Oil and Gas Project Management: Front-End Loading, Stage Gates and EPC Execution

21 – 25 November 2027
Riyadh - KAFD district five-star



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Introduction:

Oil and gas project management decisions taken before sanction fix most of a capital project's cost, schedule and safety outcome, yet many owners still enter execution with weak definition, an unclear execution strategy and gaps between EPC contractors, fabricators and site teams. This Core Concept course follows the oil, gas and petrochemical capital project life cycle from front-end loading and stage-gate decisions through FEED, execution planning, construction, project controls and handover. Participants review case documents at each gate and leave with a Stage-Gate Readiness and Project Execution Plan for their own project.

Course Objectives:

- Structure an oil, gas or petrochemical capital project into front-end loading phases with defined gate deliverables and decision owners
- Assess project definition maturity before each gate and recommend proceed, recycle or stop decisions
- Select a project execution strategy, packaging plan and contracting model that fits the asset, market and owner capability
- Build an integrated schedule and interface register that coordinates EPC contractors, vendors, fabrication yards and site construction
- Run a project controls, HSE and quality reporting cycle that exposes scope growth, delay and non-conformance early
- Plan mechanical completion, system turnover and handover to operations as part of the execution plan

Target Audience:

- Owner-side project managers accountable for taking energy capital projects through gates to sanction and execution
- Contractor project and engineering managers delivering FEED and EPC scopes for oil, gas and petrochemical facilities
- Project engineers who prepare gate deliverables, design basis documents and execution plans
- Project controls leads responsible for schedules, progress measurement and management reporting
- Interface, construction and completion coordinators who link engineering, fabrication, logistics and site work

Course Outline:

Day 1: Capital Project Life Cycle and Front-End Context

- Oil, Gas and Petrochemical Capital Project Life Cycle Map from Opportunity to Operation
- Front-End Loading Phases: FEL-1 Options Study, FEL-2 Feasibility and FEL-3 Basic Engineering
- Owner Project Team, Sponsor and Decision Executive Roles at Each Gate
- Influence Curve: Cost of Change Across Definition and Execution Phases
- Project Definition Health Check Using the CII Project Definition Rating Index PDRI

Day 2: Stage Gates, Concept Select and FEED

- Stage-Gate Deliverables Matrix and Gate Review Board Procedure
- Concept Select Decision: Alternatives Screening, Value Drivers and Selection Criteria
- FEED Scope, Design Basis Memorandum and Basic Engineering Deliverables
- AACE International Estimate Classes and Definition Maturity at Each Gate
- Contingency Setting from Estimate Class and Risk Register Output

Day 3: Execution Strategy and EPC Delivery

- Project Execution Strategy: Work Packaging, Contracting Models and Owner Involvement
- EPC, EPCM and Split FEED-EPC Delivery Options for Energy Facilities
- Integrated Level 1 to Level 3 Schedule and Critical Path Across EPC Contractors
- Interface Management Register Across Engineering, Vendors and Construction Contractors
- Fabrication Yard, Modularisation and Heavy-Lift Logistics Planning

Day 4: Project Controls, HSE, Quality and Problem Cases

- Project Controls Cycle: Progress Measurement, Earned Value and Monthly Project Report
- Trend Register and Change Management for Scope Growth After Sanction
- HSE in Design and Construction: Hazard Review Close-Out, Permit to Work and Site Safety Plans
- Quality Surveillance: Vendor Inspection, Inspection and Test Plan Hold Points and Punch Lists
- Mechanical Completion, System Turnover and Handover to Operations Planning

Day 5: Case Work and the Stage-Gate Readiness and Project Execution Plan

- Offshore Gas Development Case: Weak FEL-2 Definition and Gate Recycle Decision
- Petrochemical Expansion Case: Interface Failure Between EPC Packages
- Capital Project Benchmarking and Lessons Learned Review Against Industry Data
- Stage-Gate Readiness and Project Execution Plan Drafting for an Own Project
- Gate Review Board Simulation and Plan Defence

Skills You Will Gain:

- Front-End Loading Planning
- Gate Readiness Assessment
- Concept Selection
- Execution Strategy Design
- Integrated Schedule Management
- Contractor Interface Coordination
- Energy Project Controls Reporting
- Completion and Handover Planning

Why Attend This Course:

- Take back a Stage-Gate Readiness and Project Execution Plan for a live or planned energy project
- Recognise weak definition, unrealistic estimates and missing interfaces before a gate is passed rather than during construction
- Challenge contractor schedules, progress claims and quality reports with evidence from the controls cycle
- Compare front-end and execution practice with owner and contractor staff from upstream, midstream, refining and petrochemical projects

Conclusion:

Energy capital projects are won or lost at the front end and then protected through disciplined execution. The course moves from the capital project life cycle and front-end loading, through gate decisions, concept select, FEED and estimate maturity, to execution strategy, EPC coordination, controls, HSE, quality and handover. The final day applies that sequence to offshore and petrochemical cases and to the participant's own project, producing a Stage-Gate Readiness and Project Execution Plan ready for the next gate review.