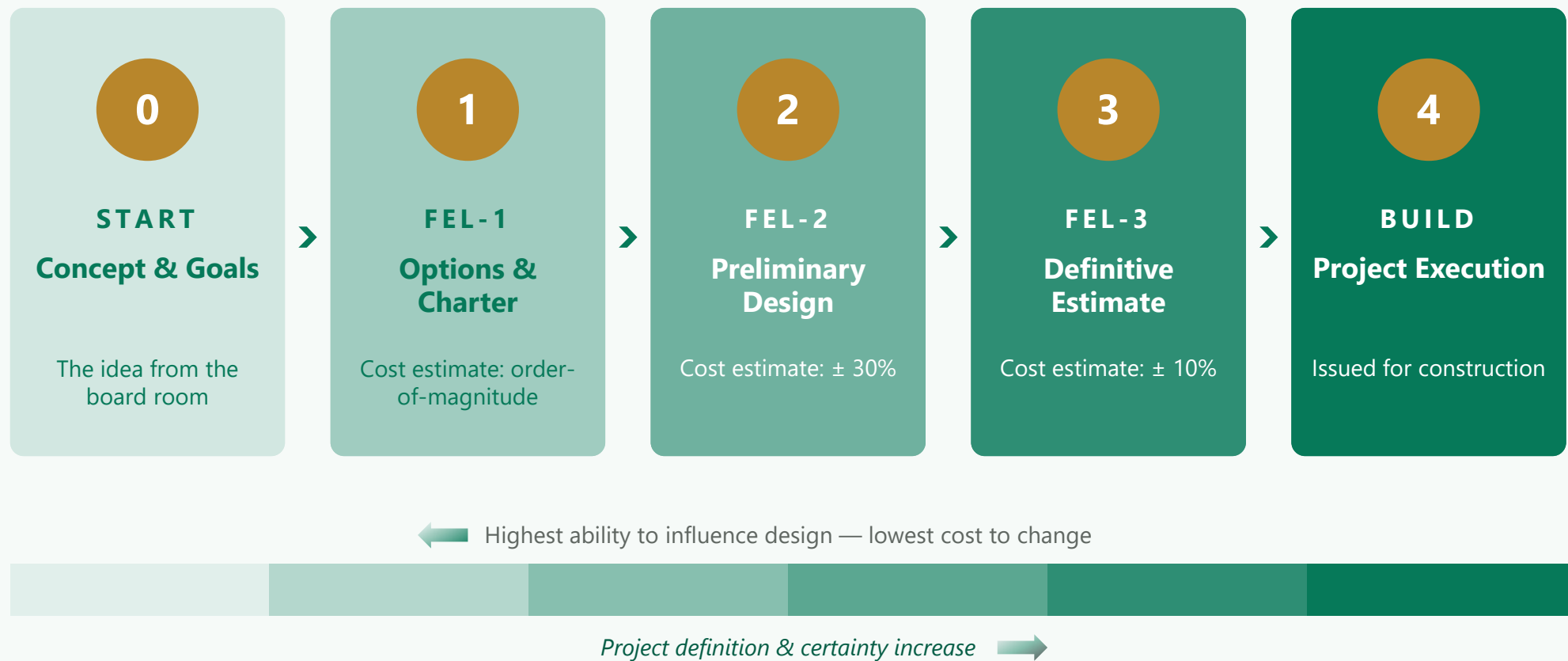


The FEL Journey

A low-cost, step-by-step path from concept to construction ready.

Front-End Loading (FEL) turns early conceptual ideas into better defined equipment and systems — a methodical way to weigh the risk and reward of a process change before major capital is committed. So, each stage sharpens the cost estimate & certainty grows.



Inside Each FEL Phase

Standard studies & deliverables — scope can be tailored to what your project needs.

FEL-1 Order-of-magnitude <i>Options & Project Charter</i>	FEL-2 ± 30% <i>Preliminary Design & Estimate</i>	FEL-3 ± 10% <i>Definitive Estimate & Draft Drawings</i>
Answers “what are my options?” Material & energy balance and a project charter. KEY DELIVERABLES – Documented project goals – Best options with speculated equipment – Basic process flow schematic – Order-of-magnitude implementation price	Enough detail to price, schedule, and make design-critical decisions; testing may begin. KEY DELIVERABLES – Everything in FEL-1, plus... – Technical features, benefits & drawbacks – High-level equipment stack-up & layout fit – Cost estimate + schedule estimate	Firm proposal costs for major equipment and budgetary pricing to tie the system together. KEY DELIVERABLES – Purchase-ready equipment specifications – Project execution plan & preliminary PFDs – Preliminary general arrangement drawings – Utility requirements & equipment line list

AVAILABLE DRAWING PACKAGES typically AutoCAD / SolidWorks · issued for approval (IFA) & construction (IFC)

PFD Process Flow Diagrams Supplied with every FEL report; detail grows each phase.	GA General Arrangement Equipment layout and physical fit within the space.	P&ID Piping & Instrumentation Process piping, valving and control points.	IO List Electrical & Controls I/O Large motors, valving and control requirements.
---	---	--	--

NEXT → EXECUTION

Long-lead contracts and POs issued, approval drawings finalized, and packages issued for construction.

~**2.5%** of project cost on front-end planning returns ~**10%** cost savings & **7%** shorter schedules. — CII research