



International Gas Business Workshop

Program Objectives

This program is designed for the specialist or manager who needs to broaden his or her knowledge of today's international gas business with an emphasis on gas project development. This intensive, one-week program examines the integrated technical, economic, business and market factors that shape the international gas industry and the management skills needed to operate effectively within that industry. The instructional format consists of a careful balance of lectures by experienced experts and a practical workshop. In the workshop, participants, working in teams, make actual technical and financial decisions as they explore for gas in either of two settings: the fictitious Republic of Expetra, an unexplored island in the Caribbean just north of a major gas discovery in Trinidad, or the Republic of Singnam, an undeveloped but highly populated hypothetical country on the South China Sea. The IHRDC gas business simulator allows teams to monitor and review 20 years of "real-life" decisions. This careful balance of lectures and workshops is an ideal way for participants to acquire the management skills and business knowledge needed by today's industry manager.

Key Benefits

- Provides an overview of such topics as exploration agreements, exploration processes, drilling, field development, gas production and reserves estimation;
- Emphasizes more extensively gas market analysis and project fundamentals for gas pipeline systems, LPG recovery, gas distribution, gas-fired power plants, methanol and ammonia projects, and LNG export markets;
- Develops key financial skills, including project investment analysis, financial statements and accounting concepts as measures of project and corporate performance, and project financing of energy projects;
- Integrates the use of these technical and financial tools in team decision-making in a simulated competitive environment that includes the project analysis, project development, and market potential of each area of gas utilization;
- Encourages participants, working in teams, to apply classroom knowledge to practical, job-related problems;
- Fosters the important skills of collaborative decision-making and effective teamwork.

Who Should Attend

This program will benefit management, administration, and technical personnel who wish to broaden their knowledge of the business environment and "best practices" of the natural gas business, especially the commercialization of gas projects. Because of the workshop format, an enrollment level of 25 is recommended.

Instructional Format

This intensive program has a lecture/workshop format. Through an innovative gas industry workshop and simulation model, participants, working in teams, make the real-life technical and financial decisions that confront managers in the international gas business today.

Program Location and Schedule

The program will begin on Monday morning at 7:30am with registration and end on Friday mid-afternoon. Typically the day will run from 8:00am until 5:00pm however, participants may be asked to stay later on some of the first few evenings to do workshop sessions.



PROGRAM CONTENT

Gas Market Structures and Analysis

Structure of the Gas Value Chain; Regional Gas Markets in Key World Markets; Analysis of Gas Market Opportunities; Gas Pricing Fundamentals.

Host Government Agreements (Overview only)

The Different Forms of Host Government Agreements; Major Terms Needed for Gas Projects; Review and Analysis of Sample Agreements.

Exploration Methods (Overview only)

Overview of Technology and Trends in Exploration; Prospect Development; Seismic Processes; Reservoir Delineation; Prospect Economics and Risk Analysis; Successful Exploration Practices.

Drilling and Well Completions (Overview only)

Drilling Exploration and Development Wells, Well Testing and Evaluation, Well Completions.

Cost of Supply, Energy Project Economic and Proforma Analysis

Economic Yardsticks; Project Cash Flow Before and After Tax; Tax Expenses and Benefits; Net Cash Flow Stream and Payout; Time Value of Money; Opportunity Cost and Present Value of Net Cash Flow; Discounted Cash Flow Analysis and Internal Rate of Return; Risk Assessment and Sensitivity Analysis; Proforma Analysis for Energy Projects.

Estimating Resources and Reserves

Categories Of Resources And Reserves; Estimating Hydrocarbon Reserves At Different Stages Of Exploration And Development With Special Emphasis On Gas And Gas Liquids.

Surface and Gas Processing Facilities: LPG/ Ethylene Markets

Surface Facilities Design; Overview of Gas Processing Systems; Liquid Separation Processes; LPG Fractionation Options; Compression; Metering; the International Market for LPG's; Ethylene Processes and Markets.

Load Balancing & Underground Gas Storage System

Load Factors and Load Balancing with Pore, Cavern and LNG Storage Systems; Typical Capacity and Delivery Profiles of Storage System; Capital and Operating Costs; Integration into the Supply System; Design of Load Balancing Tariffs.

Gas Pipeline Systems

Overview of Pipelines in the Gas System; Pipeline Design: Pipe Size and Compression; Capital Costs and Pipeline Economics; Project Cost Estimating; Structure of Pipeline Tariffs; Examples.

Gas-Fired Power Plants

Overview of the Power Value Chain; Power System Fundamentals and Terminology; Traditional and Combined-cycle, Gas Turbine Power Systems; Technology: Plant Design, Fuel Efficiency, Available Packages; IPP Project Structure; Project Feasibility: Capital Costs, Comparative Economics; Power Market Structure: Traditional,

Merchant and Tolling Plants; Fundamentals of Power Pools; Rate Structure, Supply Reliability, Examples of Recent and Planned Projects.

Gas Distribution

Overview of the Gas Distribution System; Design & Construction of Distribution Systems; Classes of Customers and Load Factors; Competition from Other Fuels; Character of Gas Supply; Structure and Regulation of Local Distribution Companies (LCD's); Setting Customer Rates; Case Studies.

Ammonia and Methanol Plant Opportunities

Overview of the Processes of Converting Gas to Marketable Products Including Ammonia, Methanol and Gas-To-Liquids Fuels; Local and World Markets for Ammonia and Methanol; Capital, Operating, and Transportation Costs of Ammonia and Methanol; Market and Netback Prices; Overall Project Economics; Examples of Recent Projects.

LNG Systems and Transportation

Overview of LNG Projects in the Gas System; Technology: LNG Plants, Liquefaction, Ship Design, Operations, and LNG Re-gasification Units; LNG Project Feasibility: Capital Costs, Economics, Risk, Financing, Markets; LNG Plant Design: Gas Reserves to Support a Plant, Contract Prices, Contracting; Examples of Recently Completed and Planned Projects.

Gas Field Design and Development (Overview only)

Overview of the Gas Field Design Process; Subsurface Design; Surface Design; Capital Cost Estimation; Project Economics; Case Studies.

Measuring Company Financial Performance

Review of Financial Statements: Income Statement, Balance Sheet, Cash Flow, and Shareholders Equity; Capital and Operating Costs; Measurements of Financial Performance; Taxation; the Accounting and Audit Process.

Industry Regulation, Deregulation and Convergence

The nature of regulation in the energy sector; history and current state of the gas industry deregulation process at the wholesale and retail markets: US, Europe and elsewhere; Effect of deregulation on the structure of the industry; convergence of gas and power.

Project Financing: Commercial Debt Structuring

Corporate and Project Financing; Sources of Debt and Equity Financing; Public and Private Sources of Capital; Multilateral and Bilateral Sources of Financing; Risk Assessment and Mitigation; Preparation of the Financing Plan; Negotiation Terms and the Closing Financing Documents; Project Financing Case Study: Ammonia Project in Venezuela and Gas-Fired Power Project in Colombia.

Energy Trading and Risk Management

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.

WORKSHOP SETTINGS

Expetra: The International Gas Business Workshop

This gas business workshop, an integral part of the learning process, allows participants, working in teams, to participate in a challenging Atlantic Basin business game. The game allows teams to choose from several offshore blocks that are available for exploration in the Republic of Expetra, an unexplored island in the Caribbean. Gas and condensates are expected to be discovered in the deep offshore. Teams enter into exploration and, as necessary, other agreements as they explore for and develop the discovered reserves and then decide on how these reserves will be marketed over a 15-year production period. Team performance is measured on a financial basis, and a healthy competition exists among the teams to achieve the best overall financial performance. This classic IHRDC business game and workshop consistently leads to very high praise from participants for its realism, stimulation of the learning process, and the benefits of working in teams with delegates from many other countries.

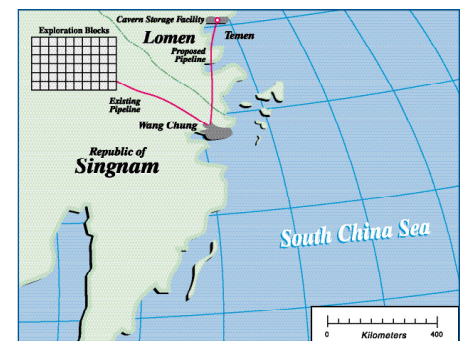


The sessions include:

- Workshop Overview
- Gas Pricing Exercises
- Negotiating the Host Government Agreement
- First Year, Second Year and Third Year Exploration Decisions
- Reserves Estimation
- Regional Pipeline and Tanker Transportation Decisions
- LPG Plant Decision
- Load Balancing Exercise
- Export Pipeline Decisions
- Gas Distribution Company Acquisition Decision
- Power Project Decisions
- Ammonia and Methanol Project Decision
- Field Development Decision
- Integrated Field and Market Development Decisions
- Fifth Year and Tenth Year Decisions
- Analysis of Results and Team Presentations

Singnam: The International Gas Business Workshop

This gas business workshop, an integral part of the learning process, allows participants, working in teams, to participate in a challenging business game. The game allows teams to choose from several offshore blocks that are available for exploration in the Republic of Singnam, an unexplored island in the South China Sea. Gas and condensates are expected to be discovered in the deep offshore. Teams enter into exploration and, as necessary, other agreements as they explore for and develop the discovered reserves and then decide on how these reserves will be marketed over a 15-year production period. Team performance is measured on a financial basis, and a healthy competition exists among the teams to achieve the best overall financial performance. This classic IHRDC business game and workshop consistently leads to very high praise from participants for its realism, stimulation of the learning process, and the benefits of working in teams with delegates from many other countries.



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INSTRUCTORS

Dr. David A.T. Donohue, President of IHRDC or Jack King, an IHRDC Instructional Programs Consultant, will be the senior lecturer. Maher Habbal, an IHRDC Modeling Specialist, will be the coordinator of the workshop sessions.

Dr. David A.T. Donohue is the Founder and President of both IHRDC and Arlington Storage Corporation. Dr. Donohue is a technical specialist, businessman, attorney and lecturer who is highly regarded for the teaching of management programs devoted to the “business of oil and gas.” He has successfully designed and taught these “business game” programs to more than 10,000 members of the international oil and gas industry on both in-house and public bases. He was the developer of an innovative video-based learning system for the upstream petroleum industry, which has now been converted to IPIMS, a widely licensed e-Learning system. Dr. Donohue is also the developer and owner of independent underground gas storage facilities in New York State. In his early career he held various positions in engineering and research for Exxon and, for four years, served on the faculty of Pennsylvania State University. Dr. Donohue holds the Ph.D. in Petroleum & Natural Gas Engineering from Pennsylvania State University and a J.D. degree from Boston College Law School. He is active in public affairs in his hometown, a Distinguished Member of the SPE and Alumni Fellow of Pennsylvania State University.



John B. (Jack) King, is an expert in the international natural gas industry, both in pipeline natural gas and LNG, with over 26 years experience in Mobil and ExxonMobil Corporations. Jack began his career as a production engineer in the Gulf of Mexico. He then progressed through a number of senior executive natural gas marketing positions for both Mobil and ExxonMobil affiliates in the United States, Indonesia, Qatar, Peru, Venezuela, Japan and Russia. From Indonesia, he participated in successful long-term LNG sales contract negotiations with gas consumers in Japan, South Korea and Taiwan. In Qatar, he was instrumental in leading the successful LNG sales negotiations to kick-off the RasGas LNG project with Korea Gas Corporation, as well as lead Mobil’s efforts in contract negotiations with Japanese buyers in the QatarGas project. He was instrumental in initiating LNG sales contract negotiations with LNG consumers in Thailand, Turkey, Taiwan, India and Italy. He led both Mobil Corporation’s efforts in the Camisea gas project in Peru and ExxonMobil’s participation in the Venezuela LNG project. As Project Executive for the Sakhalin-1 project, he concluded a successful feasibility study to bring pipeline natural gas from ExxonMobil’s Sakhalin-I project, in Russia, to Japanese utilities and concluded a successful long-term agreement to bring pipeline natural gas to China from the Sakhalin-I project. Jack received a B.S. in General Engineering and Military Art from the United States Military Academy at West Point, New York, and earned a Masters in Business Administration from Tulane University.



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.

