David Palmer
Former BP Exploration and Britoil plc Commercial Manager.

E&P Commercial Professional, over 40 years’ experience of assessing major challenges and evaluating critical risks for optimal management decisions.
Course Introduction

Risk and uncertainty are fundamentally embedded in the exploration and production business – arguably there is no business development without risk – yet the distinction between risk and uncertainty is often confused, and attempts to effectively manage risk and uncertainty are often poor in the industry.

This 3-day workshop offers participants the opportunity to explore these challenges, including hands-on application of industry-standard tools and techniques to assess realistic scenarios and associated data. The essential commercial drivers are held in perspective at all times.

The course commences with a brief overview of the critical Business Environment factors within which all Energy industries operate, with pointers to major sources of market uncertainty impacting potentially massive investment decisions. Focus then shifts from the macro-economic, towards the realm of individual project commitments typical of the upstream petroleum sector, outlining key areas of uncertainty within the principal cashflow components. This leads on to various aspects of cashflow analysis and a brief review of the range of key economic and financial indicators at both project and corporate level, including the broad impact of various forms of taxation.

Risk and uncertainty definitions are clarified and linked to definitions of common financial indicators. Common methods of quantifying uncertainties and risks are then described, from simple parametric methods to probabilistic simulations leading to the use of Decision Tree Analysis to analyse problems. These tools are then applied to technical issues over the field life cycle, from exploration risking to the quantification of value of information during field appraisal and on to production forecasting using both deterministic and probabilistic methodology. Human factors involved in identifying risk and quantifying uncertainties are explored, from the preferences implicit in utility theory to the behavioural heuristics which commonly lead to bias in technical judgement.

Risk diversification principles and associated Portfolio Management theory are described on the final day, with some pointers as to how this might find practical application within E&P decision-making. The course concludes with a multi-faceted case study in which ‘management teams’ will have the opportunity to assess a range of asset-related risks, and propose mainly qualitative resource allocation solutions – including several political issues.

Course Description

The Petroleum Risk Analysis and Portfolio Management course offers tools and practical techniques to identify, analyse and manage uncertainties and risk in exploration and production projects.

Learning is reinforced by working on case material to explore uncertainties and risks in the context of production forecasting, cash-flow management, incremental projects and asset portfolio manipulation.

Monte Carlo modelling and Decision Tree analysis software are employed during the course to develop practical skills in risk and portfolio management.

On completion, course participants will be able to:

- Define risk & uncertainty in technical and business opportunities
- Summarise petroleum economics techniques and indicators
- Utilise a range of tools to combine uncertainties and quantify risk
- Evaluate technical risks in exploration and appraisal.
- Evaluate technical risks in development planning and production
- Understand how utility theory drives our risk-reward judgements
- Compare probabilistic vs. multiple deterministic methods
- Understand reserves addition techniques
- Understand the impact of portfolio management in risk and uncertainty

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3 Day Course Outline

Introduction & defining risk and uncertainty
- Brief review of economic and financial indicators with an emphasis on risk management
- Identifying risks and uncertainties in E&P businesses and accounting for data limitations

Handling statistics
- Dependant and independent variables
- Methods: Monte Carlo, Parametric and Three point distributions

Tools for quantifying risk and uncertainty
- Sensitivity analysis
- Simulation (Monte Carlo)
- Decision three analysis

Managing technical uncertainty and risk
- Exploration – volume, portfolio and timing
- Appraisal and feasibility studies – value of information and value of flexibility
- Development planning – uncertainty reduction vs. mitigation

Managing non-technical uncertainties and risks
- Market factors – price, cost, exchange rate, inflation,
- Other external factors – political, fiscal, competitor, partner
- Utility theory – influence on corporate behaviour
- Heuristics – factoring in human behaviour and natural bias

Portfolio Management
- Portfolio theory overview
- Asset selection – ‘right sized’ and core vs non core
- The portfolio ‘efficient frontier’ with respect to risk and value – is it valid for E&P?
- Impact of diversification on total portfolio risk
- Company behaviour as a function of portfolio size and spread

Course Schedule

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<tr>
<th>Time</th>
<th>Day 1</th>
<th>Day 2</th>
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<tbody>
<tr>
<td>09:00</td>
<td>Commercial Background to Risk and Uncertainty</td>
<td>Application to exploration - play and prospect risk</td>
<td>Non-technical issues: external factors; utility; heuristics</td>
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<td>E&amp;P Cashflow Essentials</td>
<td>Monte Carlo Simulation</td>
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<td>12:00</td>
<td>lunch</td>
<td>Application to appraisal - the value of information</td>
<td>Introduction to portfolio Analysis</td>
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<td>17:00</td>
<td>Describing uncertainty and risk quantitatively - statistical issues</td>
<td>Further MC Applications</td>
<td>Practical case - managing an E&amp;P portfolio</td>
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<td>Tools for quantifying risk and uncertainty</td>
<td>Application to development - probabilistic forecasting</td>
<td>Debrief case material</td>
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<td>Decision Tree Analysis</td>
<td>- deterministic forecasting - scenario handling</td>
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Who Should Attend


Your Expert Trainer: David Palmer

David Palmer has been a career commercial specialist and frontline E&P Commercial Manager, with nearly 40 years’ continuous involvement in economics and business management, mostly within upstream oil. Following a degree in quantitative economics and finance, an early career in regional economic planning gave way to business analysis roles in the UK State Oil Company BNOC, and mainstream commercial management in the privatised ‘Britoil’. Following merger with BP in 1988 he was commercial manager Northern North Sea Projects and Ventures, moving into central commercial roles over viewing major investment process and commercial staff training and development. He devised and led implementation of various State Oil & Gas Company skills programmes, has widely varied global experience across many different cultures, and is a master-accredited team working practitioner. He now works on varied international assignments within AGR Petroleum Services.

2000-2012 AGR-Tracs Petroleum Services, Associate Commercial Advisor
1988-2000 BP Exploration, Commercial Manager / Global Network Consultant
1983-1988 Britoil plc, Commercial Evaluation Team Leader / Business Analyst

About petroEDGE

We are a specialist Oil & Gas training provider with our key training hub based in Kuala Lumpur. Since our inception, we have trained over 2000 engineers in various technical and management disciplines in the Oil & Gas sector. Our core focus is in developing the competency of petroleum engineers, geoscientists and related business professionals in leading national & international oil companies and contractors based in Asia.

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<th>Kuala Lumpur, Malaysia</th>
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<th>Normal Price</th>
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<td>2 – 4 July 2012</td>
<td>S$ 4499</td>
<td>S$ 4699</td>
<td>PetroEdge recognises the value of learning in teams. Group bookings at the same time from the same company receive the following:</td>
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