

West and Southern African Oil and Gas Investment Economics and Risk Evaluation

Fiscal Regimes, Risks, and Project Appraisal



Focus on: **The Manager** ☒ **The Specialist** ☒ **Spotlight Programme** ☐ **Hands-on Skills** ☒

Course Overview

This course provides hands-on expertise in oil and gas investment evaluation with a strong focus on West and Southern Africa's petroleum sectors. Participants will learn to apply economic evaluation techniques to upstream and midstream projects, assess fiscal regimes, and analyze risk and uncertainty in investment decisions.

Special emphasis is placed on regional realities, including:

- Nigeria's Petroleum Industry Act (PIA) and production-sharing contracts.
- Ghana's Jubilee and TEN fields under risk-service agreements.
- Angola's deepwater PSC framework.
- LNG and GTL projects (e.g., NLNG, Escravos GTL).
- Refining economics (Dangote, Port Harcourt, Tema).



By forecasting cashflows, project profitability, and fiscal outcomes, participants will strengthen decision-making for investments that shape West Africa's energy security and export potential.

Course Objectives		This Course is Ideal For:	
1	Understand Key Economic Concepts – Familiarize with project economics terms in the West African oil and gas context.	✓	Process & Petroleum Engineers involved in project appraisal.
2	Develop Economic Models for Regional Fiscal Regimes – Apply PSCs, royalties, and tax terms in Nigeria, Ghana, and Angola.	✓	Oil & Gas Managers & Planners responsible for investment evaluation.
3	Conduct Cash Flow Analysis – Forecast revenues, costs, and project indicators.	✓	Financial Analysts & Auditors in energy finance and project economics.
4	Assess Risks & Uncertainties – Use sensitivity, probability, and decision-tree analysis for regional projects.	✓	Project Management Professionals in upstream, LNG, or refining.
5	Perform Economic Evaluation – Apply profitability metrics and evaluate project delays in African upstream contexts.	✓	Government Regulators & Policy Makers shaping fiscal regimes.
6	Support Decision-Making – Present investment recommendations for projects in LNG, deepwater oil, and refining.	✓	Bankers, Investors & Legal Professionals supporting energy projects.



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Course Content

Day	Theme	Coverage
1	Project Cashflow Analysis (West African Context)	<ul style="list-style-type: none"> Key economic terms in oil and gas projects Inflation, nominal & real cashflows in African economies Project financing structures (e.g., NLNG financing model) Setting up project cashflows: revenues, costs, royalties Depreciation & fiscal allowances in Nigeria/Ghana/Angola Sunk costs, cost recovery, and carry-forwards Case Study 1: NLNG Train 7 project – financing structure and projected cashflows
2	KPI's in Project Appraisal	<ul style="list-style-type: none"> Economic indicators: NPV, IRR, PI, payback period Discount factors used in African projects Incremental projects and impact of delays (e.g., Jubilee Phase II) Profit/Investment ratio in capital-constrained environments Case Study 2: Comparing PSC fiscal outcomes – Angola vs. Nigeria
3	Risk & Uncertainty in West African Projects	<ul style="list-style-type: none"> Expected value concept in oil project economics Risk and uncertainty in frontier vs mature basins Sensitivity analysis of oil price, costs, and fiscal terms Probability analysis & Monte Carlo simulation Decision-tree analysis for exploration/appraisal drilling Case Study 3: Deepwater project appraisal – risk analysis of Akpo vs Jubilee field development
4	Excel for Oil & Gas Economics	<ul style="list-style-type: none"> Building project cashflow models in Excel Calculating KPIs with regional data Group exercises with Nigerian PSC and Ghanaian royalty/tax terms Evaluating fiscal impacts of PIA reforms in Nigeria Exercise: Hands-on model building: cashflow for a 50,000 bpd field under Nigerian PSC vs Ghana's vs Angola's fiscal regimes
5	Practical Applications & Strategic Evaluation	<ul style="list-style-type: none"> Developing a full economic model for a West African oil or gas field Running sensitivity & risk analyses on the model LNG, GTL, and refining economics in investment decisions Fiscal benchmarking of Nigeria, Angola, and Ghana Group discussions: How Dangote Refinery could change regional investment flows Case Study 4: Dangote Refinery economics – crude feedstock costs vs import substitution value

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		<ul style="list-style-type: none">Case Study 5: Escravos GTL economics – lessons for gas monetization in Africa
Course Assessment		Certification
Participants will be assessed on:		Upon successful completion of the course, participants will receive a Certificate of Successful Completion , along with a Transcript of Marks showing the performance by grade in each element of assessment and overall.
Participation in sessions		
Completion of exercises & case studies		
Performance in assessments		
Course Instructor		
<p>With BSc and PhD degrees from the UK, and with over 30 years of refinery technology, operations, and management expertise for several famous-name oil companies, this speaker is now an internationally-famous chemical engineering consultant.</p> <p>As a Chartered Chemist, a Member of the Royal Society of Chemistry and a Member of the American Institute of Chemical Engineers, he holds honorary appointments at a number of European universities and conducts cutting-edge research into vacuum distillation, gas recovery, absorption and pyrolysis.</p>		

