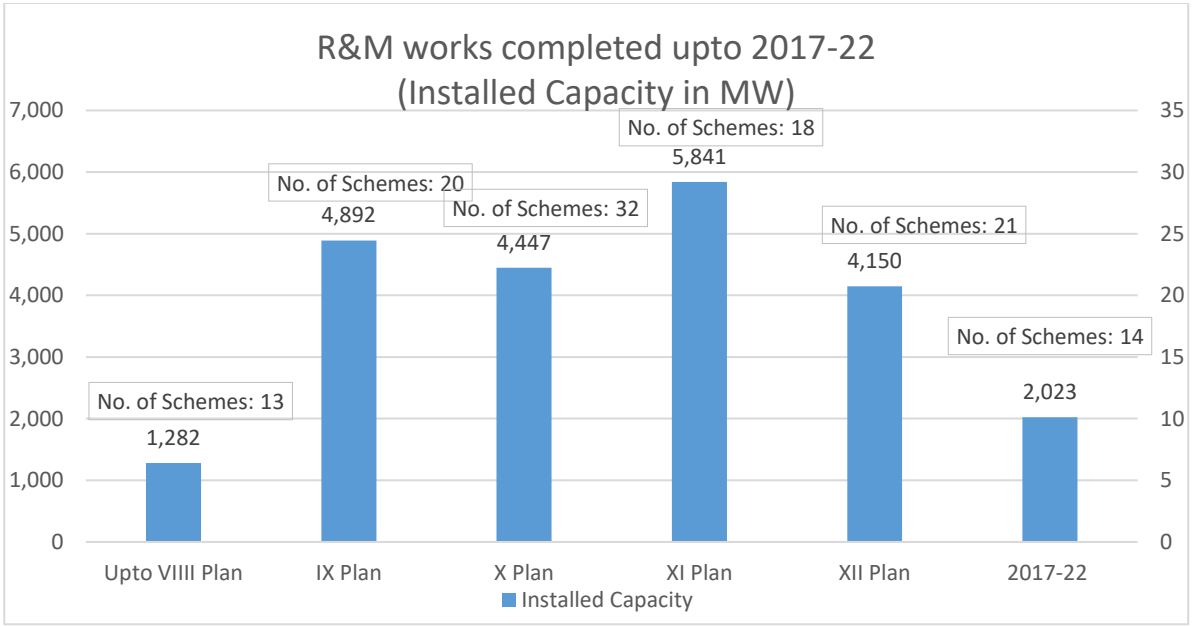
(As on 31.03.2026)

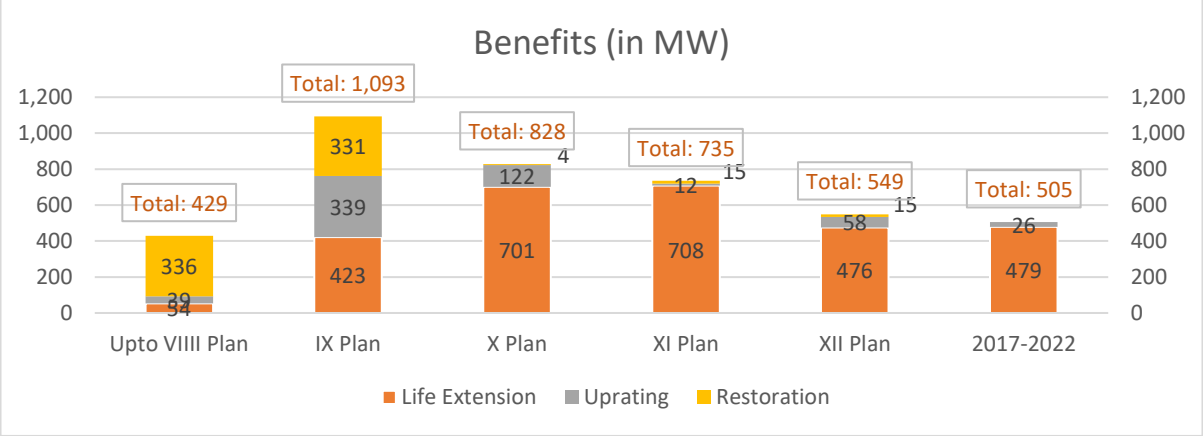
I Hydro R&M schemes completed up to 2017-22

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	4	22	26	4784.55	3313.25 [3187.75(LE)+ 125.5(U)]
2.	Completed	3	10	13	2645.80	1536 [1446 (LE)+ 90(U)]
3.	Under Implementation	1	11	12	2038.75	1777.25 [1741.75(LE)+ 35.5(U)]
4.	Under Tendering	0	1	1	100	0 [0(LE)+0(U)]
5.	Under DPR Preparation/ Finalisation/ Approval	0	0	0	0	0
6.	Under RLA Studies	0	0	0	0	0

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	7	53	60	10169.35	8909.88 [8765.55(LE)+ 144.33(U)]
2.	Under Implementation	1	9	10	2227.8	1096.83 [1054(LE) + 42.83(U)]
3.	Under Tendering	2	3	5	789.35	853.35 [789.35(LE)+ 64(U)]
4.	Under DPR Preparation/Finalisation/ Approval	0	11	11	2264.0	2281.5 [2264.0(LE)+ 17.5(U)]
5.	Under RLA Studies	4	30	34	4888.20	4678.20 [4658.20(LE)+20(U)]

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

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)** **Uttarakhand:** Tiloth, UJVNL (3x30) =90 MW **(Completed in 2022-23)** **Uttar Pradesh:** Rihand, UPJVNL (6x50) =300 MW **(Completed in 2022-23)** **Karnataka:** i) Munirabad Dam Power House, KPCL, (2x9 + 1x10) =28 MW, **(Completed in 2022-23)** ii) Linganamakki Dam Power House, KPCL (2x27.5) =55 MW **(Completed in 2022-23)** **Telangana:** i) Nagarjuna Sagar Ph-II,	**Himachal Pradesh:** Bhakra LB, BBMB, (5x108) =540 MW **(Completed in 2023-24)** **Uttarakhand:** Dhalipur, UJVNL (3x17) =51 MW **(Completed in 2023-24)** **Karnataka:** Gerusoppa Dam Power House, KPCL (4x60) =240 MW **(Completed in 2023-24)**	**Assam:** Kopili Power Station, NEEPCO (4x50)=200 MW **(Completed in 2024-25)** (Original 2023-24)	**Assam:** Khandong Power Station, NEEPCO (2x23)=46 MW **(Completed in 2025-26)** (Original 2024-25) **Uttar Pradesh:** Obra, UPJVNL (3x33) =99 MW **(Completed in 2025-26)** (Original 2024-25)	**Uttarakhand:** i)Dhakrani, UJVNL, (3x11.25) =33.75 MW, (2026-27) **(Original 2020-21)** **Telangana:** Pochampad HPS Stage -1, TSGENCO, (3x9) =27 MW **Odisha:** Balimela, OHPC, (6x60) =360 MW **(Original 2024-25)** **Meghalaya:** Umiam St.III (Kyrdemkulai), MePGCL (2x30)=60 MW **Karnataka:** i) Sharavathy Generating Station, KPCL (10x103.5) =1035 MW ii) Shivasamudram, KPCL, (6x3+4x6) =42 MW, **(Original 2024-25)** iii) Kadra Dam Power House, KPCL (3x50) =150 MW **(Original 2024-25)**

Year 2022-23	Year 2023-24	Year 2024-25	Year 2025-26	Year 2026-27
TSGENCO, (1x110+7x100.8) =815.6 MW (2022-23) **(Completed in 2022-23)** ii) Nagarjuna Sagar Left Canal Power House, TSGENCO (2x30.6)=61.2 MW (2024-25) **(Completed in 2022-23)**				iv) Kodasalli Dam Power House, KPCL (3x40) =120 MW **(Original 2024-25)** v) Supa Dam Power House, KPCL (2x50) =100 MW **(Original 2024-25)** **Kerala:** i) Kuttiyadi, KSEB, (3x25) =75 MW **(Original 2024-25)** **Tamil Nadu:** (i)Moyar PH, TNPGCL (3x12) =36 MW **(Original 2024-25)** (ii)Kodayar PH-I, TNPGCL (1x60) =60 MW (**Original 2024-25**) **Jharkhand:** Panchet U-1, DVC, (1x40) =40 MW **(Original 2023-24)**
1469.8 MW (7 Schemes)	**831 MW (3 Schemes)**	**200 MW (1 Schemes)**	**145 MW (2 Schemes)**	**2138.75 MW (13 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

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 COMPLETED				
1.	**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.

2.	**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. **Auxiliaries** Control & Protection panels, Generator Transformers, Bus Bars with CTs, PTs etc. LAVT cubicle, switchyard equipment, 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>** The Unit was commissioned after modification of runner profile on 16.5.2022. TOC issued by BBMB 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>** On successful completion of trial run operation at rated full load (126 MW), unit commissioned w.e.f. 27.09.2023.

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				
3.	**Tiloth (Maneri Bhali-I),** 3x30 MW UJVNL 1984 T&G – BHEL **RM&LE** **2022-23**	**90(LE)** 384.66 206.17	-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.
4.	**Dhalipur,** 3x17 MW UJVNL 1965-70 T - Litostroj, Yugo. G - Rade Konkar,Yugo **RM&LE** **2023-24**	**51 (LE)** 152.65 137.45	• 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				
5.	**Dhakrani,** 3x11.25MW UJVNL 1965-70 T - Litostroj, Yugoslavia. G - Rade Konkar, Yugoslavia **RM&LE** **2026-27**	33.75 (LE) 137.31 117.63	• Replacement of turbine runners, runners chambers, new compressed air system. OPUs, governors, new sets of guide vanes, distributor system, head covers TG shaft, TGB & shaft sealing system. Repairing of various gates and gantry cranes. • Refurbishment of generators with new class F insulated stator & rotor windings. New UGB and Thrust bearing system, New Generator Transformers. • Civil works of barrage, power channel, power station & Tail race channel. • New SEE, Replacement of MV & LV Switchgears, SCADA system. Installation of numerical type generator protection system. Control and Power cables.	• Approval accorded for inviting fresh bids on National Competitive Bidding (NCB) route through domestic funding. • Revised DPR was approved by Board on 30.09.2015 and by UERC 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. • LOA has been issued to M/s Flovel on 05.07.2021. • Unit#A handed over to M/s Flovel for reverse engineering on 02.02.2022. • LOI for additional works for restoration work of Unit A was placed to M/s Flovel on 19.04.2022. • Model Test completed on 12.101.2023. • Unit-A R&M works started on 16.02.2024 and completed on 01.03.2025 and CoD completed on 07.03.2025. • R&M of Unit-B started on 16.03.2025 and completed on 21.09.2025 and CoD completed on 26.09.2025. • Major supplies of 3rd Machine have been received. • Unit C was handed over for RMU on 30.10.2025. Dismantling work completed and other RMU activities are under progress. • RMU of unit-C is expected to be completed by 31.05.2026. • Physical Progress-90%

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 Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES COMPLETED				
6.	**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 equipment, 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.
7.	**Obra,** 3x33 MW UPJVNL 1970 (U-1&2), 1971 (U-3) T&G - BHEL **RM&LE**	**99 (LE)** 58.80 49.85	- 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 Government 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.	**UNIT No. 1** **All work Completed. Unit Commissioned on 28.08.2024.** **UNIT No. 2** **All work executed** Unit Commissioned on 25.07.2025. **UNIT No. 3** All works completed. Unit commissioned on 29.09.2022. **COMMON WORKS: All works executed except the following:** 1. Provision of station supply from Obra HEP 132 KV Bus- under Progress.

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
			- 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.	

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				
8.	**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 equipment 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).	
9.	**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				
10.	**Pochampad HPS Stage -1,** 3x9 MW TSGENCO 1987-88 T- BHEL G-BHEL **R&M** **2026-27**	- 10.691 1.291	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.	• Tender invited on e-procurement platform, Technical bid opened on 03.07.2025. Technical bid evaluation completed. Purchase order to be placed. • LOI dated 03.07.2025 issued to M/s Mahati Industries Pvt. Ltd. Drawing approved. Material is to be received.

			3. Design, Manufacture, Inspection, Shop testing, Packing & forwarding, Insurance, Transportation to site stores, Installation and training of the Testing equipment AUTOMATIC CAPACITANCE AND TAN DELTA TEST SET for Hydro Power station, Pochampad.	• PO Placed on M/s Eltel Industries, material received.
			4. Design, Manufacture, Inspection, Shop testing, Packing & forwarding, Insurance, Transportation to site stores, Installation and training of the Testing equipments AUTOMATIC NUMERICAL RELAY TESTING KIT for Hydro Power station, Pochampad	• PO Placed on M/s Megger India Pvt. Ltd., material is received
			5. 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	• PO Placed to M/s. Scope T&M Pvt. Ltd., Mumbai. Erection, testing and commissioning of protection panels for Unit-I, II & III completed on 05.02.2024.
			6. Procurement of Latest auto Sequencer System for unit 1, 2 and 3.	• LOI is issued on M/s Adarsha Control & Automation Pvt Ltd., Bengaluru. Drawing approved. Material is to be received.
			7. Procurement of Field Instrument for Unit-1,2 &3.	• Purchase order placed has been placed on M/s Sapcon Instruments, M/s Tech Masters, M/s Kemplast Process Solutions and M/s Maars Technologies. Material is received. Installation & Commissioning of Instruments is under progress.
			8. Procurement of certain cables for upgradation works.	• Tender Invited. Bid evaluation is under 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				
11.	**Moyar,** 3x12 MW TNPGCL 1952-53 T – Boving,UK G -Metropolitan Vickers Electric Co. limited,UK **RMU&LE** **2026-27**	**36 (LE)+ 6 (U)** **121.127** 100.15	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 completed on 11.12.2024 and uprated from 12MW to 14MW. Unit-2 has been synchronized with uprated capacity of 14MW on 10.11.2025 after RMU works. Unit-3 penstock replacement work under progress. After completion of Unit-III penstock replacement works, the same will be commissioned with uprated capacity of 14MW. Cooling water system work under progress. P.G. test yet to be done. Completion Schedule: Unit-3 – Sept. 2026

S. No.	Scheme/ Category Completion Target	Expected Benefit (MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
12.	**Kodayar PH-I,** 1x60 MW TNPGCL 1970 T-Vevey Engg. works, Switzerland G-Alstom, France **RMU&LE** **2026-27**	**60 (E)+ 10 (U)** 80.96 35	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. Letter of Intent issued to M/s BHEL on 09.03.2020. 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. Unit handed over to BHEL for RMU work on 07.08.2024. EOT crane load test completed on 29.08.2024. Works under progress. Target Completion: November 2026

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 Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES COMPLETED				
13.	**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.
14.	**Linganamakki Dam Power House (LDPH),** (2x27.5MW) KPCL 1979-1980 T – Electrosilla, USSR G - Electrosilla, Energomach-USSR **R&M** **2022-23**	**-** 1.34 1.34	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.
15.	**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 equipment, R&M works of turbine and Generator will be taken up at later stage.

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
B - SCHEMES ONGOING - Under Implementation				
16.	**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** **2026-27**	**42 (LE)** 169.18 106	Model test, design engineering, manufacturing, supply of Turbine & its auxiliaries, Excitation system, Governing system, and dismantling, erection, testing & commissioning, improvements in water conducting system.	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 31.01.2019 and 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 approved. Material transport winch trolley handed over to M/s AHPL on 05.10.2024 and U-7 &9 handed over for erection and commissioning on 05.10.2024. U-7 synchronized on 02.07.2025. U-9 synchronized on 01.09.2025 & reliability test completed on 06.09.2025.U-2 & U-10 handed over for erection & commissioning work on 01.04.2025. Unit#2 synchronized & taken over by KPCL on 11.12.2025. Unit#10 synchronized & taken over by KPCL on 06.12.2025. 3rd stage of units of 3MW (5, 6&8) handed over for erection on 18.12.2025. 1) Cooling water and piping pre-fabrication work completed. 2) OPU, LOS positioning completed. 3)MIV Dismantling refurbishment and reinstallation is completed. 4)Varnish, re-assembly of stator and rotor and high voltage test completed.

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
				5) Turbine concrete demolition (foundation) of unit-5&6 completed. Completion Schedule: Unit 5: 18.05.2026 Unit 6: 18.05.2026 Unit 8: 18.05.2026 Unit:1,3&4 shall be handed over for erection on 19.05.2026 & expected completion date is 20.10.2026
17.	**Kadra Dam Power House,** (3x50MW) KPCL 1997-1999 T&G - BHEL **R&M** **2026-27**	- 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. KERC/Board approval is under progress. Tendering works to be taken up.
18.	**Kodasalli Dam Power House,** (3x40MW) KPCL 1998-1999 T&G - BHEL **R&M** **2026-27**	- 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. 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. Erection of switchyard equipment completed. KERC/Board approval is under progress. Tendering works to be taken up.
19.	**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,	1035 (LE) 196.56 8.33	**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.	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

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
	U:9&10- BHEL, **R&M &LE** **2026-27**		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).	Job order placed on M/s Voith Hydro Power Ltd., Noida at cost of Rs. 9, 99, 70,000 on dtd. 15.03.2024. Review and approval of drawing/ documents is completed. Supply of materials under process. Unit-3 handed over for erection works on 28.08.2025 & work completed on 18.12.2025. Unit-4 handing over for erection on 14/10/2025 & work completed and unit synchronized on 31.12.2025. Unit-6 handed over on 27/03/2026. Installation of HPU, LT panel & accumulator completed. Dismantling of old servomotors 7 installation of new servomotor completed. e-NIT floated on 03.07.2023 replacement of all 10 Units SEE. Tender recalled on 09.11.2023 with modified PQR and Techno-commercial conditions, at an estimated cost of Rs. 13.21 Cr. Work order placed on M/s Andritz Hydro at a cost of 8.93 Cr. on 05.08.2024. Inspection for LOT-1 supply is completed on 22.07.2025. All supplies are completed. Unit-6 handed over on 24/03/2026.
C - SCHEMES ONGOING - Under Tendering				
20.	**Supa Dam Power House,** (2x50MW) KPCL 1985 T&G - BHEL **R&M** **2026-27**	- 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. KERC/Board approval is under progress. Tendering works to be taken up.

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 Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES ONGOING - Under Implementation				
21.	**Kuttiyadi** 3x25 MW KSEB 1972 T&G-Fuji, Japan **RMU&LE** **2026-27**	**75 (LE)+ 7.5 (U)** 90.18 63.115	Each unit is proposed to be uprated from 25 MW to 27.5 MW. 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. <u>Scope of WO to BHEL</u> Replacement of MIV and complete turbine excluding embedded turbine header/manifold/distributor piping with new ones. The existing 25MW generators shall be replaced with new generators of 27.5MW with 10% continuous overloading capacity including excitation system, governor system. Other works: Are planned to be executed through different contractors.	• Proposal for new penstock is kept in abeyance. • Work order for new Electro-Mechanical work is awarded to BHEL. • Model Test of Turbine completed and payment issued. • Erection work of Stator & Rotor (Unit #3) is completed. • Arrangement of panels for Unit 3 such as PP Set MIV and Governor, UCB, HMC, Gauge panel, Temperature panel, Excitation panel, EHG panel, ET cubicle, UAT completed. • Trial run of unit 3 done on 21.02.2025 and at 253 RPM Rotor V-block failed. • Rectification work done and spun up to 405 RPM on 04.03.2025, but tripped due to UGB vibration. • Rotor balancing completed on 14.04.2025. Rotor spun up to 660 RPM (110% of rated speed) UGB and LGB bracket vibrations increased to around 8 mm/s. • All erection activities and rectification works for the first unit (Unit#3) under the project have been completed and machine synchronized to grid on 13.01.2026. • Loading has been carried out up to the rated load of 27.5 MW on Unit#3 and up to 110% load (30.25 MW). • Commercial operation of Unit #3 commenced on 10.03.2026. • Dismantling work of Unit # 2 has not yet started, as the permit is pending due to the summer power crisis in Kerala. However, possible preliminary works such as

				blue matching, stator frame stiffening work, etc. are being carried out in the service bay. • **Other Works:** • Replaced all four feeder PTs (Other RMU works). • Replaced all three old 28 MVA GTs with new 35 MVA GTs of TELK make. • Construction of new 11 kV control room is completed, trench work is in progress and 16 panels set of 11 kV is set to be received. • Cooling Water system- Replacement of the existing CW pumps, strainers and pipelines is necessary to ensure the required cooling water pressure. Started from 15.09.2025 onwards. • Completion Schedule: Unit#1 31.01.2027 Unit#2 31.05.2026

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 Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A - SCHEMES ONGOING –Under Implementation				
22.	**Balimela,** 6x60 MW OHPCL 1973-77 T-LMZ, USSR G-Electrosila, USSR **RM&LE** **2026-27**	**360(LE)** **382.91** 238.06	**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. xiii) Refurbishment of Intake gates, Draft Tube gates and civil works.	Contract Agreement signed with BHEL on 21.09.2016. BHEL took over the units on 18.12.2017. OHPC engaged 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. • Trial Mechanical Spinning of Unit 4 completed. • SCC test of Unit 4 completed. • Commercial operation of Unit-4 started from 06.02.2024. • For Unit-3, Test synchronization was done on 29.03.2024 and load off test was done on 30.03.2024. • Commercial operation of Unit-3 started from 10.04.2024. • **Unit 5&6** • Unit 5 is scheduled to be synchronized by 31.07.2026. • Unit 6 is scheduled to be synchronized by 31.07.2026. • Supply of Major items of Generator, turbine and control system has started. • Unit No. 5&6 were handed over to BHEL on 22.01.2025 for taking up the R&M Works.

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
				• Dismantling of TG Set and associated auxiliaries of Unit 5&6 completed on 29.04.2025. • Refurbishment of Penstocks, Spiral Casing of both Unit-5 & 6 have been completed. • Final Assembly of Guide Apparatus of Unit-5 completed. • The Stator & Rotor Assembly of Unit-5 have been completed including lowering of Unit-5 Rotor inside the Generator Barrel pit. • Refurbishment of Draft Tube Liner of Unit-6 has been completed. • Installation of Generator Air Coolers, fabrication of Governor Oil pipelines of Unit-5 are under progress. • Trial Assembly of Guide Apparatus of Unit-6 is going on at site. • Refurbishment of Draft Tube gate & Damper gate, installation of Cable Trays, laying of cables for various electrical panels viz. UAB, UCB, GRP, Firefighting system etc. are going on at site. • Stator and Rotor Assembly work of Unit-6 has started. • PRV, MIV HCP Oil Pipeline Work and Pipeline Works for Cooling Water System of both Unit 5 & 6 are also going on at site. Installation of Bus Duct (IPBD) and Generator Transformer of Unit-5 & 6 are in progress. • Completion Target: 31.07.2026

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				
23.	**Panchet U-1,** 2x40 MW DVC 1959 T - NOHAB, Sweden G - AEG, West Germany **RMU&LE** **2026-27**	**40 (LE)** **+6(U)** 121.85 99.47	• 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. • 98.66% detail engineering completed. • Generator shaft reached at Panchet. • Servomotor pocket cutting for fixation of wall mounted Servomotor completed. • Stator Assembly at erection bay is completed. • All guide vanes positioned in pivot ring. Outer top cover placed at position. Turbine runner with shaft and inner top cover lowered in turbine pit. Both Servo motors have been placed inside the turbine pit. Core cutting in the servo motor pockets are in progress. • Stator and bottom bracket placed at position. Rotor assembly completed. • Bearing assembly work completed. Coupling of the generator shaft and turbine shaft has been completed. Final tightening of turbine and generator shaft coupling bolt has been completed. Servomotor oil header welding and flushing work is in progress. Generator slip ring installation work is in Progress. • Completion Schedule: -30.07.2026

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 COMPLETED				
24.	**Kopili Power Station,** 4x50MW T&G- BHEL 1988 **RM&LE** **2024-25**	**200 (LE)** **1075.19** **1201.65**	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.	1. 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). 2. Financial aspects and levelized tariff finalized as follows:1st year = Rs 2.78/KWH Levelized tariff: - Rs 2.83/KWH 3. a) Commercial operation of Unit 4 started w.e.f. 20.08.2023 b) Commercial operation of Unit 3 started w.e.f. 03.09.2023. c) Commercial operation of Unit 2 started w.e.f. 12.11.2023. d) Commercial operation of Unit 1 started w.e.f. 03.06.2024.
25.	**Khandong Power Station,** 2x23 MW NEEPCO T&G- BHEL 1984-85 **RM&LE** **2025-26**	**46 (LE)** 277.74(Excluding IDC&FC) 441.33(Including IDC&FC)	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.	• 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. • 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.

			iv) Activities having direct impact on improvement of generator/turbine efficiency, machine availability etc. v) Restoration of components damaged by inundation	• 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. 89.32 Crores has been approved by the BoD, NEEPCO. • Detailed revised cost estimates for civil and HSM works amounting to Rs. 89.32 crore has been vetted by CEA on March' 2023. • Work for R&M of Khandong E/M Package has been awarded to M/s Voith Hydro Pvt. Ltd. • Civil package has been awarded to M/s Vijetha Engineers & Infrastructures Pvt. Ltd. • HM Package has been awarded to M/s Abir Infrastructure Pvt. Ltd. on 13.10.2023. works completed. • RM&LE works have been completed and both the units have been commissioned successfully. • COD of Unit-I is 13.07.2025 • COD of Unit-II is 30.08.2025

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				
26.	**Umiam Stage-III,** (Kyredemkulai) 2x30 MW MePGCL 1979 T&G - BHEL **RMU&LE** **2026-27**	**60(LE) +6(U)** 408 237.66	**Mech. Equipment's (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. Equipment (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.	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. Andritz Hydro Pvt. Ltd. (AHPL), the single bidder. **Electro & Mechanical Equipment (Package-1)** LOA was issued on 12th January 2023 to M/s. AHPL and the Contract Agreement was signed between MePGCL and M/s. AHPL on 1st March 2023.

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
			- Refurbishment of upper & lower bearing brackets, top cover, hood and air housing - 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	Reverse engineering of Unit-1 completed. Dismantling work started from 5th April 2025 and completed. Erection works started on 19.09.2025. Boxing up of Units is under Progress. Laying & Termination of Cables is in Progress. Testing of Control & Protection Panels is completed. Testing of UCB and Excitation System is in progress. Target Completion: July 2026 **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. Tender floated on 08.06.2024 and pre bid meeting held on 24.06.2024. LOA issued on 2nd January, 2025 and Signing of Contract was made on 27th January 2025. Repair of Link Tunnel, HRT, Tail Race Tunnel, Spillway etc. is under progress. Repair of PRV Gates is in progress. DT Gates and Trash Rack are under fabrication. Misc. Infrastructure works are under progress.

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-I** (Unit 1, 2 & 3) 3x115 MW NHPC Nov 1987 T&G – BHEL **RM&LE** **2027-32**	**345 (LE)** - -	Detailed scope of work will be arrived after finalization of R&M proposal.	As per the regulations, RMLE of stage-I is to be carried out by 2027 and that of stage-II by 2035. As on date all the generating units are running smoothly. Many of the systems are already renovated/ replaced from time to time resulting into smooth operation of the Power Station. RLA studies of the generating transformers of the Stage-I are also recently been carried out through M/s CPRI, Bangalore, where in there are no major issues in these GTs. It has been proposed to postpone the RM&LE of Stage-I as of now and RM&LE of the complete Power Station (690 MW, Stage-I&II) in one go is planned w.e.f 2028-29. This way, the uniformity in the make, model rating etc. of the associated equipment and systems can be maintained and requirement of complete shutdown of the Power Station repeatedly, can be avoided. **<u>Tentative timelines:</u>** DPR preparation & approval: Jan 2029 to June 2029. Tendering and award activity: November 2029 to April 2030. Start of supply: October 2031. Complete Shutdown: November 2031 to April 2032. Renovation works of Unit 1, 2, 3, 4, 5: From May 2032 to Jan 2035.
2.	**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 R&M proposal.	

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 Tendering				
3.	**Pong Power House, 6x66 MW BBMB 1977-83 T&G-BHEL** **RMU&LE** **2028-29**	396 (LE) + 54 (U) 402 1.15	Hiring the consultant for preparation of DPR, Tender Specification and to finalize 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 WAPCOS Ltd. Kick of meeting conducted on 23.08.2023. • DPR for RM&U of Pong HEP from 396MW to 450 MW has been examined by CEA and found to be generally in order. • Technical and commercial specification received from M/s WAPCOS on 17.03.2025 which are under the scrutiny. • Proposal for getting revised Administrative Approval is under process. • M/s WAPCOS has been again requested to review cost estimates and provide the corrected Tender Documents against the comments of Technical and Commercial Specifications submitted by BBMB. • Meeting held with various manufacturers at M/s WAPCOS office, New Delhi for Techno-commercial discussions dated 17.11.2025. Remarks from various manufacturers regarding rated output received. Presently, the adoption of the guidelines issued by Ministry of Power (MoP), Govt. of India dated Jan, 2023 and the practice in other organizations w.r.t cavitation clause (loss of weight over a fixed time frame) in hydro projects is under review. Revised technical documents are under scrutiny.
B - SCHEMES ONGOING – Under DPR Preparation				
4.	**Giri, 2x30 MW HPSEBL**	**60 (LE)** **440.12**	Brief description of work proposed to be undertaken are as given below: -	Revised scheme amounting to Rs.139.80 crore has been framed on the basis of negotiated rates offered by

	1978 **T&G** **BHEL** **RM&LE** **2028-29**		**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 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 & replacement of major parts of the 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, Replacement of Generators, Replacement of Stator, 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, Replacement of Generator-Transformer	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 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 of the petition as withdrawn with liberty to file a fresh petition. Fresh DPR under Preparation. Tentative schedule for completion of R&M works is follow as: Unit-1: 30.09.2027 Unit-2: 28.02.2029

C - SCHEMES ONGOING – Under RLA studies				
5.	**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. **<u>Tentative timelines:</u>** DPR preparation & approval: Oct 2030 to March 2031. Tendering and award activity: July 2031 to March 2032. Start of supply: October 2033. Renovation works of Unit 1, 2 & 3: May 2034 to July 2035.

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

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 Tendering				
6.	**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** **2027-32**	**91.35 (LE)** -	**Turbine and associated accessories**-Replacement of Runner assembly, Repair of stay vanes. New turbine, Guide vanes, Bushes with bush housing, Head cover & Bottom Ring needs to be replaced. Repair of Spiral casing and stay vanes, draft tube cone, installation of Online vibration monitoring system, Replacement of existing dial thermometer and thermostats, Replacement of brake and jack pad assembly. **Generator and Auxiliaries-** Replacement of stator, Rotor, Generator shaft, static excitation system, Generator Air cooling system, Jacking and braking system, Upper bracket, Lower Bracket. Installation of auto synchronizing equipment, Online Generator air gap measurement system, Auto sequence and logic controls-Unit automation panels (LCU/UCB) & supervisory control and data acquisition system (SCADA) for control and monitoring. **Balance of Plant (MECHANICAL)-** Replacement of the compressed air system, cooling water system, static dewatering drainage system, power house E.O.T Crane –I set and fire detection and alarm system. **Balance of (ELECTRICAL)-** Up-gradation/replacement of the DC system, UPS system, Station service supply system, Surveillance system , HVAC system, HT/LT power, control and Instrumentation cables, Illumination, Energy meter for electrical consumption on account of station auxiliaries, instrument transformers, CT,PT,CVT for generators, feeders & bus bar side, LA/ surge arrestors, Isolators.	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. 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 test for RLA study completed by the firm at site, the firm submitted the final DPR on 16/05/2025, As per decision of BoDs of PSPCL, DPR submitted by the firm has been approved on 23.09.2025. Draft Technical Specification are under preparation by the firms.

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW) / Estimated Cost/ Expenditure	Scope of work	Present Status
B - SCHEMES ONGOING – Under DPR Preparation				
7.	**Anandpur Sahib Hydel Project – I&II,** 4x33.5 MW (2x33.5 MW PH-l ,2x33.5 MW PH-II) PSPCL 1985-86 T&G – BHEL **RM&LE** **2027-32**	**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. Scope of work will be finalized after acceptance of the report, submitted by the consultant.	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. PO/WO no. 118 dt. 07.06.2024 amounting to Rs. 49.05 lacs has been placed on M/s Sharp Hydro Engineering Pvt. Ltd., Faridabad. Various tests carried out by the firm at site. The firm submitted final DPR which is under approval.
8.	**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** **2027-32**	**207 (LE)** -	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. Scope of work will be finalized after acceptance of the report, submitted by the consultant.	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. Testing completed by the firm on 15/05/2025 The firm submitted the draft DPR on 12.09.2025 and comments on which were given by the O/o Dy CE/O&M, Circle,

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW) / Estimated Cost/ Expenditure	Scope of work	Present Status
				Talwara on 23.10.2025. Now the firm has submitted the revised DPR on 17.03.2026, which is being reviewed by PSPCL.
B- SCHEMES ONGOING – Under RLA Studies				
9.	**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** **2027-32**	**110 (LE)**	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 completed: i) M/s WAPCOS Ltd., New Delhi ii) M/s MECON Limited, Ranchi WO no.129 dt. 30.10.2024 amounting to Rs. 4.65 Cr. has been placed on M/s MECON Limited, Ranchi. Various tests are being carried out by the firm at site. Draft RLA report has been submitted by M/S MECON Ltd. based upon NDTs. Some civil NDTs work at Barot valley on dam, gate, spillways, channel wall etc. are pending and inspection of head race tunnel is also pending. Further draft RLA report is under review and consideration of the O/o SE/ Shanan.

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 Implementation				
10.	**Chilla (PH-B),** 4x36 MW UJVNL 1980(U-1 to 3) 1981(U-4) T&G – BHEL **RMU&LE** **2028-29**	144 (LE) + 12 (U) 459.98 **138.46**	• Replacement of existing Kaplan turbine and their complete auxiliaries, replacement of existing generators. Complete replacement of switchyard equipment along with Power Transformer except 132 kV Circuit Breakers, 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 4x3 9 i.e. 156 MW.	• Capital Investment approval accorded by UERC on 29.01.2016. • Tender document has been uploaded vide Tender No. 01/DGM/M&U- GV/2018-19 on 09.01.2019. • 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. • Effective date of start of contract is 01.02.2020. • Turbine model testing has been completed in April, 2023. 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. • Design & Engineering work is completed. • Shutdown of Unit -I (M/c No -4) taken by M/s BHEL for RMU works on 07.11.2024. • Stator winding, rotor winding and installation of governing equipment like PP set, Nitrogen bottle bank, EHMC (Electro Hydro Mechanic Cabinet), GP (Gauge Panel), installation of static excitation system, Rotor pole mounting, Pole to pole connection of Rotor installation of Unit Control Board (UCB), Instrumentation Panel (IP) and Stringing of 132kV conductors in a bay 4 etc. has been completed. • New runner chamber received at site on 07.12.2025. • As per the directives of Principal Secretary in the meeting held on 30.01.2026 regarding progress of

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
				RMU Works of Chilla Powerhouse; RMU Works of 1 Machine (Unit No.4) are scheduled to be completed in May, 26. • Overall RMU activities are scheduled to be completed in May, 28. • Tentative schedule for completion of R&M works is follow as Unit#4- 07.11.2024 to 30.05.2026 Unit#1- 01.06.2026 to 31.01.2027 Unit#2- 01.02.2027 to 31.09.2027 Unit#3- 01.10.2027 to 31.05.2028 • Physical progress: 47.0% • Financial Progress: Rs. 138.46 Cr
B- SCHEMES ONGOING - Under DPR Preparation/Finalisation/Approval				
11.	**Ramganga,** 3x66 MW UJVNL 1976 T&G-BHEL **RM&LE** **2027-32**	**198 (LE)** - -	• 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. • Appeal has been disposed of by the Appellate Tribunal, New Delhi vide order dated 04.09.2024 with the direction to move petition, afresh, based on fresh DPR prepared on the basis of current requirements of R&M. • Preparation of fresh DPR is under progress.
12.	**Kulhal**, 3x10 MW UJVN LTD. 1975 T&G - BHEL **RM&LE** **2027-32**	**30(LE)** 120.89 NIL	• Replacement of Runner chambers, Guide vanes, runner assembly, distributor assembly, turbine shaft, turbine guide bearing etc. • Replacement of Governors, Stator core & winding, rotor pole assembly, Generator shaft etc.	• 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

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
			• Replacement of excitation system, Generator Transformers, TRCM, Drainage & Dewatering system, MV system SCADA system and control cables etc.	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. • Appeal has been disposed of by the Appellate Tribunal, New Delhi vide order dated 04.09.2024 with the direction to move petition, afresh, based on fresh DPR prepared on the basis of current requirements of RMU and submitted for approval. • New DPR of Rs.120.89 Cr. was approved in 123rd BOD. • Petition of investment approval for RMU Works has been filed on 30.12.2024 before Hon'ble UERC and is under scrutiny. • In compliance to Observation raised by Hon'ble UERC. Vide letter dated 28.10.2025, reply submitted on 21.11.2025. • Representatives of UERC and UJVNL performed a joint inspection of Kulhal Power House on 07 March, 2026.
C - SCHEMES ONGOING - Under RLA Studies				
13.	**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. DPR preparation & approval: Jan 2029 to June 2029. Tendering and award activity: Oct 2029 to March 2030. Start of supply: September 2031. Renovation works of Unit 1, 2 & 3: April 2032 to June 2033.
14.	**Chibro,** 4x60 MW UJVNL 1975 (Unit 1 to 3) 1976 (Unit 4) T&G-BHEL **RM&LE** **2027-32**	**240 (LE)** - -	Detailed scope of works will be arrived after finalization of specifications based on RLA study report.	Proposed to be taken up for RMU in next phase.

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
15.	**Khodri,** 4x30 MW UJVNL 1984 T&G-BHEL **RM&LE 2027-32**	**120 (LE)** - - 	Detailed scope of works will be arrived after finalization of specifications based on RLA study report.	Proposed to be taken up for RMU in next phase.

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

NORTHERN REGION

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

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A. Scheme Ongoing- Under Tendering				
16.	**Rana Pratap Sagar,** 4x43 MW RRVUNL 1970 T- Johnson & Co. G- General Electric, Canada **RMU&LE** **2027-32**	**172 (LE)** **+** **6 (U)** 264.52 57.52	Renovation, Modernization & Uprating (RM&U) with new Turbine and Generator Set of Rana Pratap Sagar Hydro Power Project (4 x 44.5 MW) at Rawatbhata, Rajasthan.	1. Detailed Project Report of RMU Work for Generators of RPSPS has submitted by M/s SHEPL-BHEC (Joint Venture), Faridabad. 2. Final DPR of RMU has been approved. Final tender document submitted by M/s Mecon Ltd. Ranchi is under Discussion. 3. Work of designing, manufacturing, supply, erection, testing and commissioning of complete generator, rotor and its associated accessories of Unit #2, RPS has been completed. Overhauling work of turbine and replacement of existing governing system & auxiliaries of Unit#2 of RPS PS, Rawatbhata has been completed. 4. Unit #2 of RPS has been uprated to 44.5 MW with new generator and its auxiliaries, new digital governor and SCADA system on 19.02.2025 5. Present Status of remaining units are as follows: Unit#1 Proposal under approval. Unit#4 Proposal under Process. Unit#3Proposal yet to be processed 8. Completion Schedule: Unit#1- Dec-2027 Unit#3- Dec-2028 Unit#4- Dec-2029

B - SCHEMES ONGOING - Under RLA Studies				
17.	**Jawahar Sagar Power Station** (3x33 MW**)** **RRVUNL** 1972-73 T- Canadian Alis Chalmers, Canada G- General Electric, Canada **RM&LE** **2027-32**	**99 (LE)** - -	Conducting Residual Life Assessment study and Uprating study on Turbines, Generators and Power House Auxiliaries including civil structures of one unit of JSHPS to examine the feasibility to go for Renovation and Modernization or Renovation, Modernization and uprating of all machines at JSHPS, Jawahar Sagar (3 x 33MW). Also DPR Preparation along with preparation of tender documents and bid evaluation.	• Tender for hiring of consultancy services for one Unit (1x33MW) of JSHPS, which include RLA studies including complete civil structure of JSHPS, DPR preparation with RMU recommendation of all three units, has been prepared and floated. • Technical and price BID opened and Letter of Intent(LOI) of Rs 1,18,84,069.00 including GST has been awarded to M/s Rotodyne Engineering Service Pvt. Ltd. on 19.09.2025. • Work Order Dtd. 08/10/2025 issued to M/s Rotodyne Engineering services Pvt. Ltd., Hyderabad for the work of consultancy services for conducting RLA study at JSPS, Jawahar Sagar. • Preliminary visit of firm's Engineers/Representative was conducted on 18th and 19th March 2026, pursuance is being made for early mobilization of Rotodyne team.

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 Implementation				
18.	**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)** **+** **10.82 (U)** 464.55	• Replacement of Generators, Turbine runner, Guide Vanes and associated auxiliaries	• 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 WAPCOS. As units have already served their useful life, hence it is decided to go for comprehensive R&M of the units. Services of WAPCOS have been availed as consultant. • 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. 464.55 has been approved. • Tender for comprehensive R&M of Gandhi Sagar HPS has been opened on 31st July 2024. Only Single firm i.e. M/s flovel energy Pvt. Ltd. has submitted the bid. • LoA has been issued to M/s Flovel Energy Pvt. Ltd. Faridabad on 28.07.2025. • Reverse engineering activities for Unit#3 are in progress. • Dismantling activities for Unit#2 is under progress.
B. SCHEMES ONGOING -Under Tendering				
19.	**Bargi,** 2x45 MW MPPGCL 1988 T&G – BHEL **RMU&LE** **2029-30**	**90 (LE)** +4 (U) 249.81 -	Replacement of Generators, Turbine runner, Guide Vanes and associated auxiliaries.	1. RLA study has been completed by MECON Ltd., Ranchi. 2. DPR amounting to RS. 249.81 Cr has been approved by BoD of MPPGCL. 3. Consent on DPR from MPPMCL (the beneficiary of project) is received.

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
				4. Tender for R&M has been issued on 22.12.2025 5. Pre-bid meeting convened in Jan-2026. 6. Pre-bid query resolutions uploaded on 28.02.2026.
C - SCHEMES ONGOING - Under DPR Preparation/ Finalisation/Approval				
20.	**Pench** 2x80 MW MPPGCL 1986-87 T&G – BHEL **RMU&LE** **2029-30**	**160 (LE)** + 2.5 (U) 556.52 -	Replacement of Generators, Turbine runner, Guide Vanes and associated auxiliaries	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 to M/s WAPCOS on 10 August' 2023. 3. DPR amounting to Rs. 556.52 Cr has been approved by BoD of MPPGCL. 4. Consent on DPR has been received from MPPMCL (the beneficiary of project) on 10.06.2025. **5.** DPR has been shared with WRD, Maharashtra. Consent on DPR from Govt. of Maharashtra (being 1/3rd partner of the project) is awaited.
D - SCHEMES ONGOING - Under RLA Study				
21.	**Bansagar Tons-I,** 3x105 MW MPPGCL 1991-92 T&G – BHEL **RM&LE** **2027-32**	**315 (LE)** - -	RLA study of Unit No. 2	• Draft RLA study report received from M/s Mecon.

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

WESTERN REGION

GUJARAT **(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				
22.	**Kadana PSS,** 4x60 MW GSECL Units 1&2 1989-90 T&G-Skoda Units 3&4 1998-99 T&G-BHEL **RMU&LE** **2027-32**	**240 (LE) +20 (U)** **89.82** **35.61**	Plant Design, Engineering, Manufacture, Shop testing, Supply, Transportation, Storage, Erection, Testing, Commissioning and PG Test for Renovation, Modernization & Uprating of 4x60 MW i) Upgradation of existing governing system with new digital governing system for unit 3 & 4. ii) RLA of Civil super Structure of Power House above ground of all units. iii) R&M of Kadana unit to run in pumping mode.	• 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. • Microprocessor panels' inspection/ FAT done at Bangalore. • All supply received in Jan' 2024 • Installation in unit # 3 completed. • Installation in unit 4 will be scheduled w.e.f. 06.04.2026. • Work Completed. • GSECL floated a tender on 12.06.2023 for appointment of PMC for preparation of R&M Feasibility Study & DPR, EPC tendering, evaluation, finalization, and design, engineering, erection & commissioning (E&C) supervision for uprating of 4×60 MW Kadana PSP. Pre-bid meeting was held on 27.06.2023; Technical Bid opened on 17.08.2023 and approved after scrutiny; Price Bid opened on 17.11.2023. • A high-level meeting between GSECL (MD & ED) and OEM (BHEL) was held to operationalize Kadana HEP in pump mode, wherein it was decided to execute the works through BHEL. • BHEL engineers visited Kadana HEP and GSECL Corporate Office and submitted their report on 22.05.2024. The scope of work was confirmed by GSECL on 01.06.2024.

S. No.	Scheme/ Category/ Completion Target	Expected Benefit (MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
				• After due correspondence, BHEL submitted the final offer on 04.01.2025 for revival of pumped-mode operation for one unit, including replacement of DCS and installation of SFC for all four units of Kadana HEP. • Based on the offer, LOA was issued on 13.02.2025. Subsequently, the Letter of Award for R&M of one unit of Kadana PSP for pump-mode operation was issued to M/s BHEL on 13.03.2025. BHEL has started the supply of material. Partial material received. • The machine (Unit-1) is under R&M activity since 27.11.2025. • Dismantling work was completed on 29.01.2026. • Additional scope has been identified, an offer request has been submitted to M/s BHEL and the offer is awaited. • The runner is to be serviced at BHEL Bhopal and M/s BHEL will arrange transportation by the first week of April 2026. • Out of 50 engineering drawings, 18 have been approved, while the others are either in progress or have not yet been submitted. • Refurbishment work shall be carried out by M/s BHEL from mid-April 2026.

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

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				
23.	**Vaitarna,** (1x60) MSPGCL, 1976 **RM&LE** **2027-32**	**60 (LE)** - -	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	Budgetary offers for carrying out RLA study has been sought by MSPGCL. However, offers are still awaited. After receipt of budgetary offers, RLA study will be carries out & based on RLA study recommendations, Renovation & Modernization will be carries out.
24.	**Koyna Dam foot (Right Bank),** (2x20) MSPGCL, 1980-81 **RM&LE** **2027-32**	**40 (LE)** - -	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	
25.	**Koyna St-3,** (4x80) MSPGCL, 1975-78 **RM&LE** **2027-32**	**320 (LE)** - -	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	
26.	**Tillari** (1x60 MW) MSPGCL 1986 **RM&LE** **2027-32**	**60 (LE)**	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	
27.	**Bhira Tail race (2 x 40), MSPGCL 1987-88** **RM&LE** **2027-32**	**80 (LE)**	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	

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

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				
28.	**Upper Sileru Power House,** 4x60 MW APGENCO 1967-1968 (St.-I) & 1994-1995 (St.-II) St.-I: T- M/s Excherwyss, Charmilies Switzerland G – M/s Oerlikon, Switzerland St.-II: T - BHEL G – BHEL **R&M** **2027-28**	**240 (LE)** 22.39 0.642	**<u>Completed</u>** a) Supply, Erection, Testing & Commissioning of Micro Processor based Dual Channel Static Excitation System (Digital AVR's). & Governor **<u>Under Progress E&M Works</u>** a) Replacement of existing 250 KVA DG set with 600 KVA DG set at Power House. b) Replacement of Battery Banks I& II, along with charger I & associated equipment. c) Replacement of 1 No. Circuit breaker of transfer bus sectionalizer. d) Partial Renovation of Brake-Jack System for all units. e) Partial Renovation of 2 Nos. EOT cranes and 45 ton gantry crane at Intake dam. f) Refurbishment of Butterfly Valves including control system. g) Providing of Fire Detecting System. h) Partial Renovation of 07 ton Goliath crane at Upper Sileru Power House. i) Refurbishment of the cooling water system for Generators. j) Modification of switch yard of USPH for	• Purchase order was placed on M/s. Andritz Hydro Pvt. Ltd. and work completed in 2022. • Old Governors were replaced with the New Microprocessor based RGMO Governor during the year 2018, 2019, 2021 & 2020 respectively. (Expenditure: 228.25 Lakhs excl. taxes) • Under Tendering. • Under Tendering. • Under Tendering. • Under Tendering. • Under Tendering. • Under Tendering. • Under Tendering. • Under Tendering. • Under Tendering.

S. No.	Scheme/ Category/ Completion Target	Expected Benefit (MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
			transfer of all units from main bus to other bus and vice versa. k) SCADA System for four units and relay protection system for unit-1 l) Replacement of RTU panel. m) Replacement of existing Dewatering System with energy efficient Dewatering pumps along with motors. n) Refurbishment of Runner & dynamic balancing, for Stage-I units including Replacement of moving labyrinth ring along with refurbishment /renovation of DT gates & Intake Gates. o) Replacement of Thrust Bearing coolers (06 nos.) for Stage-2 units. p) Replacement of synchronizing panel for four units. <u>Civil works</u> a) Refurbishment of Guntawada Head regulator and exit channel lining. b) Refurbishment of Crest gates of Guntawada Dam Upstream side & replacement of Instrumentation.	• Under Tendering. • Under Tendering. • Under Tendering. • Under Tendering. • Under Tendering. • Under Tendering. • Under Tendering. • Under Tendering. • Under Tendering.
29.	**Nagarjuna Sagar Right Canal Power House,** 3x30.6 MW APGENCO 1983 (Unit – 1 & 2) 1990 (Unit – 3) T- M/s. BOVING, U.K	**-** **26.77** **1.68**	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	• 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 as the rates quoted are exorbitantly high Retendering is to be carried out with fresh estimates.

S. No.	Scheme/ Category/ Completion Target	Expected Benefit (MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
	G-M/s. GEC Large Machines Ltd., U.K **R&M** **2027-28**		with GPS for all the 3 units and Power House.	• Under Tendering.
			c) Replacement of Governors for 3 units.	• Under Tendering.
			d) Modification of Thrust bearing coolers to Units-1, 2 & 3.	• Under Tendering.
			e) Providing 132/11KV Network at NSRCPH.	• Under Tendering.
			f) Replacement of Protection relay systems for all the 3 units & Feeders.	• Under Tendering.
			g) Renovation of Penstock gate, Hydraulic cylinder & Hydraulic power pack of PIG system for Unit – III.	• Under Tendering.
			h) Replacement of 132KV Current Transformers (11 Nos.) with latest CTs.	• Under Tendering.
			i) Renovation of 132KV Current Transformers (10 Nos.) & 132 KV PTs (2 Nos.).	• Under Tendering.
			j) Renovation of HV Bushings and LV bushings of 3 Nos. Generator Transformers (Total 6 Nos.).	• Under Tendering.
			k) 10. Renovation of Lightening Arrestors (09 Nos.).	• Under Tendering.
			l) Replacement of 3 Nos. Ingersoll-Rand make air Compressor with new air compressors.	• Under Tendering.
			m) Providing of Passengers Lift for (6 persons) at NSRCPH.	• Under Tendering.

S. No.	Scheme/ Category/ Completion Target	Expected Benefit (MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
			n) Laying of new pipe line for Unit-3 penstock bypass line connecting to unit-1&2 penstock bypass line (including material) at Nagarjuna Sagar Right Canal Power House. o) Establishment of new Brake/Jack system for all the three Units. <u>Civil works</u> a) Replacement of damaged penstock service gate with new fixed wheel type vertical lift penstock service gate including refurbishment of grooves and embedded parts of units no. III.	• Under Tendering. • Under Tendering.
30.	**Srisailam Right Bank Power House,** **(7** x 110) **APGENCO** St-1 (Unit- 1 to 4): 1982-84 St-2 (Unit- 5 to 7): 1986-87 <u>T&G-</u> BHEL **R&M** **2027-28**	- 24.67 17.974	<u>E&M works</u> a) Replacement of existing governor system with new servo valve based new HMC electronic based governors. b) Refurbishment of Rotor and reconditioning of Top & Bottom covers of Turbine & generator/ Unit#1. c) Upgradation and Replacement of Generator & Generator Transformer Protection Relays. d) Upgradation of Software and replacement of some of the equipment of SCADA System. e) Replacement of (5 nos.) 245 KV SF6 Gas Filled Circuit Breakers. f) Replacement of Isolator Mechanism Boxes for 220 KV, 132KV feeders. g) Replacement of 3 Nos. of 11KV feeder Control & Protection panels with	• Under Tendering. • Under Tendering. • Under Tendering. • Under Tendering. • Under Tendering. • Under Tendering. • Under Tendering.

S. No.	Scheme/ Category/ Completion Target	Expected Benefit (MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
			the latest numerical relays. h) Replacement of 7 No 220 KV Generating units control panels. i) Replacement of Marshaling Boxes for all 220KV/ 132KV/ 11KV feeders and Generating Units with latest marshaling boxes. j) Reconditioning of Runner removed from Unit#7.	• Under Tendering. • Under Tendering. • Under Tendering.
31.	**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 **R&M** **2027-32**	- 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 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. The proposed R&M works are contemplated to carry out with O&M budget of Rs. 4-5 Crores per year in a phased manner. • Necessary renovation works will be taken up on the units/ MIVs of Hampi Power House based on the need basis in a phased manner.
32.	**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 **R&M** **2027-32**	- - -	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.	After completion of partial renovation works on the units of TB Dam Power House, necessary renovation works will be taken up on the units/ MIVs of Hampi Power House based on the need basis in a phased manner.

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				
33.	**Lower Sileru,** (4x115 MW**)** APGENCO Unit-1 to 4: 1976-78 T&G- BHEL **RM&LE** **2029-30**	**460 (LE)** 699.65 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. • 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. Additional two units' i.e 5 & 6 will be completed tentatively by 31st October 2026.
34.	**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** **2027-32**	**120 (LE)+ 9 (St.-I) (U)** 1.98 Crs./Nil (RLA studies) Cost of R&M – not yet finalised 0.99 crores for RLA Studies	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. • Work awarded to M/s Tata Consulting Engineers (TCE), Bangalore for carrying out RLA Study on 11.11.2021. • PAC comprising of members from both the Governments of AP & Odisha was constituted in new agreement for taking decisions on all administrative and technical issues. • RLA studies on all units are completed. DPR and Technical Specification for R M & U submitted. • The time schedule for implementation and other modalities will be discussed with OHPC in the ensuring Project administration committee (PAC). After finalization of issues in PAC meeting, the actual

S. No.	Scheme/ Category/ Completion Target	Expected Benefit (MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
				schedule of R&M works will be communicated.

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 DPR Preparation/ Finalisation/ Approval				
35.	**Kodayar PH-II,** 1x40 MW TNPGCL 1971 T-Yugoslavia G-Yugoslavia. **RMU&LE** **2027-32**	**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 fresh RLA study and 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. Note: Replacement of stator core and complete rewinding of stator with new class F insulation completed during 2024 and is under guarantee period l 02.07.2029. Hence, the need for immediate RMU works at kodayar PH-II does not arises at present as the plant is being capable of sustaining power generation in future as well.
B - SCHEMES ONGOING - Under RLA Studies				
36.	**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.	TNGECL vide letter dated 24.04.2026 intimated that plants served more than 30 years are working effectively without any major problems so far and due to stringent financial status of TNGECL, RLA/RMU works will be taken later in a phased manner.
37.	**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.	
38.	**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.	

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
39.	**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.	
40.	**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.	
41.	**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.	
42.	**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.	
43.	**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.	
44.	**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.	

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
45.	**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.	
46.	**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.	
47.	**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.	
48.	**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.	
49.	**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.	

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
50.	**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.	

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

SOUTHERN REGION

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

S. No.	Scheme/ Category/ Completion Target	Expected Benefit(MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
A. SCHEME ONGOING - Under Implementation				
51.	**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** **2028-29**	450 (LE) 266 142.16	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. Implementation of New split shaft design generator rotor and associated equipment.	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. Revised DPR with additional scope, submitted to KERC for approval. Additional order dated 14.12.2022 for implementation of split shaft design Generator rotor placed with BHEL. Contract agreement executed on 29.12.2022. Design and approval of drawing of major components completed. Supply of items is almost completed. Unit#2 handed over for R&M works from 15.06.2024 and work are under progress. Status of works for Unit 2 is follows as: Rotor leveling and LEB Runout checks carried out. Combined Turbine and Generator alignment works under progress. Completion Schedule: Unit 2: April 2026 Unit 3: May 2027 Unit 1: June 2028
			Replacement of 6 nos. of Unit Auxiliary Panels (UAPs) and retrofitting of 4 nos. breakers, replacement of electro-mechanical relays by numerical relays in 5 incomers, bus coupler & 4 nos. outgoing feeders in common auxiliary panel.	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/-. Erection and commissioning works of UAPs for all Units completed.
			SCADA System which includes erection & commissioning of Auto sequencer, installation of	DPR to be submitted with revised estimate to KERC for approval.

			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.	
B - SCHEMES ONGOING - Under RLA Studies				
52.	**Varahi Underground Power House** (4x 115MW) KPCL Unit 1&2: 1989-90 Unit 3&4: 2009 T&G Unit 1&2: BHEL Unit 3&4: Andritz Hydro **2027-32**	230 (LE) (U 1&2)	RLA Studies of Generators Unit1&2.	Job order placed on M/s Diagnostic technologies (I) Pvt .Ltd., Mumbai at a total cost of Rs 9, 67,600/- incl. of taxes & duties, on 05.03.2024. **RLA studies completed.**
53.	**Linganamakki Dam Power House (**2x27.5MW**)** **KPCL** **2027-32**	55(LE) 15.04 -	RLA study of unit 1 &2 is to be taken up. Design, Engineering, Manufacturing, Supply, erection, Testing& Commissioning of one no. of Kaplan Turbine Runner and other Turbine & generator related works of 27.5MW capacity Generating unit at Linganamakki Dam Power House, Jog falls . Replacement of static excitation system (SEE) With Digital Automation voltage regulator & associated equipment's complete for all Generating units.	 Tender for the subject work was recalled on 06.01.2026 for obtaining competitive bidders & Cover-I opening is on 09.03.2026. Job order placed on M/s ABB(I) Ltd., Bengaluru at a total cost of Rs 1,33,60,747/- incl. of taxes & duties, on 25.09.2024. Contract agreement is executed on 21.11.2024 & manufacturing of panels is in progress. EOT is issued on 14.08.2025 for Delivery period extension up to 30.11.2025. Inspection completed on 19/02/2026 and dispatch instruction is issued. 1). Excitation panels along with spares was delivered at site on 11/03/2026. 2). Joint Inspection was completed on 27/03/2026.

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

SOUTHERN REGION

KERALA **(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 DPR Preparation/ Finalization/Approval				
54.	**Idukki 1st stage and 2nd Stage,** 6x130 MW KSEB **RM&LE** **2027-32**	**780 (LE)**	RLA of Stage I and II machines incl. up rating studies of Stage II machines and preparation of DPR for the RMU of II stage units of Idukki underground power station at Moolamattom.	Work order for RLA study including uprating study and preparation of DPR for RMU issued to M/s. MECON Limited, Ranchi on 01.09.2022. RLA study started from 03.12.2022 and completed on 12.10.2023 for all units. RLA study report and Draft DPR submitted. Finalization of DPR in progress.
55.	**Idamalayar,** 2x37.5 MW KSEB 1987 **RM&LE** **2027-32**	**75 (LE)** 98.00 0.839	RMU & LE of Idamalayar HEP (Replacement of runner, runner cone, Stator and rotor winding, Guide Vane Assembly, C&R panels, Governor, Excitation system and implementation of SCADA system)	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. DPR based on RLA study report submitted by M/s MECON on 10.06.2024. DPR amounting to 77 crore was submitted on 14.11.2025. Revised DPR for Rs.98 Crores submitted to the Board for sanction by CE (Generation) on 03.03.2026. Target Completion: 30.06.2030
B - SCHEMES ONGOING - Under RLA Studies				
56.	**Sabarigiri, (U1,2,3, 5 & 6)** 4x55 + 1x 60 MW KSEB 1966 **RMU&LE**	**220 (LE) + 20(U)** - -	Unit 1,2,3 & 5 is proposed to be uprated from 55 MW to 60 MW. Detailed scope of work will be arrived after finalization of specification based on RLA study report.	Scope of RLA study finalized as per the technical audit conducted by CBIP, New Delhi. Detailed RLA to be conducted for deciding the RMU works. Offers requested from various firms, but not yet finalized.

	2027-32		Replacement of Generator and Turbine Shaft of U#2.	Due to deteriorated condition of winding, rewinding work is to be taken up before RLA study to avoid outage. The work of Design, Manufacturing Supply, Erection, Supervision of erection, Testing and commissioning of new VPI insulated stator winding and Dismantling, Re-varnishing and Restacking of the existing Stator core of 55MW Unit-2, Lap wound generator was awarded to M/s. Coral Rewinding India Pvt. Ltd. on 14.07.2025. The Stator coil rewinding by M/s. Coral Rewinding India Pvt. Ltd. was completed on 05/04/2026, and the machine has been handed over to KSEBL. The shaft replacement work of Unit-2 was awarded to M/s Voith Hydro India Pvt. Ltd. The work has been started by M/s. Voith Hydro Pvt. Ltd. and is expected to be completed by May 2026.
			Refurbishment of Stator core of Unit#6.	Work completed and unit commissioned on 11.02.2023. Replacement of turbine shaft of Unit-6 is under planning stage.

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

EASTERN REGION

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

S. No.	Scheme/ Category/ Completion Target	Expected Benefit (MW)/ Estimated Cost/ Expenditure	Scope of work	Present Status
B- SCHEMES ONGOING - Under RLA Studies				
57.	**Subernrekha,** 2x65 MW JUUNL 1977-80 **RM&LE** **2029-30**	**130(LE)** **262.9** **-**	• RLA of generating unit of SRHP. • DPR preparation as per CEA guidelines for Renovation & Modernization. • Detailed scope of work of RMU&LE will be arrived after finalization of specification based on RLA studies.	RLA studies is proposed. Board of Director of JUUNL approved the agenda to appoint consultant for RLA study for RMU& LE of both units on 19.02.2025. Tendering process for RLA studies is under progress. • Preparation of DPR: 28.02.2027 • Approval of DPR: 31.07.2027 • Appointment of executive agency for R&M works: 31.01.2028. Completion of R&M works and commissioning:31.08.2030

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

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				
58.	**Maithon U-1&3,** 2x20 MW + 1x23.2 MW DVC 1957-58 T - Neyrpic, France G - Siemens, W.Germany **RM&LE** **2028-29**	**40 (LE)** 136.40 -	• 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 and approved by CEA on 13.09.2022. • 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. Tender opened on 15.03.2024.Price Bid opened on 09.08.2024. Price negotiation meeting held on 06.09.2024. Negotiated price is 32.5% higher than updated DE. • Tender cancelled on 09-12-24. • Specification & estimate preparation for two Packages a) Electro-mechanical & b) Civil with Hydro-mechanical) • NIT for Electro-mechanical package issued on 13.05.2025. • Techno commercial bid opened on 19.09.2025. Price Bid opened on 13.11.2025. LOA will be awarded after Board approval.

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

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 RLA Studies				
59.	**Umiam - Umtru Stage-IV** 2 x 30 MW MePGCL 1992 T&G- BHEL **R&M** **2027-32**	**-**	Detailed scope of work will be arrived after finalization of specification based on RLA study report.	Presently Meghalaya has hit the EAP (Externally Aided Project) limit. Therefore, the feasibility and possibility for "Renovation Modernization and Up-gradation of the Umiam-Umtru Stage IV Power station (2 x 30 MW), Nongkhyllem" will be initiated from 2027 onwards. As such, MePGCL will be carrying out Residual Life Assessment (RLA) study and DPR study of the above Project tentatively in 2026.

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

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				
60.	**Loktak,** 3x35 MW NHPC USSR 1983 LMZ T-LMZ G-Leningrade, (U-1) T&G – BHEL(U-2&3) **RM&LE** **2027-28**	105 (LE) 273.59 175.87	i) Activities covering main equipment i.e. turbine, generator, generator transformers, other plant equipment 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.	• CEA approved post R&M revised Design Energy of 562.73 MU in place of existing 448 MU. • CERC approved R&M proposal on 24.07.2019 at FI of Rs. 236.07 Cr and IDC & FC of Rs. 37.52 Cr i.e. Total Rs. 273.59 Cr. a) E&M: All four E&M package i.e. EM-1(Main) package, EM-2 (Bus Duct), EM-3 (EOT Crane) & EM-4 (DG Set) are awarded. b) .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. • EM-1(ii)(GSU Transformer & Auxiliary Transformer). • EM-1(iii)(Outdoor Switchyard System). • EM-1(iv) (MV & LV Switchgear). • EM-1(v) (DC system). • EM-1(vi) (Illumination system). • EM-1(vii) (HVAC System). • EM-1 (viii) (Firefighting system) • EM-1(xii) (Oil handling system) • EM-1(xiii)(Mechanical workshop) The remaining 03 nos. subpackages for ancillary works i.e. EM-1(ix) (PLCC System), EM-1(x)(Communication System), EM-1(xi)(Electrical Workshop) are under pre-tendering stage. The works under package EM-3 (EOT Crane) , EM-1(xii)-(Oil Handling System),EM-4(DG Set) and EM-1(xiii)(Mechanical Workshop) has been completed. Supply under package EM-1(v) DC system has been completed and installation is under progress and supply against EM-2(Bus Duct) has been completed. Supply under packages EM-1 (i) main package Turbine and Generator,EM-1(ii)GSU & Auxiliary Transformers, EM-1 (iii) Outdoor switchyard equipment),EM-1 (iv) MV &LV Switchgear system, EM-1 (viii)(Fire Fighting) are under progress. c) Civil: 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), Civil works of power house complex including valve house, surge shaft and tail pool (C3), Civil works of Ithai barrage and power channel (C4) & Under water concrete repair and restoration at barrage, intake structures, emergency gate (C5) have been awarded. The work under package C1, C2, C4 & C5 have been completed and The works under package C3 is in progress. d) 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. Various estimates for infrastructure works are under tendering process. • MoEF&CC, GoI directed to obtain prior Environmental Clearance for RM&LE. Accordingly, NHPC is taking needful action. • Due to very disturbed law and order situation in Manipur w.e.f. 03.05.2023, progress of works is seriously hampered. • Considering the improving situation shutdown was planned from 03.02.2026, Further, in 236th OCC meeting the forum opinion is shutdown of Loktak HEP for R&M should be deferred to maintain maximum availability of generation during the coming period. Hence NHPC (Loktak) was advised to reschedule the said shutdown tentatively during October/November. Accordingly, shutdown is planned in month of November 2026(during lean period).

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 (Rs. in Crs.)	Actual Exp. (Rs. in Crs.)	Benefits (MW)	Category	Year of Completion
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+4x80+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

Annex- IV
(Sheets 1 of 2)

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	Actual Exp	Benefits (MW)	Category	Year of Completion
				(Rs . in crs)				
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
Punjab									
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
Himachal Pradesh									
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 (LE) + 90 (U)	630	RMU&LE	Completed in 2023-24
Uttarakhand									
3	Tiloth (Maneri Bhali - I), UJVNL (3x30)	SS	3x30	384.66	206.17	90 (LE)	90	RM&LE	Completed in 2022-23
4	Dhalipur, UJVNL (3x17)	SS	3x17	152.65	137.45	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
6	Obra, UPJVNL (3x33)	SS	3x33	58.80	49.85	99 (LE)	99	RM&LE	Completed in 2025-26
Telangana									
7	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
8	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									
9	Munirabad Dam Power House, KPCL (2x9 + 1x10)	SS	2x9 + 1x10	4.60	2.20	-	28	R&M	Completed in 2022-23
10	Linganamakki Dam Power House, KPCL (2x27.5)	SS	2x27.5	1.34	1.34	-	55	R&M	Completed in 2022-23
11	Gerusoppa Dam Power House (Sharavathy Tail Race), KPCL (4x60)	SS	4x60	59.66	2.026	-	240	R&M	Completed in 2023-24
Assam									
12	Kopili Power Station, NEEPCO (4x50)	CS	4x50	1075.19	1201.65	200 (LE)	200	RM&LE	Completed in 2024-25
13	Khandong Power Station, NEEPCO (2x23)	CS	2x23	277.74	441.33	46(LE)	46	RM&LE	Completed in 2025-26
Sub Total(A)			**2645.80**	**2779.41**	**2814.40**	**1536 [1446(LE)+ 90(U)]**	**2735.80**		
B. Ongoing Schemes – UNDER IMPLEMENTATION									
Uttarakhand									
14	Dhakrani, UJVNL (3x11.25)	SS	3x11.25	137.31	117.63	33.75 (LE)	33.75	RM&LE	2026-27
Telangana									
15	Pochampad HPS Stage -1, TSGENCO (3x9)	SS	3x9	10.691	1.291	-	27	R&M	2026-27
Tamil Nadu									
16	Moyar PH, TNPGCL (3x12)	SS	3x12	121.127	100.15	36 (LE) + 6 (U)	42	RMU&LE	2026-27
17	Kodayar PH-I, TNPGCL (1x60)	SS	1x60	80.96	35	60 (LE) + 10 (U)	70	RMU&LE	2026-27
Karnataka									
18	Shivasamudram, KPCL (6x3+4x6)	SS	6x3+4x6	169.18	106	42 (LE)	42	RM&LE	2026-27
19	Kadra Dam Power House,	SS	3x50	44.47	2.627	-	150	R&M	2026-27
20	Kodasalli Dam Power House,	SS	3x40	50.60	2.654	-	120	R&M	2026-27
21	Sharavathy Generating Station, KPCL (10x103.5)	SS	10x103.5	196.56	8.33	1035 (LE)	1035	RM&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
Kerala									
22	Kuttiyadi, KSEB (3x25)	SS	3x25	90.18	63.11	75 (LE) + 7.5 (U)	82.5	RMU&LE	2026-27
Odisha									
23	Balimela, OHPCL (6x60)	SS	6x60	382.91	238.06	360 (LE)	360	RM&LE	2026-27
Jharkhand									
24	Panchet U-1, DVC (2x40)	CS	1x40 (U-1)	121.85	99.47	40 (LE) + 6 (U)	46	RMU&LE	2026-27
Meghalaya									
25	Umiam St.III, (Kyrdemkulai) MePGCL (2x30)	SS	2x30	408.00	237.66	60 (LE) + 6 (U)	66	RMU&LE	2026-27
Sub Total (B)			**2038.75**	**1813.84**	**1011.98**	**1777.25 [1741.75(LE)+ 35.50(U)]**	**2074.25**		
C. Ongoing Schemes – UNDER TENDERING									
Karnataka									
26	Supa Dam Power House, KPCL (2x50)	SS	2x50	47.91	-	-	100	R&M	2026-27
Sub Total (C)			**100**	**47.91**	**0.00**	**0 [0(LE)+0(U)]**	**100.00**		
Total (A+B+C)			**4784.55**	**4641.16**	**3826.38**	**3313.25 [3187.75(LE)+ 125.50(U)]**	**4910.05**		

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 IMPLEMENTATION									
Uttarakhand									
1	Chilla (Ph B), UJVNL (4x36)	SS	4x36	459.98	138.46	144 (LE) + 12 (U)	156	RMU&LE	2027-28
Madhya Pradesh									
2	Gandhi Sagar, MPPGCL	SS	5x23	464.55	-	115 (LE) + 10.83 (U)	125.83	RMU&LE	2029-30
Gujrat									
3	Kadana PSS, GSECL (4X60)	SS	4x60	89.82	35.61	240(LE)+20(U)	260	RMU&LE	2027-32
Andhra Pradesh									
4	Upper Sileru Power House, APGENCO (4x60)	SS	4x60	22.39	0.642	-	240	R&M	2027-28
5	Nagarjunasagar Right Canal Power House, APGENCO (3x30.6)	SS	3x30.6	26.77	1.68	-	91.8	R&M	2027-28
6	Srisailam Right Bank Power House, APGENCO (7x110)	SS	7x110	24.67	17.974	-	770	R&M	2027-28
7	Tungabhadra Dam, APGENCO (4x9)	SS	4x9	6.65	2.517	-	36	R&M	2027-32
8	Hampi Canal PH, APGENCO (4x9)	SS	4x9	-	-	-	36	R&M	2027-32
Karnataka									
9	Nagjhari (Unit-1 to 3) KPCL (6x150)	SS	3x150 (U-1 to 3)	266.00	142.16	450 (LE)	450	RM&LE	2028-29
Manipur									
10	Loktak, NHPC (3x35)	CS	3x35	273.59	175.87	105 (LE)	105	RM&LE	2027-28
	Sub Total(A)		**2227.8**	**1634.4225**	**514.913**	**1096.83 1054(LE) + 42.83 (U)**	**2270.63**		
B.Ongoing Schemes – UNDER TENDERING									
Himachal Pradesh									
11	Pong Power House, BBMB (6x66)	CS	6x66	402.00	1.15	396 (LE) + 54 (U)	450	RMU&LE	2028-29
Punjab									
12	UBDC St.I & St.II, PSPCL (3x15+ 3x15.45)	SS	3x15+ 3x15.45	-	-	91.35 (LE)	91.35	RM&LE	2027-32
Rajasthan									
13	Rana Pratap Sagar RRVUNL (4x43)	SS	4x43	264.52	57.52	172 (LE) + 6 (U)	178	RMU&LE	2027-32
Madhya Pradesh									
14	Bargi, MPPGCL (2x45)	SS	2x45	249.81		90(LE)+4(U)	94	RMU&LE	2029-30
West Bengal									
15	Maithon, DVC (2x20+1x23.2-U#2)	CS	2x20	136.4	-	40(LE)	40	RM&LE	2027-32
	Sub Total(B)		**789.35**	**1052.73**	**58.67**	**853.35 789.35 (LE)+ 64(U)**	**853.35**		
C. Ongoing Schemes – UNDER DPR PREPARATION/FINALISATION/APPROVAL									
Himachal Pradesh									
16	Giri, HPSEBL (2x30)	SS	2x30	440.12	-	60(LE)	60	RM&LE	2028-29
Punjab									
17	Anandpur Sahib Hydel Project, PSPCL (4x33.5)	SS	4x33.5	-	-	134(LE)	134	RM&LE	2027-32
18	Mukerian St.I, St.II, St.III & St.IV, PSPCL (3x15, 3x15, 3x19.5& 3x19.5)	SS	3x15, 3x15, 3x19.5& 3x19.5	-	-	207(LE)	207	RM&LE	2027-32
Uttarakhand									
19	Ramganga,UJVNL (3x66)	SS	3x66	-	-	198(LE)	198	RM&LE	2027-32
20	Kulhal ,UJVNL (3x10)	SS	3x10	120.89	-	30(LE)	30	RM&LE	2027-32
Madhya Pradesh									
21	Pench, MPPGCL (2x80)	SS	2x80	556.52	-	160(LE)+2.5(U)	162.5	RMU&LE	2029-30
Andhra Pradesh									
22	Lower Sileru, APGENCO (4x115)	SS	4x115	699.65	1.8	460(LE)	460	RM&LE	2029-30
23	Machkund St.I & St.II, APGENCO (3x17+ 3x23)	SS	3x17+ 3x23	-	-	120(LE)+9(U)	129	RMU&LE	2027-32
Kerala									
24	Idukki 1st and 2nd stage, KSEB (6x130)	SS	6x130	3.887	3.498	780 (LE)	780	RM&LE	2027-32
25	Idamalayar, KSEB (2x37.5)	SS	2x37.5	98	0.839	75(LE)	75	RM&LE	2027-32
Tamil Nadu									
26	Kodayar PH-II, TNPGCL (1x40)	SS	1x40	-	-	40 (LE) + 6 (U)	46	RMU&LE	2027-32
	Sub Total(C)		**2264.00**	**1919.07**	**6.137**	**2281.5 2264(LE) + 17.5(U)**	**2281.5**		

D. Ongoing Schemes – UNDER RLA STUDIES									
Jammu & Kashmir (UT)									
27	Salal Stage-I, (Unit 1,2 &3) NHPC (3x115)	CS	3x115	-	-	345(LE)	345	RM&LE	2027-32
28	Salal Stage-II, (Unit 4,5 &6) NHPC (6x115)	CS	3x115	-	-	345 (LE)	345	RM&LE	2027-32
Punjab									
29	Shanan HEP, PSPCL (1x50+ 4x15)	SS	1x50+ 4x15	-	-	110 (LE)	110	RM&LE	2027-32
Himachal Pradesh									
30	Chamera-I, NHPC (3x180)	CS	3x180	-	-	540 (LE)	540	RM&LE	2027-32
Uttarakhand									
31	Tanakpur, NHPC (3x31.4)	CS	3x31.4	-	-	94.2 (LE)	94.2	RM&LE	2027-32
32	Chibro, UJVNL (4x60)	SS	4x60	-	-	240 (LE)	240	RM&LE	2027-32
33	Khodri, UJVNL (4x30)	SS	4x30	-	-	120 (LE)	120	RM&LE	2027-32
Rajasthan									
34	Jawahar Sagar Power Station, Jawahar Sagar (3x33)	SS	3x33	-	-	99(LE)	99	RM&LE	2027-32
Madhya Pradesh									
35	Bansagar Ton-I, MPPGCL (3x105)	SS	3x105	-	-	315 (LE)	315	RM&LE	2027-32
Maharashtra									
36	Vaitarna, MSPGCL (1x60)	SS	1x60	-	-	60 (LE)	60	RM&LE	2027-32
37	Koyna Dam foot (Right Bank), MSPGCL (2x20)	SS	2x20	-	-	40 (LE)	40	RM&LE	2027-32
38	Koyna St-3, MSPGCL (4x80)	SS	4x80	-	-	320 (LE)	320	RM&LE	2027-32
39	Tillari, MSPGCL (1x60)	SS	1x60	-	-	60(LE)	60	RM&LE	2027-32
40	Bhira Tail Race (2x40)	SS	2x40	-	-	80(LE)	80	RM&LE	2027-32
Jharkhand									
41	Subernrekha, JUUNL (2x65)	SS	2x65	262.9	-	130 (LE)	130	RM&LE	2029-30
Karnataka									
42	Varahi Underground Power House (4x115)	SS	2x115	-	-	-	230	R&M	2027-32
43	Linganamakki Dam Power House	SS	2x27.5	15.4	-	55(LE)	55	RM&LE	2027-32
Kerala									
44	Sabarigiri, (Unit-1,2,3, 5) KSEB (4x55)	SS	4x55 (Unit-1,2, ,3, & 5)	-	-	220 (LE) + 20 (U)	240	RMU&LE	2027-32
Tamil Nadu									
45	Kundah-I, TNPGCL (3x20)	SS	3x20	-	-	60 (LE)	60	RM&LE	2027-32
46	Kundah-II, TNPGCL (5x35)	SS	5x35	-	-	175 (LE)	175	RM&LE	2027-32
47	Kundah-III, TNPGCL (3x60)	SS	3x60	-	-	180 (LE)	180	RM&LE	2027-32
48	Kundah-IV, TNPGCL (2x50)	SS	2x50	-	-	100 (LE)	100	RM&LE	2027-32
49	Kundah-V, TNPGCL (2x20)	SS	2x20	-	-	40 (LE)	40	RM&LE	2027-32
50	Mettur Tunnel, TNPGCL (4x50)	SS	4x50	-	-	200 (LE)	200	RM&LE	2027-32
51	Sarkarpathy, TNPGCL (1x30)	SS	1x30	-	-	30 (LE)	30	RM&LE	2027-32
52	Sholayar-II, TNPGCL (1x25)	SS	1x25	-	-	25 (LE)	25	RM&LE	2027-32
53	Suruliyar, TNPGCL (1x35)	SS	1x35	-	-	35 (LE)	35	RM&LE	2027-32
54	Kadamparai PH, TNPGCL (4x100)	SS	4x100	-	-	400 (LE)	400	RM&LE	2027-32
55	Aliyar, TNPGCL (1x60)	SS	1x60	-	-	60 (LE)	60	RM&LE	2027-32
56	Lower Mettur-I , TNPGCL (2x15)	SS	2x15	-	-	30 (LE)	30	RM&LE	2027-32
57	Lower Mettur-II , TNPGCL (2x15)	SS	2x15	-	-	30 (LE)	30	RM&LE	2027-32
58	Lower Mettur-III , TNPGCL (2x15)	SS	2x15	-	-	30 (LE)	30	RM&LE	2027-32
59	Lower Mettur-IV , TNPGCL (2x15)	SS	2x15	-	-	30 (LE)	30	RM&LE	2027-32
Meghalaya									
60	Umiam-Umtru Stage-IV, MePGCL (2x30)	SS	2x30	-	-	60 (LE)	60	RM&LE	2027-32
			4888.20	**278.30**	**0.00**	**4678.20 [4658.2 (LE)+ 20(U)]**	**4908.20**		
Total (A+B+C+D)			**10169.35**	**4884.52**	**579.72**	**8909.88 [8765.55 (LE)+ 144.33(U)]**	**10313.68**		

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