Financial Modeling and Petroleum Project Economics

During these two units, you will gain an integrated and practical understanding of financial analysis tools and techniques for the oil and gas industry that are related to building proforma project analysis, learning different methods of financial analysis and applying different risk analysis tools to projects. The instructional format capitalizes on a careful balance of formal lectures by leading experts and specially developed workshops and business games.

UNIT ONE
FINANCIAL MODELING FOR THE OIL AND GAS INDUSTRY

Overview of the Petroleum Industry Today
- Oil and gas measurements and units; value chains; market structures; worldwide oil and gas economics; major players; evolution of the integrated oil and gas business.

Introduction to Accounting and Financial Statements
- Basic financial and accounting concepts and standard technology; depreciation; impairment and acquisition accounting; financial statements; accounting for investments; equity methods and consolidations.

Financial Statement Analysis
- Background needed to understand and build models of the four key corporate financial statements; review and discussion of key measures of financial performance; consideration of the measures used by major companies and of participant's companies; steps required to build proforma financial projections.

Overview of Oil and Gas Accounting
- Definition of various industry terms; classification of reserves and resources; introduction of two major accounting options to account for oil and gas costs; successful efforts and full cost; GAAP; IFRS; market and valuation methods to comply with SEC filing requirements; includes asset impairment and asset retirement obligations.

Project Financing: Commercial Debt Finance
- Corporate and project financing; sources of debt and equity financing; public and private sources of capital; unilateral and bilateral sources of financing; risk assessment and mitigation; structuring of financing; preparing the financing plan; negotiating the term sheet; preparing the financing documents; closing.

Case Studies: Examples of Project Financing
- Qatar Gas Project; Colombia Power Project; U.S. Gas Storage Project.

Energy Project Economics and Measures of Performance
- Project cash flow analysis; discounting cash flow to obtain present value and internal rate of return; cost of the capital and the effect of debt financing, other measures of project performance; sensitivity to changes in key variables.

The Business Model
- Using the balanced scorecard framework; regression analysis; and flexible budgeting; how does the organization earn profits? What are the key strategic drivers of financial success?

Cost and Expenses
- "True costs" of developing and delivering products and services; using gross profit analysis; activity-based costing techniques; and cost variance schedules.

Financial Statements
- Using the business model, volume, expense, and revenue data to constrain and understand financial reports; Using balance sheets; income statements; cash flow statements; ratio analysis; and performance outcome measurements.

Introduction to Petroleum Economics
- The fundamentals of economics: background and its application to the oil and gas industries.

Energy Project Risk and Uncertainty
- Identifying and quantifying energy project risks; oil and gas economics; accounting for oil and gas costs: successful strategies; financial analysis; understanding and accounting for oil and gas costs: successful strategies.

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Risk Response
- Assessing the organization's ability to respond to trouble spot "flare-ups" on paper and in reality. Using avoidance, sharing, reduction, and acceptance practices, as well as portfolio analysis techniques.

Monte Carlo Simulation
- Extending the decision tree analysis framework for situations that include continuous probability scenarios; identifying power and limitations of simulations; emphasis placed on relevance of expected value; Crystal Ball commercial software used to model risk in financial model.

Field Development, Reservoir Performance, and Surface Facilities
- Formation evaluation; estimating reserves; production, performance, and surface facilities design; inflow performance; reservoir management; enhanced recovery.

Managing Energy Price and Volume Risks: Futures and Hedging
- The history of energy price risk management; physical, forward and futures markets; typical futures market transactions; hedging, swaps and options; volume risk management; weather derivatives.

Portfolio Theory and Real Options
- Introduction to and discussion of Real Options and Portfolio Optimization; two other key methods used extensively today by many oil companies to evaluate project opportunities; understanding how a collection of investments can decrease overall risk in the portfolio.

INSTRUCTORS
Rick Squires, MBA
Michael Kraten, PhD, CPA
Bradford R. Donohue, MBA, CFA

WHO SHOULD ATTEND
This program is designed specifically for energy managers, supervisors, and key employees from broad functional areas, such as finance, technology, and project development who wish to expand their knowledge of financial modeling and petroleum project economics.

INSTRUCTORS
David A. T. Donohue, PhD, JD
Bradford R. Donohue, MBA, CPA
Hakeahel Ababid, MBA
Rodney Kieker, MBA
John B. Jack King, MBA
Michael Kraten, PhD, CPA
Rick Squires, MBA

FINANCIAL ANALYSIS BUSINESS GAME: OCEANA

This “business game” is an integral part of the learning process. Participants, divided into teams, make real-life technical, financial, and market decisions that commonly confront managers today. Team performance is measured on a financial basis and is catalyzed by healthy competition.

Participants, working in teams, will evaluate an oil and gas business opportunity in the Republic of Oceana, near Indonesia. They build a financial model that will integrate various risks associated with the investment. This model will utilize a proposed Production Sharing Agreement and incorporate revenue, capital and operating costs, financing costs, and tax projections for the life of the project.

Throughout the program, teams will add layers of complexity to the model by incorporating different types of risk analysis tools presented in the lectures. The teams will present their project analysis to a decision review board by outlining the risk profile and expected performance measures of the project. They then learn the outcome of these decisions. Emphasis will be placed on the practical implementation of the tools presented in lecture and on developing practical financial modeling skills.

WORKSHOP SESSIONS INCLUDE:
- Modeling the production sharing agreement
- Building the base case financial statement
- Calculating stranded reserves of performance
- Sensitivity and scenario analysis
- Decision trees and expected monetary value
- Monte Carlo simulation
- Project selection, shareholder and financial analysis
- Simulation of long-term investments in the economic environment
- Evaluation of performance and presentation of results

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