NEW OFFERING!

Oil and Gas Pipeline Project Development Workshop

Technical, Commercial, Regulatory, and Environmental Aspects of Oil & Gas Pipelines

Overview
This five-day program is designed to cover both the technical and business facet of the oil and gas pipeline industry. Participants will learn how to put together integrated pipeline projects starting from its technical design, route selection, to project economics and operations & maintenance aspects. Working in teams, they will be asked to evaluate a pipeline construction opportunity putting together its technical specifications and incorporating all major commercial risks into the analysis. A unique part of this program is achieved through team participation in a challenging learning simulation around upstream pipelines and associated infrastructure, in which participants must present their proposed project decisions and recommendations to a simulated board.

Who Should Attend
This program is designed specifically for managers, supervisors, and key employees from broad functional areas, such as technology, operations, finance, regulatory, and project development who wish to enhance their knowledge of the international oil and gas pipeline topics from technical aspect to commercial and regulatory issues.

Instructional Format
This intensive program has a lecture/simulation format. Lectures are taught by a highly experienced industry specialist and the pipeline business game is facilitated by a simulation specialist. Participants, working in teams, learn by making the real-life technical and commercial decisions that confront managers in the international oil and gas pipeline business.

Program Location and Schedule
The five-day program begins on Monday, at 8:00 am, with registration. Formal sessions begin each day at 8:30 am and run until 5:00 pm. Participants may be asked to stay later on some of the first few evenings to work on workshop sessions. The Friday session typically ends at mid-day.
Overview of the Petroleum Industry

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

Pipeline Project Fundamentals

Steps in the development of petroleum pipeline projects: screening studies, feasibility studies; detailed engineering, environmental studies; financing, construction, and operation. Project management examples of pipeline projects; the integrated planning and development process.

Pipeline Project Economics

Fundamental project economics concepts: economic yardsticks; project cash flow before and after tax; tax expenses and benefits; net cash flow stream and payout; time value of money; discounted cash flow analysis and internal rate of return; risk assessment and sensitivity analysis. Financing petroleum pipeline projects; project financing: structuring, role of multilateral and bilateral agencies.

Pipeline Design

Introduction to crude oil & natural gas pipeline design and hydraulics. General flow equations; line sizing criteria; Basis of design; pipe size and thickness; MAOP and operating capacity concepts; material selection criteria, calculation and simulation tools. Route selection.

Pump and Compressor Stations

Construction and operation of pipeline pump and compressor stations; compression, pumping, and prime mover technologies. Selection criteria; station layout; control systems; determining number of stages; performance maps; fuel gas and power systems. Startup and shutdown.

Instrumentation and Auxiliary Equipment

Buildings and related systems: fire, security, vapor recovery, dehydration, injection, water treatment, catholic protection and blending systems. Filters, manifolds, block-valve stations. Custody transfer equipment and devices. Process measurement equipment and flow measurement equipment. Pipeline control, communications, SCADA, and PLCs.

Storage Infrastructure and Load Balancing

Needs for load balancing and storage options, capital and operating costs: underground, cavern, and LNG facilities; operational procedures; new options for marketing storage services; case examples.

Health, Safety, and Environmental Issues

The role of HSE best practices in the pipeline industry; how to assess risk and how to implement risk management systems; value of HSE management systems; emergency response planning, implementation; Developing a healthy, safe, and environmental culture in an organization; HSE management programs.

Regulations and Tariff Setting

The nature of regulations in the pipeline sector; history and current state of the industry regulation/deregulation process at the wholesale and retail markets: U.S., Europe, and elsewhere; effect of deregulation on the structure of the industry. Methods used to develop rates, cost of service, rate base, and capitalization (for natural gas pipelines), including rate of return, tax allowances, regulatory adjustments, and rate design methods. Laws and regulations related to revenue requirements, rates, and new services for pipelines.

Construction, Commissioning, and Start-up

Major considerations in the cost-effective detailed-design and construction of oil and gas pipeline systems. Execution issues during construction, safety during construction, contractor qualifications, subcontracting options, construction stewardship, and organizational interfaces during construction. Key issues of startup, pre-startup audits, training requirements, coordination with upstream and customers, role of contractors and owners, handover to operations.

Marketing and Distribution of Products

Distribution and retail marketing of petroleum products; worldwide product markets; products pricing. Netback pricing and inter-fuel competition; market segments and market opportunities. Typical terms in oil & gas sales contracts; price-volume; risk allocation. Overview of the distribution systems; types of customers and load factors; structure and regulation of local distribution companies; marketing demands; design and construction of distribution systems.

Pipeline Operations and Maintenance

Pipeline operations and maintenance issues: damage prevention, line markers, inspection, maintenance, and integrity management. External and internal corrosion monitoring and inspection, pigging. Emergency response plans.

Competition and Industry Trends

Competitive landscape of the global pipeline industry; Current projects and growth forecasts; projected market size and growth potential; major companies. Competition with tankers and LNG transportation.
International Oil and Gas Pipeline

This learning simulation is designed to reinforce the major content elements of this course in an interactive business game setting. Participants, working in teams, are asked to evaluate a pipeline development opportunity in East Africa. They select the optimum route for the crude oil pipeline and install pump stations. Both commercial and regulatory terms will need to be negotiated with government representatives. Using financial models, teams will be asked to model tariff based revenue, capital and operating costs, financing costs, and tax projections for the life of the project. Teams will also work tackling start-up and commission related events during the construction phase.

The workshop sessions include:

- Introduction to the Pipeline Business Game
- Project Screening and Initial Feasibility
- Evaluating Route Alternatives
- Evaluating Design Alternatives
- Storage Options and Markets
- Prepare/Evaluate EIS
- Evaluating Contractors for Construction and Operations
- Integrated Pipeline Project Development Proposal

INSTRUCTORS

**John B. (Jack) King** is an expert in the developing and marketing of natural gas, both in pipeline natural gas and LNG, with more than 26 years experience at Mobil and ExxonMobil Corporations. Mr. King 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 and Qatar, he participated in successful long-term LNG sales contract negotiations with consumers in Japan, South Korea, India, Italy, and Taiwan. 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-I 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. Mr. King received a B.S. in General Engineering and Military Art from the United States Military Academy at West Point, and earned an MBA degree from Tulane University.

**Dr. Y. Serdar Dogulu** is Director of Innovative Learning Solutions at IHRDC. He is involved in the content and interface development of interactive Learning Simulators and other associated training products. Dr. Dogulu has been very active in building and teaching company-specific technical and project management programs for IHRDC clients and is the principal developer and instructor for IHRDC’s highly regarded E&P Learning Simulators. For the Arlington Group, an IHRDC affiliate, he was also actively involved in technical and financial modeling studies of underground gas storage projects. After earning his Ph.D. in Petroleum and Natural Gas Engineering from Pennsylvania State University, Dr. Dogulu held a postdoctoral researcher position with the Energy and Geo-Environmental Engineering Department at Penn State. His areas of interest include numerical simulation and reservoir management. Dr. Dogulu spent a summer as a Research Technologist at the Chevron Petroleum Technology Company developing reservoir simulation and management tools, including stream-tube simulation techniques for modeling large oil reservoirs.
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- Lunch

*Class will begin at 8:00am Monday – Friday