APPENDIX-I

EXPRESSION OF INTEREST

Maharashtra State Power Generation Company Limited (MAHAGENCO), a public limited company incorporated under the Companies Act, 1956 and the State Power Generating Company of Maharashtra, intends to engage consultancy services for "carrying out Residual Life Assessment (RLA) Study (Civil, Mechanical & Electrical) of Hydro Power Stations and preparation of DPR regarding Renovation-Modernization & Uprating (R-M&U) of Hydro Power Generating Units under MSPGCL which have completed service of more than 35 years & Geographically located at different areas."

The Scope of Study & submission details available on the website*: https://www.mahagenco.in → Tenders → Head Office Tenders*

Interested firms may send their EoI to the following Address:
Office of the Chief Engineer (Works),
Prakashgad, 3rd Floor, Plot No. G-9,
Anant Kanekar Marg, Bandra (East),
Mumbai-400 051.

Publication of EoI	13.02.2026	**Last Date of Submission of EoI**	05.03.2026; 16:00 Hrs
Contact Details		Chief Engineer (Works) (Phone 022-26474211–Extn.3519. e-mail - cegw@mahagenco.in	

Format for submission of Expression of Interest

Name of the Firm	Relevant Experience (Hydro Units) details	Years of experience.	Consultancy Services required for	Tentative Time required in No of days
			i) Assessing Modality for RLA Study. ii) RLA Study iii) Proposing the Solution for R-M&U iv) Preparation of DPR.	

SCOPE OF WORK

MSPGCL operates 25 Hydro Power Stations (46 Units) having different capacity & are installed at geographically different locations. MSPGCL intends to carry out RLA study (Electrical, Mechanical & Civil) for assessment of the health, remaining life and rehabilitation needs of all major civil, hydro-mechanical and electro-mechanical components of the hydropower station and to prepare a CEA-compliant DPR proposing technically and economically optimal Renovation, Modernization, Uprating and Life Extension measures. At present, MSPGCL intends to carry out RLA study (Electrical, Mechanical & Civil) and prepare DPR as per CEA guidelines for HPSs listed below –

Sr No	Name of HPS	Installed Capacity	Age (Years)	Location
1	KGSC stage-III	(4 X 80 MW) 320 MW	50	Allore, Ratnagiri
2	Koyna Dam Foot Powerhouse	(KDPH 2 X 18 MW) 36 MW	45	Koyna, Satara
3	Tilari HPS	(1 X 60 MW)	38	Chandgad, Kolhapur
4	Bhira HPS	(2 X 40 MW) 80 MW	37	Mangaon, Raigad
5	Vaitarna HPS	(1 X 60 MW) 60 MW	48	Igatpuri, Nashik
6	Vaitarna Dam Toe	(1 X 1.5 MW) 1.5 MW	37	Igatpuri, Nashik

1. Scope of work for RLA study to be carried out at KGSC Stage-3 & KDPH Units.

In Koyna Generating Station complex (KGSC) – Stage III, also known as the Alore Power Station, comprises 4 x 80 MW BHEL-make generating units that have been in operation since 1975. Having successfully completed over 50 years of service and Koyna dam Foot Powerhouse (KDPH), 2 x 18 MW BHEL-make generating units that have been in operation since 1980. Now these units are due for Renovation and Modernization (R&M) in line with the Central Electricity Authority (CEA) guidelines.

Name of HPS	Installed Capacity	Age (Years)	Location
KGSC stage-III	(4 X 80 MW) 320 MW	50	Allore, Ratnagiri
Koyna Dam Foot Powerhouse	(KDPH 2 X 18 MW) 36 MW	45	Koyna, Satara

- The scope of RLA study and preparation of DPR shall in accordance with the detailed scope of work outlined below, which is indicative and not exhaustive of the requirements.

- As such you are requested to submit the techno commercial offer for RLA study (Electrical, Mechanical & Civil) and preparation of DPR as per CEA guidelines.

A. Life Assessment of Major Systems

a. Conduct a comprehensive RLA of critical components including turbines, generators, transformers, excitation systems, control & protection systems, HVAC systems, intake structure/pipeline, draft tube, Tail Race Tunnel and other all essential powerhouse equipment.
b. Evaluate the remaining operational life of each component based on current physical and functional conditions.
c. Assess modernization requirements for control and instrumentation systems, including integration of advanced technologies such as digitalization, predictive maintenance, and automated monitoring.
d. Provide risk mitigation and life-optimization recommendations based on RLA findings.
e. Ensure compliance with relevant national and international standards (e.g., CEA, IS, IEC).
f. Submit an assessment report detailing findings, methodology, and compliance observations.

B. Life Assessment of Switchyard and Transformer Yard Equipment

a. Perform a thorough inspection of switchyard and transformer yard equipment including breakers, transformers, busbars, and control & protection systems.
b. Evaluate operational life and recommend modernization or replacements where needed.
c. Assess control & instrumentation system modernization opportunities, incorporating smart technologies.
d. Recommend upgrades to improve safety, reliability, and performance.

C. Renovation and Modernization (R&M) of Stage-3 and KDPH Units

a. Undertake a complete inspection and condition assessment of all Stage-3 & KDPH units and associated auxiliaries including turbines, generators, pumps, compressors, electrical systems, and controls.
b. Identify components showing signs of degradation, inefficiency, or potential safety risks.
c. Recommend refurbishment, replacement, or repair of components nearing end-of-life.
d. Suggest modernization strategies to improve efficiency, reliability, and reduce downtime.
e. Integrate digital and predictive technologies for C&I systems where applicable.
f. Ensure compliance with current safety, environmental, and operational standards.
g. Guarantee smooth integration of modernized systems with existing infrastructure.

D. Lifetime Extension (LTE) Measures for Stage-3 & KDPH Units

a. Assess the feasibility of extending the operational life of the Stage-3 units beyond their original design life.

b. Identify systems eligible for retrofit or upgrade for meaningful life extension.
c. Propose technical solutions such as advanced monitoring systems and retrofits to improve longevity and performance.
d. Recommend necessary modifications for compatibility with evolving operational demands and technologies.
e. Perform a cost-benefit analysis of LTE proposals to ensure optimal return on investment.
f. Estimate the expected extension in service life (in years) for key components/systems.
g. Provide a detailed LTE report covering technical recommendations, expected outcomes, and implementation timelines.

E. Capacity Addition (If Applicable)

a. Conduct a feasibility study for enhancing the plant's operational capacity via system optimization, retrofitting, or equipment upgrades.
b. Recommend capacity enhancement strategies that require minimal capital investment.
c. Ensure any proposed capacity addition complies with performance, operational, and environmental norms.

F. Safety and Environmental Compliance

a. Maintain the highest safety standards during all study and inspection activities, ensuring safety of personnel, equipment, and environment.
b. Ensure all modernization recommendations comply with prevailing environmental regulations, including norms for emissions, effluents, and noise.

2. Scope of work for RLA study to be carried out at Other Hydro Power Plants of MSPGCL.

Name of HPS	Installed Capacity	Age (Years)	Location
Tilari HPS (1 X 60 MW)	60 MW	38	Chandgad, Kolhapur
Bhira HPS (2 X 40 MW)	80 MW	37	Mangaon, Raigad
Vaitarna HPS (1 X 60 MW)	60 MW	48	Igatpuri, Nashik
Vaitarna Dam Toe (1 X 1.5 MW)	1.5 MW	37	Igatpuri, Nashik

Scope Highlights:

- Comprehensive condition assessment through site inspections, NDTs, testing & diagnostics.
- Evaluation of turbine-generator sets, hydro-mechanical equipment, electrical systems, civil structures and control & protection systems.
- Residual life estimation, identification of components requiring refurbishment or replacement.
- Assessment of uprating potential, automation opportunities & performance improvement.
- Preparation of a complete DPR including design proposals, cost estimates, BOQs, financial analysis and implementation schedule.

Deliverables:

- Inception Report
- Final RLA Report
- Draft DPR & Final DPR
- Engineering drawings, BOQs, cost estimates & implementation schedule
- Presentation to Owner & CEA (if required)

Outcome:

- A holistic, CEA-compliant R&M roadmap ensuring safe, reliable, efficient and cost-effective long-term operation of the hydro power station.
- The scope of RLA study and preparation of DPR shall be in accordance with the detailed scope of work outlined below, which is indicative and not exhaustive of the requirements.
- As such you are requested to submit the techno commercial offer for RLA study (Electrical, Mechanical & Civil) and preparation of DPR as per CEA guidelines. Please note that all above plants are situated at different geographical locations.

Scope of work for RLA Study and DPR Preparation as per CEA Guidelines

1. Background

All The Hydro Power Stations specified in above table are over **35 years old** and requires a comprehensive RLA study to determine its present condition and develop a Detailed Project Report (DPR) for R&M, Uprating, and Life Extension as per **CEA Guidelines for Renovation, Modernization & Uprating (R, M &U)**.

2. Objectives

- Assess structural, mechanical, electrical and operational condition.
- Identify rehabilitation, replacement, modernization and uprating requirements.
- Estimate residual life and improve safety, efficiency and reliability.
- Prepare a complete CEA-compliant DPR for R,M&U works.

3. Scope of Work

3.1 Desk Review & Data Collection

- Review of historical O&M records, drawings, reports, failures and performance trends.
- Collection of hydrological, geological, operational and maintenance data.

3.2 RLA Site Investigations & Testing

A. Civil Structures

- Intake, penstock, tunnels, Powerhouse, tailrace
- NDT tests: UPV, Rebound Hammer, Core Cutting, Permeability, Rebar Scanning
- Underwater inspection of intake & tailrace using ROV/divers
- Structural stability and safety evaluation

B. Hydro-Mechanical Systems

- Gates, hoists, penstock valves, trash racks
- Inspection for corrosion, erosion, cavitation & wear
- Testing of actuators, seals & hydraulic systems

C. Electro-Mechanical Equipment

- Turbine, Generator, Shaft system, Bearings, Governors
- Tests: Vibration, Efficiency, PD, Tan Delta, IR, Winding resistance, Wedge test
- Excitation system, AVR, LBB protection, Control & SCADA inspection

D. Electrical & Protection Systems

- Transformers, switchgear, CT/PT, relay systems
- DGA & oil testing, contact resistance, breaker timing tests
- Review of protection coordination & logic diagrams

3.3 Residual Life Analysis

- Component-wise remaining useful life estimation
- Identification of obsolete, deteriorated or unsafe components

- Prediction of failure risks and mitigation strategy

3.4 DPR Preparation (as per CEA Formats)

A. Engineering Proposals

- Civil rehabilitation design and drawings
- Replacement/rehabilitation proposal for E&M and HM equipment
- Turbine & generator modernization proposals
- Potential for **uprating** and **efficiency improvement**
- Automation, SCADA & control system modernization

B. Cost Estimates & BOQs

- Package-wise design, quantities & cost estimates
- Construction methodology & resource planning
- Cost-benefit analysis including uprating options

C. Financial Analysis

- Capital cost estimation
- Cost benefit analysis etc.

D. Implementation Plan

- Sequence of unit shutdowns
- Procurement strategy (Package-wise/EPC)
- Project schedule using CPM/PERT
- Risk assessment and mitigation plan
- Quality Assurance & Quality Control (QA/QC) plan

4. Deliverables

1. **Inception Report**
2. **Field Testing & Inspection Reports**
3. **Draft RLA Report**
4. **Final RLA Report**
5. **Draft DPR with all appendices**
6. **Final DPR** (hard copies + soft copies)
7. **Engineering drawings (AutoCAD + PDF)**
8. **Presentation to Owner/CEA**

5. Standards to be followed

- **CEA Guidelines for R-M&U of Hydro Power Stations**
- CEA Technical Standards for Construction and O&M
- BIS (IS) Codes for Hydropower & civil/electrical engineering
- IEC / IEEE electrical standards
- CWC Dam Safety guidelines
- OEM recommendations & industry best practices