



## **RENOVATION & MODERNIZATION SERVICES & REFERENCES**

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# The Company

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L&T-Sargent & Lundy Limited is a joint venture between Larsen & Toubro Limited, India and Sargent & Lundy <sup>LLC</sup>, USA providing engineering and consulting services for electric power business across the globe. Operating since 1995, it combines deep domain expertise, internationally aligned systems and processes, and unique 3D modeling technique to converge technical consultancy with high-end solutions and delivery.

## Joint Venture Partners

The synergy created by coming together of an engineering and construction conglomerate and a consulting giant has enabled L&T-S&L to consistently deliver solutions, which are technically sound and operationally efficient.

Larsen & Toubro is over USD 20 billion technology, engineering, construction, manufacturing and financial services conglomerate, with global operations. It is ranked 4<sup>th</sup> in the global list of Green Companies in the industrial sector by reputed international magazine *Newsweek*, and ranked the world's 9<sup>th</sup> Most Innovative Company by *Forbes International*. L&T is one of the largest and most respected companies in India's private sector and has attained and sustained leadership in its major lines of business over seven decades.

Sargent & Lundy <sup>LLC</sup> (S&L) – With nearly 125 years of experience in providing engineering services exclusively focused on power, S&L is acknowledged as a premier force worldwide. S&L has an extensive and credible consulting experience in projects as diverse as combined cycle power plants, gas based, coal-based projects, renewable energy and nuclear projects.

## Professional Expertise

Processes, systems and technology yield better results when talent combined with experience drive them. The multi-skilled team at L&T-S&L consisting over 400 engineers and designers bring together specialists in the field of conventional and non-conventional energy, engineering disciplines, project management and client servicing. Integral to this team are experts in the field of information technology, quality assurance and finance.

# R&M Capabilities

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Capitalizing on its strength in core engineering services related to power projects, which include feasibility studies, basic and detail engineering services, review engineering, site support services, L&T-S&L offers consulting services Renovation and Modernization Services for utilities, IPPs and private power companies.

## Need for R&M Services:

- Deterioration of Original Performance
- Reduced Output
- Lower Efficiency
- Frequent and longer forced outages
- Loss of plant availability

R&M MAKES  
ECONOMIC  
SENSE



## Benefits of R&M:

- Reduction of capital and operating expenses
- Reduction in fuel costs due to increased efficiency
- Increased revenue due to higher output
- Improved reliability and availability
- Reduced outages
- Significant environmental benefits through reduced emissions
- Shorter payback period

# Services Offered

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## Objective of Consultancy in R&M Services:

- Identify inherent O&M problems from historical data and records as well as plant walk-throughs
- Identify sources of loss in efficiency due to aging through Energy Audit
- Assess health of plant and machinery through Residual Life Assessment and Steam Path Audit

## Based on the above investigative studies the consultant:

- Identify measures to recapture or exceed original plant performance in terms of capacity and heat rate level by refurbishment/rehabilitation, retrofitting and upgrading of plant and machinery
- Demonstrate economic and environmental improvements possible in the performance of old power plants
- Improve availability/reliability
- Increase operational flexibility
- Increase plant life

## R&M Consultancy Services:

- Energy Audits including Boiler Performance Evaluation Test
- Steam Path Audits
- Remaining Life Assessment (RLA)
- Detailed Project Report
- Preparation of Techno-commercial Specification
- Evaluation of EPC Bids and Order Finalization
- Supervision of EPC Work as OE



# Select References

Project Name	Client	Scope of Work
Boiler C at Reliance Patalganga, Maharashtra	Reliance Industries Limited	Residual Life Analysis
Steam & Water Drum at RIL Vadodara, Gujarat	GE Power India Ltd.	Residual Life Analysis
42 TPH AFBC Boiler at Vardhman Acrylics Limited, Gujarat	Shree Bhavani Fabricators & Engineers	Conditional Assessment and Residual Life Analysis
HRSG 1 CPP plant in Renusagar, India	Reliance Industries Limited	Residual Life Analysis
16 TPH Boiler at Jindal Saw, Karnataka, India	Jindal Saw Limited (IPU-CEMENT-COKE)	Residual Life Analysis
70 TPH Boiler for CPP at RIL Patalganga, Maharashtra	Reliance Industries Limited	Residual Life Analysis
LP motor of 200MW Turbine of Ukai TPS and 210 MW Turbine of Wanakbori TPS, India	Gujarat State Electricity Corporation Ltd	Residual Life Analysis
85 MVA Generator Transformer, Uttar Pradesh, India	Hindalco Industries Limited (Renusagar Power Division)	Residual Life Analysis and Efficiency Study
2x12 TPH Boiler for 5 MW Biomass Based Power Plant, Karnataka	Global Energy Pvt. Ltd.	Residual Life Analysis Study
Two (2) Nos. 92.5 MVA Generator Transformer	Hindalco Industries Limited (Renusagar Power Division)	Residual Life Analysis Study
2 x 210 MW Boiler at WTPS, Gujarat, India	Gujarat State Electricity Corporation Ltd	Residual Life Analysis

## Select References

Project Name	Client	Scope of Work
2x50 TPH CFBC boiler at Grasim Industries	Shree Bhavani Fabricators & Engineers	Conditional Assessment and Residual Life Analysis
3 X 200 MW NTPC Korba Stage-I, Chhattisgarh	NTPC Limited, India	Residual Life Assessment (RLA) of critical pipings, hangers and supports
445 MW CCPP Salalah 2 IPP in Oman	First National Company for Operation & Maintenance Services LLC	Residual Life Assessment (RLA)
HPB-4 Boiler at Mithapur, Gujarat, India	Tata Chemicals Limited, India	Residual Life Assessment (RLA) and Condition Assessment
HRSG 2 & 3 of CPP-2 plant in Dahej, Gujarat, India	Reliance Industries Limited, India	Residual Life Assessment (RLA) and Condition Assessment
75 MW Boiler at KLTPS Plant, Gujarat, India	Gujarat State Electricity Corp. Ltd. India	Residual Life Assessment (RLA) and Condition Assessment
2x210 MW NTPC Dadri, Uttar Pradesh, India	NTPC GE Power Services Pvt. Ltd, India	Stress Analysis study of critical piping systems
2x210 MW NTPC Unchahar, Uttar Pradesh, India	NTPC GE Power Services Pvt. Ltd, India	Stress Analysis study of critical piping systems
3x200 MW NTPC Farakka, West Bengal, India	NTPC GE Power Services Pvt. Ltd, India	Stress Analysis study of critical piping systems
3x200 MW NTPC Ramagundam, Telangana, India	NTPC GE Power Services Pvt. Ltd, India	Stress Analysis study of critical piping systems

## Select References

Project Name	Client	Scope of Work
6x210 MW NTPC Vindhyanchal STPP, 2x500 MW NTPC Rihand STP and 2x500 MW NTPC Shaktinagar STP, India	IRC Engineering Services India Pvt. Ltd.	Stress Analysis study of critical piping systems
UB-1 Boiler of CPP plant in Dahej, Gujarat, India	Reliance Industries Limited, India	Residual Life Assessment (RLA) and Condition Assessment
Furnaces in Manufacturing Complex at RIL Nagothane, Maharashtra, India	Reliance Industries Limited, India	Residual Life Assessment (RLA) and Condition Assessment
50V01, 50R01 IBR Loop & Connected Lines 50V01, 50R01 IBR Loop & Connected Lines in EO/EG at RIL, Nagothane, Maharashtra, India	Reliance Industries Limited, India	Residual Life Assessment (RLA) and Condition Assessment
UB2 boiler of CPP plant, RIL, Gujarat, India	Reliance Industries Limited, India	Residual Life Assessment (RLA) and Condition Assessment
Civil Design and NDT test work for NTPC TPP India	NTPC Alstom Power Services Pvt. Ltd, India	Civil Design Consultancy along with NDT test work
35 & 50 TPH Processed Boilers at Unit CPM, Tapi (Dist), Gujarat India	JK Paper Ltd, India	Residual Life Assessment (RLA) and Condition Assessment
4x135 MW SWPL TPP at Warora, Maharashtra India	Sai Wardha Power Limited (KSK Group), India	Residual Life Assessment (RLA), Condition Assessment & Performance Audit / Energy Audit
4x125 MW Surat Lignite Power Plant (SLPP) at Mangrol, Surat, Gujarat, India	GIPCL, India	Performance Audit, Residual Life Assessment (RLA) & Steam Path Audit (SPA), Borosonic and Baroscopic Tests

## Select References

Project Name	Client	Scope of Work
1x135 MW VSLP TPP at Chhattisgarh & 2x43 MW APCPL TPP at Rajasthan India	KSK Energy Venture Limited, India	Residual Life Assessment (RLA) & Condition Assessment Study
8x135 MW Lignite Base Power Plant at Barmer Rajasthan, India	Raj West Power Limited (JSW Group), India	Residual Life Assessment (RLA) for Condensing Cooling Water (CCW) Pipe
2x70 MW Kutch Lignite Thermal power Station, Gujarat, India	Gujarat Electricity Board thru L&T R&M Power, India	Renovation & Modernization Basic Design: <ul style="list-style-type: none"> <li>• Steam water flow diagram,</li> <li>• Heat balance diagram</li> </ul> Detail Design: <ul style="list-style-type: none"> <li>• Lignite pulverizer mills &amp; fuel feeding</li> <li>• Boiler mounting &amp; accessories</li> <li>• Turbine cycle piping including cooling tower</li> <li>• Rotary air heater</li> <li>• Air &amp; flue gas duct</li> <li>• SCAPH, HP/LP Heaters</li> <li>• Dynamic separators</li> <li>• Insulation</li> </ul>
2x60 MW & 1x110 MW Units	Tamil Nadu Electricity Board/ L&T R&M Power, India	Complete Refurbishment Engineering and Condition Assessment for Ennore Thermal Power Plant
120 MW each Ukai TPS Units 1 & 2 , Gyharat, India	Gujarat Electricity Board, India	Complete Refurbishment Engineering and Condition Assessment of Unit 1 & 2 – 120 MW each
210 MW Boilers and Auxiliaries of Wanakbori Power Plant, Unit I- VI, 210 MW	Gujarat Electricity Board, India	Residual Life Assessment (RLA) including Carrying out the required tests, Preparation and submission of study report and Recommendations
<ul style="list-style-type: none"> <li>• 3x50 MW Bokaro 'A' station Unit 1,2,3</li> <li>• 1x140 MW Durgapur station Unit-3</li> <li>• 1x140 MW Chandrapura station Unit-2</li> </ul> West Bengal, India	Damodar Valley Corporation (DVC) / L&T O&M Power, India	Residual Life assessment of TG auxiliaries, Balance of Plant equipment for Mechanical, Electrical and C&I system

## Select References

Project Name	Client	Scope of Work
Steam Generating Plant , Thal ,Rajasthan, India	RCF Thal, India	Residual Life Assessment for 3 nos. Boilers in
Steam Generating Plant of KRIBHCO, Hazira , Gujarat, India	KRIBHCO, India	Residual Life Assessment for Boiler – 1
Waster Heat Boiler and Stream Lines at IFFCO unit, Gujarat, India	IFFCO, India	Residual Life Assessment study of Waste Heat Boiler and Steam Lines
32 MW Dhuvaran TPS, Gujarat, India	Gujarat Electricity Board, India	Residual Life Assessment of Boiler and Auxiliaries Field investigation, Preparation and submission of study report.
(3x210 MW & 2x120 MW), Gandhidham (2x120 MW) , Sikka (4x63.4 MW & 2x140 MW), Dhuvaran TPS, Gujarat, India	GSPC Pipavav Power Company Ltd, India	Detailed Project Report for Repowering and Conversion from Coal based to Gas based power plants
494 MW Riverside Repowering Project, Minnesota, Minneapolis, USA	Sargent & Lundy, USA	Overall Engineering of power plant – Mechanical, Electrical, Instrumentation & Civil & Structural Engineering
Ukai TPS, Gujarat, India	Gujarat Electricity Board, India	Consultancy Service for Feasibility of Installing optimal capacity of coal or gas based unit
17 MW Waste heat recovery based power plant in India	BLA Industries Limited, India	<ul style="list-style-type: none"> <li>• Rendering advice and assistance during the collection of basic data to ensure accurate estimation of waste heat available in the flue gases</li> <li>• Studying and recommending us in detail about different schemes</li> <li>• Calculate the IRR and payback</li> <li>• Preparation of detailed feasibility report for power generation</li> </ul>

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Project Name	Client	Scope of Work
2x30 MW Sabarmati TPS, Gujarat, India	Ahmedabad Electricity Co. Ltd., India	<p>Improvement in Existing Ash Disposal / Management System Preparation</p> <ul style="list-style-type: none"><li>• DPR by studying ash handling system</li><li>• Preparation of Detailed Specifications for the recommended scheme</li><li>• Review of design &amp; drawing and final approval of the vendor design and drawing</li></ul>
63.783 MW Coal based TPS, Tamil Nadu, India	Tamil Nadu Chemical Products Limited , India	Unburnt Carbon Optimization Study of Fly Ash and Bottom Ash
160 MW CCPP of GIPCL, Vadodara, Gujarat, India	GIPCL, Vadodara, India	<ul style="list-style-type: none"><li>• Preparation of Test Procedures after receipt of all the necessary inputs from GIPCL</li><li>• To witness the performance test carried out by GIPCL prior to shut down</li><li>• To conduct a Performance test of CCPP Unit after shutdown</li><li>• Preparation of Draft Test report as a preliminary submission to GIPCL</li><li>• Preparation and Submission of Final Test report</li></ul>

# Contact Us

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## Head Office

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