

Advanced Project Economics & Risk Management for Oil & Gas Professionals

SEMINAR OUTLINE

The training seminar is split into two modules:

- MODULE I - Tools & Techniques for Managing Risk & Uncertainty
- MODULE II - Advanced Oil & Gas Project Economics, Risk & Decision Analysis
- Each module is structured and can be taken as a stand-alone training course; however, delegates will maximise their benefits by taking Module 1 and 2 back-to-back as a two-week training course.

MODULE I: Tools & Techniques for Managing Risk & Uncertainty

Fundamentals of Decision Analysis

- What is Project Management Decision Analysis?
- The Purpose of the Project Business Case
- The Need for Systematic Risk Management for Decision-Making
- Risk and Uncertainty on Projects
- Option Analysis
- Identifying Key Decision-making Factors

Measures of Project Profitability

- Fundamental Tools of Engineering Economics
- Time Value of Money
- Appraisal Methods - Discounted Cash Flow Projections
- Time Equivalence

Cash-Flow Modelling and Project Decision Analysis

- Financial Modelling and Project Evaluation
- Rate of Return Computations (IRR)
- Determining the Internal Rate of Return (IRR)
- The Risk of Not Understanding IRR

Analysing Project Specifics

- Understanding the Project Context to Assist in Decision-making
- Determine Stakeholders and their Level of Influence
- Capture Requirements
- Determine Scope of Work

The Cost of Capital

- Capital & Operating Expenditures (CAPEX / OPEX)
- Estimating the Cost of Capital for a Project
- Benefit-Cost Ratio (BCR)
- Dis-benefits

Risk Modelling in practice

- Identify Risks
- Forecasting Risk Impacts & Probabilities
- Opportunity Costs, Sunk Costs & Salvage Value of a Project
- Determining the Risk Priorities
- The need for Company Cash Flow

Decision Analysis: Expected Value Concept

Basic Probability Concepts

- Fundamental Probability Concepts
- Mutually & Non-Mutually Exclusive, Independent Events

Quantitative Project Risk Analysis

- Semi-Quantitative Bow-Tie Process
- Detailed Risk Quantification and Prioritisation
- Expected Monetary Value
- Scenario Planning

Sensitivity Analysis Tools

- Simulation Process
- Tornado Diagram
- Defining the Variables - PERT

Decision Trees, EMV, Risk Responses and ROI Decision Tree Analysis

- Developing Decision Trees
- Solving Decision Trees

Risk Responses

- Developing Risk Responses
- Evaluating Response Relevance

ROI Analysis

- Understanding ROI
- Identifying ROI
- Evaluating and Presenting your Project Options
- MODULE II: Advanced Oil & Gas Project Economics, Risk & Decision Analysis

Development Economics

- A Brief History of Energy Usage
- Principles of Development Economics
- Understanding of Economic terms

Uncertainty in Investments

- Handling Uncertainty in Capital Projects
- Understanding Probability Concepts
- The Expected Value Concept: Features and Pitfalls
- Expected Monetary Value (EMV)
- Expected Profitability Index (EPI)
- Expected Opportunity Loss (EOL)

Risks and Uncertainties

- Risk & Uncertainty
- Risk Eversion and Risk Premium
- Exploration Project Threats and Opportunities
- Economic Decision Criteria
- Decision Tree Analysis

Setting-up Spreadsheet Calculations Using Excel

- Spreadsheet Calculations
- CashFlow Analysis
- Sensitivity Analysis Calculations
- Tornado Diagrams
- Introduction to Monte Carlo Simulations using @Risk
- Class Exercises: Setting-up an Oil Field Project

Practical Use of the @Risk add-on: Oil Field Development Model

- Developing an Integrated Economic Model of an Oil Field Development
- Developing and using an @Risk Model Analysis
- Project Sensitivity Analysis utilizing data from @Risk Model