



Petroleum Project Economics and Risk Analysis

Program Objectives

During this one-week program participants will learn, in a practical and realistic manner, how to analyze the financial performance of oil and gas investments from both the project and corporate reporting perspectives. They will be asked to build financial models for typical oil and gas projects and then identify and incorporate all major risks into the analysis. A major part of the learning is achieved through team participation in a challenging “business game” where they must present their team’s recommendations to the Board.

Key Benefits

- Introduces the participant to the fundamentals of Petroleum Economics
- Provides an overview of the key financial and economic means of project performance
- Provides a set of risk assessment tools including sensitivity, scenario, decision tree and monte carlo simulation analysis
- Introduces the participant to stakeholder analysis frameworks to identify stakeholder groups and their concerns
- Encourages participants to work together to collect and analyze data and make investment decisions.

Instructional Format

The instructional format consists of lectures by a respected specialist and team participation in a classic IHRDC “business game”. The business game typically takes almost one half of the instruction time and is highly rated for its effectiveness in internalizing learning and generating discussion among team participants. In addition to the lectures and business game this course will utilize additional exercises and case studies to further enrich the classroom experience. This method of blended learning has proven to be an ideal way for participants to learn the practical needs of today’s international energy markets.

Who Should Attend

This program is designed for energy managers, supervisors and key employees with broad functional responsibilities: financial, technical, operational, project development, as well as other professionals, who wish to expand their knowledge of investment and risk analysis in managing, developing and reporting on energy projects.

Program Location and Schedule

The program will begin on Monday morning with registration at 7:30am and end on Friday afternoon. Participants may be asked to stay later on some of the first few evenings to complete workshop sessions.



PROGRAM CONTENT

Introduction to Petroleum Economics & Energy Business Environment

Background on the fundamentals of economics and its application to the oil and gas industries. Provides an introduction to the oil and gas value chains and the identification of business opportunities along these chains.

Introduction to Financial Statements and Measures of Performance

Background needed to understand and build models of the four key corporate financial statements; review and discussion of the key measures of financial performance, consideration of the measures used by major companies and those of your company. Steps required to build proforma financial projections to show how a new project will affect corporate performance.

Project Management Fundamentals

The oil and gas industry typically follows and IHRDC has developed its own five-phase process – from opportunity assessment to long-term operation – for analyzing and implementing a project.

Practical Use of Excel to Model Corporate Financials

Learn how the full capabilities of Excel can be used to model financial statements.

Documenting and Incorporating Key Project Variables Into Financial Models

Specification of all project costs and revenues: Pre-development costs, CAPEX, financing options, revenues, OPEX, taxes, net income and cash flow.

Energy Project Economics & Measures of Performance

Project cash flow analysis, discounting cash flow to obtain present value and internal rate of return, the cost of capital and the effect of debt financing, other measures of project performance. Sensitivity to changes in key variables.

Energy Project Risk and Uncertainty

Identifying and quantifying energy projects risks and uncertainty into project analysis. Using statistical measures to quantify risk. Incorporating risk and uncertainty into project analysis. Two key risk assessment methods will be considered in this unit: scenario analysis and sensitivity analysis.

Probability Theory & Quantitative Analysis

Introduction to probability theory including probability density functions, overview of typical probability distributions and definition of key terms. Applying probability theory in decision analysis with emphasis on concept of expected value.

Decision Tree Analysis

Applying a structured method for investment decision analysis. Understanding the implications of different sets of decisions. Identify areas to reduce risk and understand economic opportunity cost of capital. Identify implications of various forms of contracts. Analyze implications of incremental project decisions.

Monte Carlo Simulation

Extend the decision tree analysis framework for situations that include continuous probability scenarios. Identify power and limitations of simulations; emphasis is placed on relevance of expected value. Crystal Ball commercial software will be used to model risk in financial model.

Portfolio Theory & 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.

Managing Price Risk Using Financial Derivatives

Background on the use of financial derivatives to manage energy product price risk; commodity exchanges; key price risk management instruments: futures, hedges, swaps and options. Setting a strategy to use derivatives to manage the risks of an energy project. Incorporating derivatives into the workshop financial model.

Stakeholder Impact Assessment & Analysis

Introduce different analysis frameworks to identify stakeholders affected by energy projects, assess the impact on each group identified and develop strategies to address the social welfare.



IHRDC's Business Game Workshops

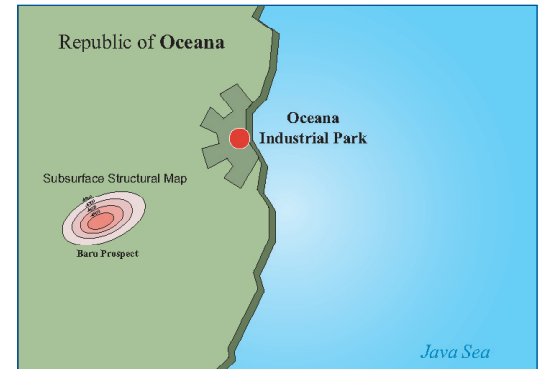
WORKSHOP

Asia Onshore 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 in the international gas business 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 week 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 those decisions. Emphasis will be placed on the practical implementation of the tools presented in lecture and on developing practical financial modeling skills.

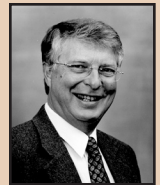


INSTRUCTORS

Rick Squires will be the senior lecturer. He will be assisted by Maher Habbal, an IHRDC Modeling Specialist who will direct the simulator sessions of the workshop. Their backgrounds are as follows:

Rick Squires

Rick Squires, an IHRDC Senior Lecturer, is the founder of PiEnergy, which provides consulting and executive search services to the energy industry. He is a Non-Executive Chairman of a U.K. based offshore hybrid gas and wind power company. For four years, from 1998 to 2002, Mr. Squires was Senior Vice President, Planning, Strategy and Investor Relations for InterGen, an international power company with plants in ten countries. Prior to joining InterGen, he headed the Power Business within Shell Gas and Power, London. His career in Shell spanned over 25 years and also included senior management positions in International Oil Trading, Coal Business Development and Marketing in London, South Africa and Japan. Mr. Squires holds an B.S. (Honours) degree in Electrical Engineering from Lanchester University and a Masters Degree in Business Studies from Durham University, U.K.; he is a member of the Institute of Electrical Engineers, the Institute of Directors and the Energy Institute.



Maher Habbal

Maher Habbal is Manager, Business Simulators Development/Applications for IHRDC. He is responsible for developing and implementing the business simulation models used in IHRDC management programs and workshops. To date he has built five such simulators: one for the oil industry, two for the gas, and two for power. His other responsibilities include internal financial reporting, analysis and forecasting. Before joining IHRDC, Mr. Habbal worked three years with Arthur D. Little, Inc. as a Senior Financial Analyst on financial reporting and modeling. Also, as a member of the teaching staff at the Arthur D. Little School of Management Master of Science in Management Program, he taught Finance, Economics and Accounting. Mr. Habbal holds a Master of Science Degree in Management from Arthur D. Little School of Management and a B.S. in Business Economics from the Lebanese American University.

