

The Strategic Heatwave: EECL's Make-or-Buy Crossroad

Rishabh Chandnani and Amol S. Dhaigude

S. P. Jain Institute of Management and Research, Bhavan's Campus, Mumbai, India

Abstract. In June 2022, Embryo Engineering and Construction Limited (EECL), a leading EPC contractor in the oil and gas sector, confronted a high-stakes make-or-buy decision that threatened its financial stability and reputation. Persistent delays and cost overruns in outsourced fired heater packages, critical components in refinery projects, had triggered liquidated damages, declining margins, and growing client dissatisfaction. Mr. Singhanian, EECL's Operations Head, had to decide whether to continue outsourcing to underperforming vendors or bring execution in-house through a sister company, balancing potential 8% cost savings against capability gaps, transition risks, and tight project deadlines. The case integrates financial analysis, risk-adjusted NPV, vendor performance benchmarking, and capability assessment to evaluate the trade-offs between cost efficiency, execution control, and long-term strategic positioning. It enables students to apply transaction cost economics, strategic sourcing, and risk management frameworks to a real-world, time-sensitive decision in project-based industries.

Keywords: operations management teaching, make-or-buy dilemma, EPC contracts, risk assessment, sourcing strategy, capability development.

In the sweltering heat of June 2022's quarterly board review, Mr. Singhanian, Operations Head of Embryo Engineering and Construction Limited (EECL), confronted devastating project performance statistics that would shake the foundation of his strategic decisions. The data revealed deteriorating schedule performance indices and escalating costs at completion. Delays in outsourced fired heater package execution had jeopardized multiple EPC project timelines, threatening EECL's reputation for on-time delivery. With client dissatisfaction mounting and margins under pressure, Singhanian confronted a critical decision: Should EECL bring fired heater package execution in-house through their sister company, or engage a new external vendor despite financial risks? This decision would determine whether EECL could maintain its competitive edge in the intensely competitive EPC marketplace.

At the heart of the situation was a fundamental make-or-buy decision. Persistent failures by Heat Max INC, EECL's fired heater package vendor, had triggered project delays, cost overruns, and client dissatisfaction. Mr. Singhanian now had to decide whether EECL should continue outsourcing this critical package to external vendors or pursue in-house execution, balancing

This shortened version of the article is for promotional purposes on publicly accessible databases.

Readers who wish to obtain the full text version of the article can order it via the url

<https://www.neilsonjournals.com/OMER/abstractomer19eecl.html>

Any enquiries, please contact the Publishing Editor, Peter Neilson pneilson@neilsonjournals.com

© NeilsonJournals Publishing 2025.

potential cost savings and capability development against execution risk and organizational readiness. The decision required to explicitly balance quantifiable outcomes, such as cost savings, cash flow timing, risk-adjusted returns, and potential liquidated damages against qualitative considerations, including organizational capability development, execution control, vendor dependence, and long-term client confidence.

1. About Embryo Engineering and Construction Limited

Embryo Engineering and Construction Limited (EECL) is one of the top global engineering, procurement, and construction (EPC) firms specializing in large oil and gas and process industry projects. Established in 1980, EECL had built a strong reputation for executing complex, schedule-intensive projects across India and the Middle East.

By 2022, however, EECL was facing margin pressure and increasing execution risk, making cost optimization and delivery reliability critical to sustaining its competitive position. The company's recent financial performance reflected these challenges, heightening management's sensitivity to project delays and cost overruns (Exhibit 1).

The Business Model

EPC is an integrated contracting model widely used in oil and gas projects, with a single contractor responsible from engineering through construction to operational handover. The global oil and gas EPC market is expected to grow at a CAGR of 6.2% through 2032 and was valued at approximately USD 53.10 billion in 2022–2023 (Fortune Business Insights, 2025). EECL's diversified service portfolio (Exhibit 2) and integrated organizational structure (Exhibit 3) position it well in investment-driven regions such as India and the Middle East, where hydrocarbons continue to meet rising energy demand from urbanization.

Facility owners award EPC contracts after scope finalization and front-end engineering, based on evaluations of risk, budget, and schedule. Competitive tenders are issued, often overseen by project management consultants. Contractors submit technical proposals and respond to clarifications; only technically qualified bidders advance to the commercial stage, where the lowest bidder is typically selected.

Given strict time, scope, and cost constraints, EPC contracts place significant emphasis on contractor capability and track record, particularly during capital and operating expenditure evaluations. Post-award, contractors develop detailed engineering deliverables, including 3D models and specifications, ensuring health, safety, and environmental compliance. Procurement and construction proceed in parallel, requiring close coordination