

El Oil and Gas Training 2010



Economics portfolio



Practical workshop: economic analysis of natural gas supply chains

22-25 February 2010, London, UK

EI member £2,585.00 inc VAT Non-member £2,820.00 inc VAT*

*includes complimentary Affiliate membership to the Energy Institute



NEW COURSE

This new course provides hands-on instruction for building, developing and applying spreadsheet economics, risk, finance and decision evaluation models to a range of projects along natural gas supply chains. Delegates are required to bring their own laptop computers for use on the course. Delegates are provided with a number of spreadsheets to load and then develop into increasingly sophisticated economic evaluation models for use in evaluating a range of investment opportunities. Some basic knowledge of operating Excel software is required, but detailed computer modelling expertise is not essential. The emphasis is on fit-for-purpose gas industry model applications rather than developing spreadsheet skills.

The course is structured in time into approximately one-quarter theoretical instruction and three-quarters practical hands-on facilitated spreadsheet model development. Brief PowerPoint presentations are delivered to review the key requirements and objectives of gas industry project economics and these will lead swiftly into the practical sessions. The economic analysis theory sections also aim to provide insight to the key economic issues impacting the gas supply chain.

Many companies make extensive use of proprietary economic modelling software, often requiring macros to be built to evaluate case-specific problems. In such cases, even though spreadsheets may not be used routinely, it is of enormous benefit for analysts and decision-makers to understand how such models can be built, developed and manipulated on a spreadsheet platform. Spreadsheets in conjunction with built-in functions, add-ins and VBA macros provide an extremely powerful platform for such analysis. The course practical sessions will demonstrate how such features can be simply and effectively harnessed to build quite sophisticated, but highly functional, analytical models.

Digital copies of all training materials will be provided to delegates.

Course content:

Day one – Upstream economic analysis

- Theory: Why economic evaluation models are critical for investment decisions
- Theory: Essentials of cash flow analysis and discounting techniques
- Practical: Develop cash flow analysis model for upstream gas field development
- Theory: Upstream fiscal terms and production sharing contracts
- Practical: Develop cash flow analysis model for Production Sharing Contract
- Theory: Gas pipeline technical and commercial issues
- Practical: Develop cash flow analysis model for building and operating a gas pipeline

Day two – Sensitivity analysis and liquefied natural gas project analysis

- Theory: Requirements for sensitivity analysis
- Practical: Develop sensitivity model to evaluate breakeven gas price for upstream project
- Theory: Cost and revenue components for constructing a gas liquefaction plant
- Practical: Develop cash flow analysis model for construction of gas liquefaction plant
- Theory: Economics of transporting LNG by ship
- Practical: Develop operating cash flow analysis model for LNG transportation
- Theory: Factoring in risk analysis and calculating expected values

Day three – Decision trees, GTL and CNG project evaluation

- Theory: Decision trees and their application
- Practical: Develop decision tree model to evaluate upstream gas project alternatives

- Theory: Economic issues associated with Gas-to-Liquids (GTL) plants
- Practical: Develop breakeven price evaluation model for GTL plant
- Theory: Underground Gas Storage (UGS) and peak shaving gas to power projects
- Practical: Develop economic model to evaluate underground gas storage project
- Theory: Economic and risk issues associated with Compressed Natural Gas (CNG)
- Practical: Develop economic model to compare CNG and LNG transportation options
- Theory: Monte Carlo simulation – how it works and why it is so powerful

Day four – Simulation, Gas-to-Power, debt finance and hedging

- Theory: Gas-to-Power and Combined Cycle Gas Turbines (CCGT)
- Practical: Develop cash flow model evaluating a CCGT plant construction
- Theory: Statistical analysis of simulation model results
- Practical: Develop model to statistically analyse simulation results
- Theory: Debt financing alternatives for natural gas projects
- Practical: Develop debt supported cash flow model for upstream field development
- Theory: Options and swaps to hedge natural gas price exposure
- Practical: Develop simple profit and loss model for swaps and options

Who should attend?

Commercial, technical and financial analysts, economists, planners and decision-makers plus others working in the natural gas industry wishing to develop practical economic analytical skills using spreadsheets to evaluate natural gas projects.



Economics and trading of the oil supply chain

12-16 April 2010, 11-15 October 2010

EI member £2,600.00 plus VAT Non-member £2,650.00 plus VAT*



*includes complimentary Affiliate membership to the Energy Institute

Delegates will examine the various activities of the Invincible Energy Company to explore the economic forces which drive the oil supply chain. They will concentrate on the main areas of risk and opportunity from the crude oil supply terminal, through transportation, refining and trading to the refined product distribution terminal.

During their time in Invincible's refinery, delegates will learn about the quality aspects of product supply. They will study refinery process economics and the effects of upgrading. Blending to meet quality requirements at optimal cost will be examined. Delegates will construct and negotiate a processing deal.

They will then follow the crude oil to and the refined products from the refinery and look at the economics of various alternatives.

International markets and trading will be studied, together with the various methods of price risk management.

This course is the essential foundation for people entering the oil industry or for those with single-function experience looking to broaden their knowledge. It also forms the basic building block for the other Invincible courses.

The work on twelve exercises is performed in syndicates, with comprehensive debriefs studying the consequences of the decisions made. The course expects a high degree of participation from delegates and there is a high staff-to-pupil ratio.

Course content:

Day one

Crude oils and their evaluation; world crude oil and refined product markets; supply and demand and how they determine international oil prices; how to use Worldscale; freighting and freight costs.

Day two

Chartering ships; refining – distillation and reforming processes; quality and specifications of refined oil products; international oil trading; crude oil pricing; scheduling oil supplies.

Day three

Refining - treating, blending and conversion processes; refinery economics and optimisation; processing arrangements; negotiating a processing deal and calculating its profitability.

Day four

Pricing refined products; mechanics of trading and contracting in the international markets; trading costs; the principles of identifying and managing price risk.

Day five

Derivative markets; the mechanics of basic hedging techniques.

What will you learn?

By the end of the course you will be able to:

- Value different types of crude oils
- Calculate freight costs using "Worldscale"
- Assess the economics of refinery upgrading
- Perform blending calculations on all main fractions
- Construct and negotiate a processing deal
- Calculate a trading margin
- Carry out basic hedging
- Construct a purchase and sale contract

You will understand:

- How world oil markets operate
- The principles of chartering a ship
- The principles of oil refining
- Refinery economics and margins
- Product quality



Economics and trading of the oil supply chain

11–15 October 2010

EI member £2,600.00 plus VAT Non-member £2,650.00 plus VAT*

*includes complimentary Affiliate membership to the Energy Institute



Delegates will examine the various activities of the Invincible Energy Company to explore the economic forces which drive the oil supply chain. They will concentrate on the main areas of risk and opportunity from the crude oil supply terminal, through transportation, refining and trading to the refined product distribution terminal.

During their time in Invincible's refinery, delegates will learn about the quality aspects of product supply. They will study refinery process economics and the effects of upgrading. Blending to meet quality requirements at optimal cost will be examined. Delegates will construct and negotiate a processing deal.

They will then follow the crude oil to and the refined products from the refinery and look at the economics of various alternatives.

International markets and trading will be studied, together with the various methods of price risk management.

This course is the essential foundation for people entering the oil industry or for those with single-function experience looking to broaden their knowledge. It also forms the basic building block for the other Invincible courses.

The work on twelve exercises is performed in syndicates, with comprehensive debriefs studying the consequences of the decisions made. The course expects a high degree of participation from delegates and there is a high staff-to-pupil ratio.

Course content:

Day one

Crude oils and their evaluation; world crude oil and refined product markets; supply and demand and how they determine international oil prices; how to use Worldscale; freighting and freight costs.

Day two

Chartering ships; refining – distillation and reforming processes; quality and specifications of refined oil products; international oil trading; crude oil pricing; scheduling oil supplies.

Day three

Refining - treating, blending and conversion processes; refinery economics and optimisation; processing arrangements; negotiating a processing deal and calculating its profitability.

Day four

Pricing refined products; mechanics of trading and contracting in the international markets; trading costs; the principles of identifying and managing price risk.

Day five

Derivative markets; the mechanics of basic hedging techniques.

What will you learn?

By the end of the course you will be able to:

- Value different types of crude oils
- Calculate freight costs using "Worldscale"
- Assess the economics of refinery upgrading
- Perform blending calculations on all main fractions
- Construct and negotiate a processing deal
- Calculate a trading margin
- Carry out basic hedging
- Construct a purchase and sale contract

You will understand:

- How world oil markets operate
- The principles of chartering a ship
- The principles of oil refining
- Refinery economics and margins
- Product quality



Planning and economics of refinery operations

19–22 October 2010, London, UK

EI member £2,585.00 inc VAT Non-member £2,820.00 inc VAT*

*includes complimentary Affiliate membership to the Energy Institute



This intensive, 4-day course will enable delegates to understand the essential elements of refinery operations and investment economics, to review the various parameters which affect refinery profitability and to develop a working knowledge of the management tools used in the refining industry.

Course content

Technical resumé

Review of petroleum products' applications, characteristics and specifications. Main refining process units. Refining schemes.

Basic economics of the various process units.

Refinery margins and costs

Crude oil, product markets and prices. Analysis of refining costs.

The calculation of refining margins. How refining margins have developed.

Refinery simulation

Simulation of product manufacturing using spreadsheets. Analysis of the main constraints affecting product manufacturing.

Present situation of the refining industry

The development of refining capacities, product demand, different refining schemes and conversion plants.

Optimisation of refinery operations

Basics of Linear Programming (LP). The 'Simplex' method. Simplified example of refinery modelisation. Analysis of an LP solution: material balance, marginal costs, opportunity costs, incentives to construction. Sensitivity analysis.

Construction of a new process unit:

Economic evaluation

Basics of profitability analysis.

Case study: construction of a new isomerisation unit

– simulation of material balance

– cash flow calculation

– investment and cost

– Internal Rate of Return calculation

Scheduling of refinery operations

Review of scheduling problems.

Control of results and practical application in a refinery.

How to improve refinery profitability

Future of the refining industry. Forecast development of oil consumption.

Environmental constraints. Impact on refining economics.

Delegates will learn:

- How to assess the latest trends in product specifications, process unit yields and refining schemes
- How to calculate product value, refinery margins and process unit margins
- How costs and margins compare
- How to simulate refinery operations and product blending
- How to optimise refinery operations, crude oil selection and product manufacturing
- How to analyse marginal costs from the optimisation of an LP model
- How to schedule refinery operations from the monthly plan to daily operations
- How to evaluate the profitability of a new process unit.

Who should attend?

- Technical, operating and engineering personnel working in the refining industry
- Analysts and planners
- Trading and commercial specialists



Valuation and risk analysis of oil and gas assets

16–18 November 2010



El member £1,880.00 inc VAT Non-member £2,115.00 inc VAT*

*includes complimentary Affiliate membership to the Energy Institute

This intensive 3-day course concentrates on economic evaluation techniques applied in upstream and downstream oil and gas projects. It will discuss the fundamental variables and issues associated with petroleum project valuations and provide an appreciation of how to assess the key uncertainties involved.

The course is pitched to appeal to professionals with a large range of technical and commercial backgrounds and varying levels of experience seeking insight to the broad range of economic valuation techniques required across the industry. In addition the course will also provide a valuable overview of the micro-economic issues facing oil and gas project operators for those employed by financial, commercial, legal, insurance, governmental, service, supply and advisory organisations.

The course will incorporate a number of short exercises and case studies to reinforce the key techniques discussed.

Topics covered include:

Day one – Basic analysis and valuation techniques

- Need for petroleum project economic analyses
- Project cash flow components
- Discounting and time-value considerations
- Distinguishing cash flow and other measures of profitability
- Funding criteria: the cost of capital and inflation issues
- Capital budgeting techniques and yardsticks
- Petroleum reserves categories and valuation
- Production and decline profiles
- Costs: estimating, budgeting and controlling
- Techniques to optimise upstream and downstream performance

Day two – Constructing economic evaluation models

- Volatility of crude oil, gas and products markets
- Upstream fiscal terms and project economics
- Production sharing and cost recovery
- Corporate and project finance in the petroleum industry
- Equity and debt cash flow analysis
- Sensitivity, scenario and simulation techniques
- Components of Monte Carlo simulation models
- Gross product worth and net refining margins

Day three – Dealing with risk, hedges, options and portfolios

- Regional reviews and case studies
- Valuations incorporating risk and uncertainty analysis
- Subsurface risk in oil and gas fields
- Above ground uncertainties impacting upstream and downstream
- Probabilistic approaches to economics and risk analysis
- Hedging: Valuation of options and swaps
- Decision trees and real options
- Risked valuation of petroleum asset portfolios
- Upstream and downstream optimisation techniques



Who should attend?

This course is designed for a multi-disciplined audience with diverse corporate, financial, economic, technical, strategic planning, risk management and operational backgrounds. Course content addresses issues and skills relevant to professionals working within oil and gas companies, government agencies (National Oil Companies and Ministries) and the support and service sectors to the industry, including: accountants, analysts, asset and project managers, bankers, economists, engineers, geologists, insurers, lawyers, portfolio analysts and managers.

Economics of refining and oil quality

1-3 December 2010 Cambridge, UK

El member £1,800.00 plus VAT Non-member £1,850.00 plus VAT*

*includes complimentary Affiliate membership to the Energy Institute



This course opens the Refinery 'Black Box' and explains the capabilities and constraints of each main process, enabling delegates to be more effective in their jobs. Crude oil selection and the effects of crude quality on key properties of both intermediates and finished products are explored. The value and opportunities presented by quality slacks are identified.

Delegates will discover the key trading profit opportunities through a Processing Deal that has recently been agreed at one of Invincible's fictional refineries. The Deal not only has the advantage of enabling this highly flexible complex refinery to run at near capacity, but also highlights how the capabilities of its hardware and the qualities of its product pools generate opportunities for making additional profits.

It is the delegate's ability to identify, evaluate and fully exploit these opportunities that enables additional gains to be realised. Emphasis is placed on the interface between refinery activity and international oil trading.

As with all Invincible training, the course will consist of a mixture of formal lectures, exercises and plays demonstrating the main commercial aspects of the refining/oil trading interface.

The work on a number of exercises is performed in syndicates, with comprehensive debriefs studying the consequences of the decisions made. The course expects a high degree of participation from delegates and there is a high staff-to-pupil ratio.

Course content:

Day one

Crude oil evaluation and selection criteria; capabilities and limitations of the main refining processes; scheduling constraints; processing deals; capacity constraints; costs of crude changeover and reprocessing; cost of under-running refineries; crude oil blending; speciality crudes; cut points and severities.

Day two

Product quality measurement; key product quality parameters (naphtha, mogas, middle distillates and fuel oils); product blending; additives; selection of fuel oil viscosity cutter stock; problem crude oils; petrochemical return streams; refinery operating costs; refinery fuel selection

Day three

Comparison of crude oil and fuel oil feedstocks; valuation of reformer feedstocks; supply chain optimization; refinery linkages and operational limitations; refinery benchmarking.

What will you learn?

From this course you will be able to:

- Recognise the capabilities and constraints of the main refining process.
- Construct and understand the elements of a processing deal.
- Differentiate between the cost and value of refinery feedstocks, intermediates and products.
- Perform linear blending calculations.



You will understand:

- The economic features of the main refining units.
- Refiners' flexibilities.
- The value of key quality parameters.
- Contaminants and the effect of reprocessing.
- The value of additives.
- Refinery hardware limitations.
- The opportunities presented by the refinery from the oil trader's perspective.

Registration form

UK Entry Visas – Please note that there have been recent changes to the UK Entry Visa application system. Given this, it now takes a minimum of 15 working days/3 weeks, to process any applications. If you wish to attend a course and need a visa, you are urged to apply at least 1 calendar month prior to the start date of the course. Full information at: www.ukvisas.gov.uk/en/howtoapply/wheretooapply/

To register, by post or fax, please complete this registration form in BLOCK CAPITALS and return it to the address below, together with payment of all fees. Nick Wilkinson, EI Oil and Gas Training, Energy Institute, 61 New Cavendish Street, London W1G 7AR, UK f: +44 (0)20 7255 1472 To register by email, please provide the same contact details (shown below), together with the relevant course details and send to: nwilkinson@energyinst.org To book online, visit: www.energyinst.org

I am/my employer is a member of the EI and entitled to the EI member's rate. EI Membership Number:

Mr/Mrs/Miss/Ms/Dr/Other: Name:

Job title or present position: Company/Organisation:

Name and address against which an invoice should be raised:

.....

t: f:

e:

Mailing address for joining instructions (if different to invoice address above):

.....

Please indicate if you have any particular dietary requirements:.....

I confirm that I have read and agree to the conditions of registration as specified in the General Information section.

Signature:..... Date:

Under UK Excise Regulations, delegates from all countries are required to pay VAT on any course taking place in the UK.

Course Title:.....

Course date: Cost of course: £

Less 10% discount for each subsequent delegate from the same company attending the same course on the same date
 £

I enclose my remittance, made payable to the Energy Institute, for: **TOTAL PAYMENT** £inc VAT

The total amount may be paid by Sterling Cheque or Draft drawn on a bank in the UK.

To pay by Credit or Charge Card, circle appropriate card name and give card details below:

Visa
 MasterCard
 Euro Card
 Diners Club
 Amex

Card No: _____ Start Date __ __ / __ __ Expiry Date __ __ / __ __

Please enter your 3-digit* security code above. This will be deleted upon authorisation. *4-digits for Amex users.

Credit/Charge card holder's name and address:

.....

Signature:..... Date:

Payment: Full payment must be received before a place can be guaranteed. Under UK Excise Regulations, delegates from all countries are required to pay VAT on any event taking place in the UK. Please note that VAT may be liable to amendment. All prices are correct at the time of going to press, but may be subject to change without prior notice.

Acknowledgement of registration: Confirmation of registration and a VAT receipt will be sent to all delegates. Joining instructions will be sent out prior to the start date of the course. If you have not received your acknowledgement seven days prior to the start date of the course, please contact EI Oil and Gas Training at the Energy Institute to confirm your booking.

Language and course materials: All presentations, course materials and supporting documentation will be presented in English. **Audio-visual recording of presentations is strictly forbidden. Course materials cannot be purchased by non-attendees.**

Cancellation: In the event of a delegate cancelling, a refund of the registration fee less a 20% administration charge will be made provided that notice is received in writing at least 28 days before the date of the course. No refunds will be paid after that date. However, course papers, as supplied to attendees, will be provided after the event.

Substitution
 If you are unable to attend, a substitute delegate may attend in your place, provided that EI Oil and Gas Training is notified in advance.

Enquiries
 EI Oil and Gas Training, Energy Institute, 61 New Cavendish Street, London W1G 7AR, UK
 t: +44 (0)20 7467 7100 f: +44 (0)20 7255 1472
 e: nwilkinson@energyinst.org www.energyinst.org

DATA PROTECTION ACT

The EI will hold your personal data on its computer database. This information may be accessed, retrieved and used by the EI and its associates for normal administrative purposes. If you are based outside the European Economic Area (the 'EEA'), information about you may be transferred outside the EEA. The EI may also periodically send you information on membership, training courses, events, conferences and publications in which you may be interested. If you do not wish to receive such information, please tick this box

The EI would also like to share your personal information with carefully selected third parties in order to provide you with information on other events and benefits that may be of interest to you. Your data may be managed by a third party in the capacity of a list processor only and the data owner will at all times be the EI. If you are happy for your details to be used in this way, please tick this box