Economic Evaluation

Instructor:
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The primary objective for most oil & gas companies is to maximize profit while minimizing risks. As a result, the economic evaluations are performed frequently and the results drive the decisions made throughout the life of each oil or gas field. The initial economic evaluations rely heavily on assumed conditions but then the analysis techniques are expanded as actual production, expense and investment data becomes available to the evaluators. The response to the evaluation results vary by company, depending on the business strategies, perspectives and objectives of the specific corporation.

The purpose of this five-day workshop is to introduce the concepts and procedures involved in economic evaluations for oil & gas properties and to thoroughly review the steps in preparing and evaluating cash flow forecasts.

Who Should Attend?
The course is intended for individuals working in the oil & gas industry who want to gain a better understanding of the economic analysis process and of how projects are evaluated and ranked. This includes both technical and non-technical personnel.

Course Objectives:
Participants in the course will gain a better understanding of:
- Economic evaluation concepts and terminology
- Production forecasting
- Preparing and evaluating cash flow statements
- Risk and project management techniques
- Cost estimation and budgeting
- Historical and projected changes in oil and gas prices
- Standard measures for evaluating projects

*Participants should bring a calculator or other device to solve simple math problems.

Course Outline

Day One
Introduction
Pre-Course Exam
Financial Evaluation Concepts
  Profit
  Payout
  Profit/Investment Ratio
  Class Problem
  Efficient Frontier
  Probability Discount
    Class Problem
  Rate of Return
Essential Oil & Gas Measurement Terms
  Class Problem
Preparing Cash Flow Statements
  Gross Withdrawals
  Shrinkage
  Gross Sales
  Royalties
  Net Interest
  Net Sales
  Operating Costs
  Net Income
  Net Cash Flow
  Class Problem

Day Two
Hydrocarbon Valuation Concepts
  Oil Gravity and Components
  Oil Price Standards
  Gas Gravity and Components
  Natural Gas Valuation
  Wet Gas Blends and Valuation
Hydrocarbon Valuation Drivers
  Financial Cycles
  Regional Oil & Gas Valuation Factors
  Role of LNG
  Heating Value Adjustments
  Energy Competition
Discounted Cash Flow
  Time Value of Money
  Discount Factor
  Discounted Cash Flow
  Lump Sum Present Value
  Class Problem
Portfolio Diversification
  Strategic Development Philosophy
  Contractual Commitments
  Risk Tolerance
  Hedging Basics
  Market Exposure
  Mid-Course Review
Day Three
Resource and Reserve Issues
  Factors Controlling Hydrocarbon Volumes
  Factors Controlling Production Rates
  OIP and GIP Overview
  Class Problem
  Standard Recovery Factors
  Reserve Definitions
  Reserve Valuation
Cost-Benefit Analysis
  Effective Revenue Percentage
  Quick-look Economics
  Class Problem
  Risk Adjustments
  Case Study
Calculated Production Rates
  Primary Factors
  Class Problem
  Enhanced Methods
  Variability in Physical Properties
  Class Problem
Forecasting Production Rates
  Type Curves
  Adjusted Type Curves
  Decline Curves
  Modern Decline Rate Concepts
  Computer Forecasting

Day Four
Forecasting Field Rates
  Spreadsheet Approach
  Class Problem
  Computer Simulation
Ultimate Recovery Forecasts
  Economic Limit Considerations
  Associated Fluid Rate Trends
  Cumulative Recovery Analysis
  Recovery Equations
Industry Production Trends
  Technology Factors
  Market Factors
  Unconventional Reservoir Development
  Conventional Development
  Historical Trends
Budgeting
  Authority for Expenditure Forms
    Project Components
    Primary Costs
    Cost Categories
Investment Scheduling
  Approval Process
  Logistics Analysis
  Contingency Analysis
  Cost Management
  Accounting Considerations

Day Five
Detailed Cash Flow Preparation and Analysis
Lookbacks
  Revenue Assumptions
  Production Rates
  Cumulative Recovery Proxies
  Cost Estimates
Risk Analysis
  Statistical Concepts
  Decision Trees
  Monte Carlo Simulation
Risk Management
  Joint Ventures
  Joint Operating Agreement
  Sole Risk and Non-Consent Clauses
  Payout Penalties
  Lease Compliance
Project Management
  Project Stages
  Team Member Roles
  Communication
  Managing Change
Oil & Gas Prices
  Near-term Forecasts
  Long-term Forecasts
  Correlations
Course Review
Post-Course Exam
Exam Review