PETROSYNC’S PETROLEUM ECONOMICS SERIES

UPSTREAM PETROLEUM ECONOMICS, RISK & FISCAL ANALYSIS

Your Gateway To Attain Skills In Petroleum Economics’ Analysis

5–7 December 2017
Kuala Lumpur, Malaysia
Course Overview
Given the volatility in oil prices today, the economic evaluation of an upstream oil & gas investment is essential. Business decisions involving asset acquisition, lease-buy assessments, exploration drilling options, oil & gas field development, equipment purchases, and fiscal negotiations all require detailed economic analysis.

Our Upstream Petroleum Economics, Risk & Fiscal Analysis course provides participants with a complete understanding of the use of the techniques of economic analysis and risk analysis as currently practiced in the oil & gas industry.

Course Design
This course covers cash flow analysis, deriving and understanding economic indicators and detailed probability and fiscal analysis. These are vital components of the evaluation of investments in today’s international upstream oil & gas industry.

Includes Specific and Practical Case Studies
Participants will receive a thorough understanding of the context of economic analysis as well as practical instruction and an appreciation of the analytical techniques used. Participants will be engaged in exercises and examples to reinforce their understanding of the concepts learnt.

How Does This Course Benefits You?
Gain a thorough understanding of oil & gas economic evaluations
Learn step by step the key elements and determinants involved in process of evaluation to make wise investment decisions

Understand and apply economic indicators to access oil & gas industry projects
Learn and master the techniques in using the economic indicators in order to apply the techniques to evaluate each petroleum project

Quantify and manage uncertainty and risk
Able to quantify and manage the results gained from economic analysis for better decision making in petroleum projects.

Apply Monte Carlo Simulation and other statistical methods in risk analysis
Able to understand the pitfalls in using Monte Carlo Simulation and different methods of risk analysis for oil industry investment decision making

Understand, evaluate and model both fiscal and production sharing contract (PSC) terms
Able to gain knowledge from how fiscal components and PSC work and to avoid potential investment distortion in the design or negotiation of fiscal terms in Asia Pacific region.

Do you know that The Organization of Petroleum Exporting Countries (OPEC) was founded in 1960 to coordinate the petroleum policies of its members and to provide member states with technical and economic aid?

Do you know that the first modern use of petroleum was for kerosene discovered in 1852?
PetroSync Distinguished Instructor

Guy Allinson has over 30 years international experience in petroleum economics, risk & fiscal analysis. He is a Senior Lecturer at the School of Petroleum Engineering, University of New South Wales. He provides consultation for the international oil & gas industry on asset valuations and the commercial, economic and fiscal aspects of oil & gas development.

Training

He provides over 200 industry training courses on Petroleum Economics and related subjects to various multinational oil & gas companies in Asia Pacific, Australia and other parts of the world.

Selected Clientele List

Shell Australia, Malaysia & Brunei, TOTAL, Chevron Pacific Indonesia, Schlumberger, PT Pertamina, Petronas, PetroVietnam, Petrofac, Murphy Oil, Saudi Aramco, Conoco & etc.

Who Needs This Program

- This course is designed for E&P professionals with a need for detailed understanding of the upstream petroleum economics, including:

  Job Titles Include:
  - Geoscientists
  - Reservoir Engineers
  - Production Engineers
  - Petroleum Engineers
  - Planning and Development Analysts/Executives
  - Commercial Analysts/Executive/Managers
  - Business Planners/Analysts/Executives/Managers
  - Production Sharing Executives/Managers
  - Project Executives/Manager
  - Petroleum Economists
  - General Managers
  - Finance and Account Executive/Managers

Delegates will be required to bring a laptop with Microsoft Excel

Course Schedule

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>08:00—09:00</td>
<td>Registration (Day 1)</td>
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<tr>
<td>09:00—11:00</td>
<td>Session I</td>
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<td>11:00—11:15</td>
<td>Refreshment Session I</td>
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<td>11:15—13:00</td>
<td>Session II</td>
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<td>13:00—14:00</td>
<td>Lunch</td>
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<td>14:00—15:30</td>
<td>Session III</td>
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<tr>
<td>15:30—15:45</td>
<td>Refreshment Session II</td>
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<td>15:45—17:00</td>
<td>Session IV (Last Session)</td>
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PetroSync Quality Assurance

All PetroSync courses are developed with top quality to address all your training needs and purposes. Our courses are vetted strictly to ensure that we always deliver the best courses with the best industry expert.

PetroSync Inhouse Solutions

PetroSync can tailor our courses to meet your specific needs at your preferred location and schedule. Contact us for more information at +65 6415 4500 or email to general@petrosync.com
Course Agenda — 3 Days

DAY 1

1. Introduction
   Aims and Scope

Contents
- Cash flow analysis
- Economic indicators
- Economic evaluation examples
- Risk analysis
- Fiscal system and PSC analysis
- Worldwide fiscal terms

2. Cash Flow Analysis

Net Cash Flow
Discussion of the main components and relative importance of components of cash flow for oil and gas investments (production, price, revenue, operating costs, capital costs, abandonment costs and fiscal costs). Oil and gas price forecasts and the treatment of price forecasts in net cash flow analysis. Review of a range of current oil price forecast (SPE, EIA, etc.)


Economic Life and Reserves
How net cash flow projections are critical in determining economic life and reserves. The effects of oil price, costs and fiscal terms on reserves estimates.


Distinction between Cash Flow and Profit
How cash flow is distinguished from profit. The role of depreciation. When we use cash flow and when we use profit.

Cash Flow and Tax
How tax is incorporated into cash flow projections. The basic rules for calculating tax worldwide. The effect of tax on field development decisions. Loss carry forward and the effect of different petroleum tax regimes.

[EXERCISE] : Delegates’ exercises in calculating tax and demonstrating the effects of different tax regimes.

Cash Flow and Production Sharing Contracts (PSC)
The basic economic distinction between tax regimes and production sharing contract regimes. How to make cash flow projections for production sharing systems worldwide. Cost recovery and profit sharing arrangements.

[EXERCISE] : Delegates’ exercises in cash flow analysis with different PSC terms.

Sunk Costs
The treatment and mistreatment of sunk costs in cash flow analyses and petroleum property acquisitions. Discussions of the effects of sunk costs.

Incorporating Inflation into Cash Flow Projections.
How to inflate the components of cash flows. The conventions and the jargon.


Real and Nominal Cash Flows


Depreciation
Coverage of the main depreciation methods used in fiscal terms worldwide.

[EXERCISE] : Delegates’ exercise in preparing depreciation schedules

Register For This Course Now!

Kindly fill up your particulars in the registration form placed at the end of this brochure, and send it to us or email to registration@petrosync.com

general@petrosync.com | +65 6415 4500 | www.petrosync.com
DAY 2

3. Economic Indicators

Introduction
The need to measure net cash flow projections with single indicators. The indicators used in the oil and gas industry. The importance of time.

Net Present Value (NPV)
The time value of money. Compounding and discounting. Using a discount factor table and measuring the effect of time and discount rate. Discounting a cash flow projection and calculating NPV. Understanding the meaning, uses and features of NPV. Valuing petroleum properties using NPV. Preliminary discussion of choosing discount rates

[EXERCISE] : Delegates' exercises in calculating NPV and demonstrating its features.

Real and Nominal NPVs
The distinction between deflating and discounting and between real and nominal discount rates and NPVs. Dealing with the pitfalls of using real NPVs.

EXERCISE] : Delegates' exercises in calculating real and nominal NPVs.

Internal Rate of Return (IRR)
The definition and application of IRR. Calculating the IRR.

[EXERCISE] : Delegates' exercises in calculating IRR.

Problems with IRR
Multiple IRRs – when, how often and how they arise. How the NPV and IRR measures can give conflicting results and how to resolve this. The effect of project delays and the use of IRR.

[EXERCISE] : Delegates' exercises in calculating multiple IRRs and seeing how they arise and how to interpret them.

Payback
Calculation and use of payback and discounted payback indicators. The use of discounted payback in petroleum fiscal regimes. Problems with payback. How compound payback is used in some fiscal regimes

[EXERCISE] : Delegates' exercises in calculating simple and compound payback for tax.

Capital Productivity Index (CPI).
Calculation and use of CPI. The use of CPI in oil companies and petroleum fiscal regimes. Capital rationing. Problems with CPI.

[EXERCISE] : Delegates exercises in calculating CPIs and their application in some PSCs

4. Example Economic Evaluations

Accelerated production example.

[EXERCISE] : Delegates' exercise in incremental economics and the effects of fiscal terms.

Optimising field development and determining reserves.

[EXERCISE] : Delegates' exercise in optimising field development and assessing reserves.

Lease-buy decision example.

[EXERCISE] : Delegates' exercise in lease-buy economics and the effects of fiscal terms.
DAY 3

5. Risk Analysis

Sensitivity Analysis
Analysing the sensitivity of investment decisions to variations in input parameters. Interpreting sensitivity diagrams. The pitfalls in using sensitivity analyses for oil industry investment decisions.

[EXERCISE] : Delegates’ exercise in preparing sensitivity analyses and using them for investment decisions.

Probability Analysis
Defining and using probability distributions. Means, standard deviations, levels of confidence. Industry standard reserves definitions and classifications.

[EXERCISE] : Delegates’ exercise in preparing probability analysis.

Using Probability in the oil and gas industry
Making estimates under uncertainty in the petroleum industry. Constructing and using probability distributions of oil price forecasts, capital and operating costs and other variables used in estimating the value of oil & gas developments. Combining uncertain variables and issues with adding reserves, adding costs and analysing economics.

[EXERCISE] : Delegates’ exercises in combining uncertain oil industry variables.

Monte Carlo Simulation
The mechanics of Monte Carlo simulation. Choosing probability distributions. The pitfalls of Monte Carlo simulation and how to avoid them. Economic analysis and reserves estimation using Monte Carlo simulation. Investment decisions using Monte Carlo simulation.

[EXERCISE] : Delegates’ exercises in deriving and using probability distributions of oil in place, NPV and reserves using spreadsheet Monte Carlo simulation.

Exploration decisions
The definition, meaning and examples economics for oil and gas exploration drilling decisions. Expected value (EV) versus probability of success lines. Using EV to compare drilling and farmout decisions. The effects of fiscal terms and common problems with using EV. Choosing probabilities of success. Valuing properties using EV.

[EXERCISE] : Delegates’ exercises in the economics of drilling, farmout acreage and the effects of fiscal terms.

6. Production Sharing Contracts, Fiscal Systems and Terms in The Asia Pacific Region
Analysis of example PSCs and fiscal terms in the Asia-Pacific region. Evaluating the severity of fiscal terms. How the fiscal components work. How certain fiscal terms can distort oil and gas project investment decisions. How to avoid potential investment distortion in the design or negotiation of fiscal terms. Examples for Indonesia, Malaysia, Thailand, Vietnam and Australia.

[EXERCISE] : Delegates’ exercises in showing the structure and dynamics of example fiscal regimes in SE Asia.

7. Worldwide Fiscal Terms
The economic comparison of fiscal terms across the world-severity and efficiency

8. Summary & Conclusion
The above is a guide to the topics covered during the course and the approximate timing of the topic. The presenter reserves the right to make modifications to these depending on the delegates’ background and experience and the progress of the course.”
COURSE DETAILS
Title: Upstream Petroleum Economics, Risk & Fiscal Analysis
Date: 5—7 December, 2017
Location: Kuala Lumpur, Malaysia

INVESTMENT PACKAGES (Please Circle)

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<th>INVESTMENT PACKAGE</th>
<th>DATELINE</th>
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<td>Standard Price</td>
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</tr>
<tr>
<td>Early Bird Offer</td>
<td>27 October 2017</td>
<td>USD 2,795</td>
</tr>
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<td>Group Discount</td>
<td>1 December 2017</td>
<td>USD 2,695</td>
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Group Discount is based on Standard Price
* Prices include lunches, refreshments and materials. Promotion & discount cannot be combined with other promotional offers.
* For 7 or more delegates, please inquire for more attractive package.
* Important: Please note that registration without payment will incur a SGD 200 administration fee.

DELEGATES DETAILS

1st Delegate Name: ___________________________ Mr □ Mrs □ Ms □ Dr □ Others □
Direct Line Number: _____________________ Email: ____________________________
Job Title: __________________________ Department: __________________________
Head of Department: ______________________

2nd Delegate Name: ___________________________ Mr □ Mrs □ Ms □ Dr □ Others □
Direct Line Number: _____________________ Email: ____________________________
Job Title: __________________________ Department: __________________________
Head of Department: ______________________

3rd Delegate Name: ___________________________ Mr □ Mrs □ Ms □ Dr □ Others □
Direct Line Number: _____________________ Email: ____________________________
Job Title: __________________________ Department: __________________________
Head of Department: ______________________

INVOICE DETAILS
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Direct Line Number: _____________________ Fax: ____________________________
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Country: __________________________ Email: __________________________

Please note:
- If you have already registered by Phone □ Fax □ Email □ Web □
- If you have not received an acknowledgement before the training, please call us to confirm your booking.

PAYMENT METHOD
☐ By Credit Card: Please debit my credit card: Visa □ MasterCard □ AMEX □
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Name Printed on Card: __________________________

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PetroSync Global Pte Ltd Bank Details:
Account Name: PetroSync Global Pte Ltd
Bank Name: DBS Bank Ltd
Account No: SGD: 288-901898-0 USD: 0288-002682-01-6
All bank charges to be borne by payer. Please ensure that PetroSync Global Pte Ltd receives the full invoiced amount.

CONFIRMATION
I agree to PetroSync’s terms & conditions, payment terms and cancellation policy.

Authorized Signature: __________________________

PAYMENT TERMS: Payment is due in full at the time of registration. Full payment is mandatory for event attendance.