
Energy Investment Appraisal: Project Economics, Risk and Capital Allocation Training Course

10 – 14 January 2027
Muscat





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Programme Summary

Energy investment appraisal is the subject of this one-week training course for finance, planning and project directors at managerial level, ending in an investment case and ranked capital plan for one energy project portfolio. Energy projects tie up large sums for many years, yet appraisals often rest on unexamined price, cost and timing assumptions. The programme moves from cash flow and the time value of money, through cost, price and fiscal assumptions and risk analysis, to funding choices and portfolio ranking. Mars Training Centre UK delivers this programme in energy investment appraisal.

The Business Case

Energy assets are capital intensive and long lived, so a weak appraisal is carried for decades. Directors must compare oil, gas, power and renewable options on a common footing and show a board why one project deserves funds ahead of another. Clear assumptions and tested risks make those decisions defensible.

- Capital Efficiency: Improves as projects are ranked on consistent value measures before funds are committed.
- Decision Risk: Falls as price, cost and delay assumptions are stress tested before approval.
- Cost of Funding: Reduces as financing structures are matched to the risk profile of each project.

Principles and Evidence Base

- Time Value of Money: Discounting converts future cash flows to present value, and Sessions 1 and 2 apply it to project cases.
- Discounted Cash Flow Analysis: Net present value and internal rate of return are built and compared in Sessions 2 and 5.
- Levelised Cost Method: Cost per unit of energy produced allows different technologies to be compared in Session 2.
- Sensitivity and Scenario Analysis: Variables are flexed one at a time and together to test outcomes in Session 3.

Intended Participants

- Leaders accountable for approving or recommending energy capital investments.
- Finance directors who review project economics before board submission.
- Planning managers who build and compare investment options.
- Project directors who must defend scope, cost and schedule assumptions to funders.

The programme serves oil and gas, power utility, renewable energy and industrial energy-user organisations.



Learning Outcomes

1. Participants will be able to construct a project cash flow model from capital, operating and revenue assumptions.
2. Participants will be able to evaluate project value using net present value, internal rate of return and payback.
3. Participants will be able to diagnose which assumptions drive the result through sensitivity and scenario testing.
4. Participants will be able to compare projects of different size, life and technology on a common basis.
5. Participants will be able to prioritise a portfolio of projects under a limited capital budget.
6. Participants will be able to justify an investment recommendation to a board and to funders.

Programme Structure

Day 1: Energy Investment Appraisal and Project Cash Flow

What cash does an energy project spend and earn, and when?

- Investment Decision Stages and Gate Reviews
- Capital and Operating Cost Structure
- Revenue and Price Forecast Construction
- Time Value of Money and Discount Rate Choice
- Project Cash Flow Template

Day 2: Value Measures and Cost of Energy

How is the value of a project measured and compared?

- Net Present Value Calculation
- Internal Rate of Return and Its Limits
- Payback and Profitability Index
- Levelised Cost of Energy Comparison
- Taxation, Royalty and Fiscal Terms Modelling

Day 3: Risk, Uncertainty and Sensitivity

Which assumptions could change the decision?

- Tornado Chart Sensitivity Analysis
- Scenario Design for Price and Demand
- Cost Overrun and Schedule Delay Allowances
- Decision Tree and Expected Value Analysis
- Risk Register for Investment Cases



Day 4: Funding, Structure and Portfolio Choice

How should the project be financed and ranked against others?

- Debt and Equity Funding Structures
- Weighted Average Cost of Capital
- Project Finance Cover Ratios
- Capital Rationing and Portfolio Ranking
- Own, Partner or Divest Options

Day 5: Applying Energy Investment Appraisal to a Portfolio

Is the investment case ready for a board decision?

- Building the Day 1 Cash Flow for the Chosen Projects
- Calculating Day 2 Value Measures
- Stress Testing With Day 3 Scenarios
- Ranking Projects Against Day 4 Funding Limits
- Completing the Investment Case and Ranked Capital Plan

Methodology

The programme is built around case analysis and structured data exercises. Participants work with simplified project data from oil, gas, power and renewable cases, build the models themselves and defend their assumptions in group review. Discussion centres on the judgement calls directors face when forecasts are uncertain.

- Suggested activity: Building a cash flow and net present value model for a sample energy project.
- Suggested activity: Running a tornado chart on price, cost and delay assumptions.
- Suggested activity: Presenting a ranked capital plan to a simulated investment committee.

Capstone Output

Each participant completes an investment case and ranked capital plan for a portfolio of energy projects, real or case-based. It holds cash flow models, value measures, a sensitivity and scenario summary, a funding proposal and a ranked list of projects. It is used to brief a board, support a funding request and set the next round of project approvals.



Frequently Asked Questions

Is this energy investment appraisal course suitable for directors who are not finance specialists?

Yes. It is set at managerial level for finance, planning and project directors, and assumes familiarity with project budgets rather than advanced financial modelling.

Which methods does energy investment appraisal training rest on?

It rests on the time value of money, discounted cash flow analysis, the levelised cost method and sensitivity and scenario analysis, each applied to project case data.

How is the energy investment appraisal case and capital plan used at work?

The case briefs a board on project value and risk, supports funding requests and ranks projects when the capital budget is limited.