

# Front End Loading (FEL)

The phased approach to project definition.

## FEL I PACKAGE TABLE OF CONTENTS

- Business case
- Success criteria
- Value proposition
- Risk assessment
- Key assumptions
- Design basis
- Scope of work
- Synchronous opportunities
- Exclusions
- Execution strategy
- Cost forecast
- Milestone schedule
- Drawings
- Rendering

### FEL requires discipline in a chaotic world. SSOE can help.

A properly executed FEL program leads to more successful projects with better cost and schedule performance, more effective risk management, and fewer scope changes.

In most businesses, there are many opportunities and priorities competing for the limited capital funds and resources available. Informed investment decisions yield the best results. So, a cost-effective method for gathering relevant information and facilitating objective comparisons is valuable.

FEL is a project execution model for the progressive definition of scope, cost, and schedule using a phased approach that leads stakeholders to address risks and commit additional resources at well-defined approval milestones during a project's life cycle. At each approval milestone, a business decision is made based on the potential return on investment, adherence to success criteria, and risk.

SSOE has developed a standardized approach to implementing the FEL program during our many years of working with market leaders in the food business. We have successfully delivered thousands of projects to provide our clients with a reliable basis upon which to make their investment decisions.

#### RISK MANAGEMENT

The risk of major investment in projects with fatal flaws is significantly mitigated



#### STAKEHOLDER ALIGNMENT

Formal approval gate reviews improve project outcomes via stakeholder alignment



#### CAPEX UTILIZATION

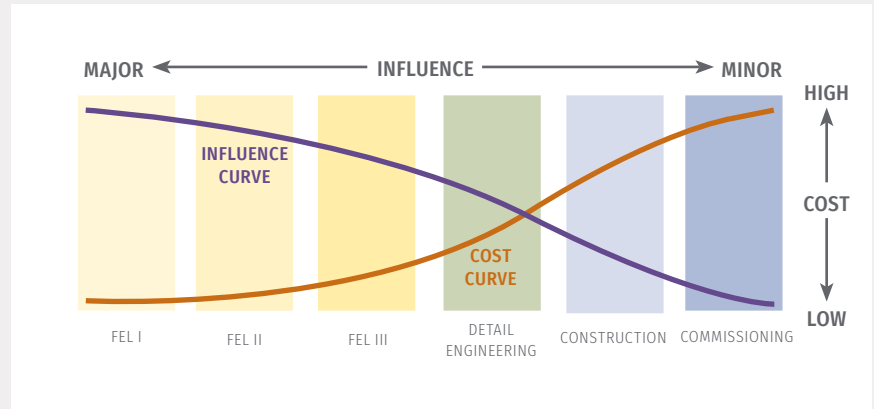
Using FEL, funds are not tied up as contingency on poorly-defined projects





FEL facilitates robust planning early in the project's life cycle when the ability to implement design changes is relatively high while the cost of making those changes is relatively low.

The cost of FEL services is typically 2% to 5% of the total installed project value.



PHASE	FEL I	FEL II	FEL III	A P P R O V A L	FEL IV
Project Phase	Planning / Conceptual Design	Feasibility Design	Preliminary Engineering		Detail Engineering
Engineering Definition	2% to 5%	10% to 30%	30% to 60%		60% to 90%
AACE Estimate Class	Class 5	Class 4	Class 3		Class 2
AACE Cost Estimate Accuracy	L: -20% to -50% H: +30% to +100%	L: -15% to -30% H: +20% to +50%	L: -10% to -20% H: +10% to +30%		L: -5% to -15% H: +5% to +20%
Basis of Estimate	Parametric models, factors, experience / judgement	Budgetary quotes, factors, AE estimates	Semi-detailed unit costs, key contract RFPs		Detailed take-offs / unit costs, quoted contracts



## BENEFITS OF FEL PROGRAMS

- Every dollar spent on FEL services yields a payback of \$3 to \$10
- Actual cost performance vs. authorization estimate averages 20% savings
- Average schedule performance vs. authorization estimate improves by up to 39%
- Plant design capacity / utilization vs. authorization rate improves by about 15% on average

Source: Construction Industry Institute Published Research