

The Local Net Zero Accelerator (LNZA)

Net Zero Investment Training Programme

Module 3: Develop an Effective Business Case

Funded by



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Fit4Finance

The Local Net Zero Accelerator



Department for
Energy Security
& Net Zero

Government has provided £19 million to unleash the potential of local government to attract new investment for green growth by piloting new approaches in three areas.

1. Two Local Net Zero Accelerators: Greater Manchester Combined Authority and West Midlands Combined Authority will develop aggregated bundles of projects to secure long-term sustainable investment.
2. A City Leap Replicator: York & North Yorkshire Combined Authority will replicate a similar model to Bristol City Leap, which has established an innovative public-private partnership to secure investment into decarbonising Bristol's council owned estate.
3. Local Net Zero Finance Support Service: to provide access to relevant financial skills, knowledge, and experience.

GMCA GREATER
MANCHESTER
COMBINED
AUTHORITY


West Midlands
Combined Authority


YORK
& NORTH
YORKSHIRE
COMBINED AUTHORITY


Greater
South East
Net Zero Hub

The Net Zero Investment Training Programme

Objectives:

- Provide specialised investment training tailored for local authority professionals that hold positions related to the development and/or financing of net-zero projects
- Up-skill local authority professionals so that they are better placed to both develop and finance Net Zero projects
- Provide training to local authority staff so that they are better placed to support their respective authorities to deliver on climate ambitions/targets

Audience:

- Local Authority Section 151 Officers (Finance Directors)
- Climate, Environment or Sustainability Officers/Directors
- Any other local authority professionals involved in the development or financing of Net Zero projects

The Net Zero Investment Training Programme: Structure

The Net Zero Investment Training Programme is a specialised programme consisting of 6 modules, each requiring a total of 20 hours split between guided and independent learning to complete.

The 6 modules are:

1. Understanding the Basics of Net Zero Finance
2. Options Analysis and Appraisal
3. Develop an Effective Business Case
4. Financial Modelling for Net Zero Projects
5. Exploring Innovative Financing for Net Zero
6. Whole-System Financing for Net Zero

Module 3: Develop an Effective Business Case

This module comprises **20 hours of Total Qualification Time (TQT)**, made up of:

- **10 hours of** Guided Learning Hours
- **10 hours of** Independent Learning Hours

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Introduction

Effective business cases are critical for securing investment, demonstrating the value of net zero infrastructure and decarbonisation projects, and securing stakeholder support and cabinet approval.

This module equips Section 151 Officers with the skills to develop robust, compelling business cases by integrating HM Treasury Green Book guidance with practical net zero project examples. It offers flexible learning pathways and is designed for both remote and in-person delivery.

Module overview

By completing this module, you will:

- Master the Five Case Model for developing compliant strategic, economic, commercial, financial, and management cases
- Understand OBC vs FBC requirements, and develop robust options appraisal frameworks aligned to Green Book methodology
- Build robust strategic cases demonstrating case for change and long-term viability
- Develop comprehensive economic analysis using cost-benefit analysis and options appraisal
- Create commercially viable approaches to procurement and investment structures
- Build affordable financial cases with realistic funding strategies
- Establish strong governance and project management frameworks
- Tailor business cases for diverse stakeholder audiences

Contents

Each section requires a **total of 4 or 6 learning hours: 50/50 split between Guided Learning Hours and Independent Learning Hours.**

- Introduction
- Section 1: Building an Effective Business Case
- Section 2: Tailoring the Business Case for Different Audiences
- Section 3: Integrating Development of Business Case with Project Development & Delivery
- Section 4: Module Conclusion

Intellectual Property of the Greater
South East Net Zero Hub

Glossary – Business Case & Green Book Concepts

- **Business Case** – Document that justifies investment and shows value, affordability, and deliverability.
- **Five Case Model** – Framework covering Strategic, Economic, Commercial, Financial, and Management cases.
- **Strategic Case** – Explains why the project is needed and how it aligns with policy.
- **Economic Case** – Tests value for money for society.
- **Commercial Case** – Sets out procurement route and supplier arrangements.
- **Financial Case** – Demonstrates affordability and funding sources.
- **Management Case** – Shows how the project will be delivered and governed.
- **Strategic Outline Case (SOC)** - A high-level early business case that confirms the need for the project and explores a wide range of possible options.
- **Outline Business Case (OBC)** - A detailed appraisal stage that compares shortlisted options, identifies the preferred option, and sets out the emerging commercial and financial approach
- **Full Business Case (FBC)** - The final approval stage that confirms procurement results, final costs, funding, risk allocation, and readiness to deliver the project.

Glossary – Business Case & Green Book Concepts

- **Do Minimum** – Smallest intervention needed to address the problem.
- **Options Appraisal** – Structured comparison of alternative solutions.
- **Longlist / Shortlist** – Initial wide set of options narrowed to viable ones.
- **Preferred Option** – Option that best meets objectives and offers value for money.
- **Multi-Criteria Assessment (MCA)** – Scoring method comparing options against key criteria.
- **Optimism Bias (OB)** – Required uplift to early cost estimates to reflect uncertainty.
- **Additionality / Deadweight** – Benefits caused by the project vs. those that would occur anyway.
- **Distributional Analysis** – Assessment of who benefits and who bears costs.
- **Appraisal Period** – Time horizon for assessing costs and benefits.
- **Case for Change** – Evidence showing why intervention is needed.
- **Business as Usual (BAU)** – What happens if no action is taken.

Glossary – Economic and Financial Analysis

- **Cost-Benefit Analysis (CBA)** – Monetises all costs and benefits to assess value for money.
- **Cost-Effectiveness Analysis (CEA)** – Compares costs to a single non-monetised outcome.
- **Net Present Value (NPV)** – Benefits minus costs over time, discounted to today's value.
- **Benefit-Cost Ratio (BCR)** – Benefits generated per £1 spent.
- **Discount Rate** – Rate used to convert future values into present value.
- **Shadow Price of Carbon** – Government-set value of reducing one tonne of CO₂.
- **Sensitivity Analysis** – Tests how results change when assumptions vary.
- **Capital Costs (Capex)** – Upfront investment costs.
- **Operating Costs (Opex)** – Ongoing running and maintenance costs.

Glossary – Net Zero & Infrastructure Terms

- **Net Zero** – Balancing emissions produced with emissions removed.
- **Carbon Abatement** – Reduction of greenhouse gas emissions.
- **Heat Network / District Heat Network** – Centralised heat supply serving multiple buildings.
- **Energy Efficiency Retrofit** – Upgrades that reduce building energy use.
- **EPC (Energy Performance Certificate)** – Rating of building energy efficiency (A–G).

Glossary - Commercial and Procurement Terms

- **Public-Private Partnership (PPP)** – Long-term collaboration between public and private sectors.
- **Joint Venture (JV)** – New entity jointly owned to deliver a project.
- **Procurement Strategy** – Plan for selecting and contracting suppliers.
- **Market Engagement** – Early discussions with suppliers to test interest and capability.
- **Risk Allocation** – Assigning risks to the party best able to manage them.
- **Performance Warranty** – Supplier guarantee on performance levels.
- **Price Adjustment Mechanism** – Contract clause allowing price changes for inflation or energy costs.
- **Demand Risk** – Risk that fewer users than expected take up the service.

Glossary - Data, Governance and Delivery Terms

- **Baseline Data** – Starting point used to measure change.
- **Data Governance** – Processes ensuring data accuracy and quality.
- **Governance Structure** – Oversight and decision-making arrangements.
- **Stakeholder Engagement** – Working with affected groups to build support.
- **KPIs (Key Performance Indicators)** – Measures of success and progress.
- **Interdependencies** – External factors or related projects affecting delivery

Section 1: Building an Effective Business Case

Summary:

Explores the purpose, structure, and benefits of a business case. Introduces the Five Case Model and the staged approach (SOC → OBC → FBC), with emphasis on strategic alignment, data quality, and robust analysis.

Learning Outcomes:

- Understand the Five Case Model and its components
- Distinguish between SOC, OBC, and FBC stages
- Recognise the importance of high-quality data and stakeholder targeting
- Apply Green Book options appraisal and MCA techniques
- Build a compelling strategic case with clear rationale and quantified benefits

Section 1 requires 14 learning hours: 7 hours of Guided Learning and 7 hours of Independent Learning.

Introduction

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Purpose of a business case

- Provides justification for investment into the project
- Articulates the case for change and strategic rationale for investment
- Considers value for money
- Identifies how the project is affordable within budget constraints
- Assesses commercially viability and deliverability
- Establishes robust management arrangements to ensure successful delivery
- Provides transparency to stakeholders (internal/external, public/private) on investment decision

Benefits of creating a clear business case

- **Strategic alignment:** Ensures projects support broader local authority's development and policy objective
- **Compelling case:** Builds stakeholder confidence and political support for investment
- **Affordability:** Demonstrates financial viability and long-term sustainability
- **Deliverability:** Identifies risks and realistic timelines for successful delivery
- **Risk mitigation:** Identifies risks and issues early on and enables proactive management approaches
- **Informed decision making:** informs decisions based on evidence, data and structured reasoning
- **Clarifies objectives/benefits:** outlines financial and non-financial benefits and sets expectations

Target audience for a business case

Who needs to be convinced?

- **Internal Stakeholders:** Executive leadership, finance teams, service managers, elected member
- **Local/National Government:** Treasury, sector regulators, planning authorities, central government departments
- **Investors & Commercial Partners:** Equity providers, infrastructure funds, debt providers, contractors
- **Broader Stakeholders:** Communities, residents, environmental groups, social enterprises etc.
- **Strategic Partners:** delivery and operational partners

Different audiences require different information and emphasis. Section 2 further explores how to tailor the business case for different stakeholders.

Need for high quality data

High quality data lays the foundation for robust decision-making

- Business cases are only as strong as the data supporting them
- Poor data leads to unreliable analysis and poor investment decisions
- Investment in data collection and validation upfront saves costs later
- Key data areas include energy consumption (baseline), costs (capital & operating), demand/usage patterns, socioeconomic impacts, environmental factors
- It is imperative to understand data limitations and build these into assumptions and risk analysis
- Establish data governance to ensure accuracy and quality throughout project lifecycle

The Five Case Model

For UK government, following the Green Book and business case guidance (Five Case Model) is mandatory for proposals involving significant public spending

Business case development should be aligned with the ROAMEF cycle (Rationale → Objectives → Appraisal → Monitoring → Evaluation → Feedback) to ensure a clear line of sight from strategic intent to delivery and learning.

- **Strategic Case:** Making the case for change and demonstrating strategic fit
 - ✓ Questions to consider: Why undertake this project? Does it address identified problems and align with policy?
- **Economic Case:** Demonstrating value for money and economic viability
 - ✓ Questions to consider: What is the net value to economy/society? Which option delivers best value?
- **Commercial Case:** Ensuring commercially viable procurement and investment
 - ✓ Questions to consider: How will we procure this? What are the commercial terms and supplier risks?
- **Financial Case:** Demonstrating affordability and funding availability
 - ✓ Questions to consider: Can the council afford this? Is funding secured and sustainable for the project lifecycle?
- **Management Case:** Establishing robust governance, delivery, and evaluation frameworks
 - ✓ Questions to consider: Can we deliver this project? Do we have governance, capacity, and systems in place?

Each case addresses a critical dimension of project appraisal. Together, they ensure robust, evidence-based decision-making that demonstrates value for money with public funds.

Three Stages: SOC → OBC → FBC

Net zero projects progress through three distinct business case stages, each building on the previous with increasing specificity and evidence

- **Strategic Outline Case (SOC):** Establishes strategic fit, sets project direction, outlines high-level options for initial approval
- **Outline Business Case (OBC):** Develops options in detail, appraises preferred option rigorously, sets commercial framework for procurement including full economic appraisal, distributional analysis, and quantified risk assessment.
- **Full Business Case (FBC):** Finalises procurement terms with selected supplier, confirms affordability, signs off delivery plan and confirms value for money based on finalised commercial terms and updated risk allocation

This staged approach allows early strategic validation before committing significant resources, whilst ensuring sufficient certainty before final investment commitment. The depth of analysis at each stage must scale proportionately with project cost, complexity and risk.

Comparing the depth of analysis and evolution from OBC → FBC

The table contrasts the depth of analysis required at OBC versus FBC stages. OBC is exploratory, establishing proof of concept with reasonable accuracy. FBC is confirmatory, demonstrating that selected option will deliver as promised

Dimension	OBC Level	FBC Level
Options	3-5 options appraised	Preferred option confirmed (minor variants)
Costs	±20-30% accuracy	±5-10% accuracy (tendered)
Risks	Register with qualitative scoring	Quantified and allocated in contract
Procurement	Procurement strategy outline	Supplier selected, contract agreed
Funding	Provisional sources identified	All sources confirmed in writing
Benefits	Expected outcomes articulated	Detailed tracking plan in place
Governance	Proposed structure in draft	Agreed, resourced & operational

Strategic Case

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Strategy case: Making the case for change

The Strategic Case answers the fundamental question *Why should we do this?*

It establishes the evidence base that justifies investment; demonstrating alignment with local climate commitments, national net zero targets, and broader council priorities. A compelling strategic case is essential for political support and stakeholder buy-in. Key considerations:

- Establish the case for change (current problems, market failures, opportunities)
- Explicitly define the counterfactual (do nothing / do minimum) and evidence the consequences of inaction.
- Align with local climate action plans and net zero commitments
- Articulate outcome-focused, measurable objectives linked to public value and capable of later evaluation
- Identify stakeholders, benefits, and key constraints
- Demonstrate fit with government policies & spending priorities
- Assess whether the proposal aligns with the net zero pathway and avoids increasing long-term climate risk or carbon lock-in
- Explicitly quantify distributional impacts across geography, income groups, vulnerability and protected characteristics, where relevant.
- Identify statutory duties (e.g., climate, air quality, equality) that shape the rationale.

Strategy case: Key considerations

A robust strategy must consider and account for:

- **Economic analysis:** Does the proposal maximise public value relative to the counterfactual, and how does it perform under full cost-benefit and distributional appraisal?
- **Commercial viability:** Can we procure this effectively? Are there market partners available?
- **Financial sustainability:** Is the proposal affordable within fiscal constraints and consistent with long-term public finance sustainability?
- **Management capacity:** Do we have the governance and delivery capability?
- **Place, People, Equity:** Distributional analysis must inform option design and may influence the preferred option

Strategy is not developed in isolation; it must be informed by what is economically sound, commercially feasible, financially affordable, and operationally deliverable. Strategic development must also assess climate resilience and avoid creating future transition or physical climate risks.

Strategy case: Key considerations cont.

A robust strategy must consider the following key project decisions:

- **Business as Usual (BAU):** Define the counterfactual baseline explicitly, quantify the costs of inaction, and ensure it is used consistently in later economic appraisal.
- **Scope expansion:** Can we expand project scope to capture co-benefits? (e.g., housing retrofit + green space + health services)
- **Replication potential:** Is this a pilot that could be scaled up? How does that affect economics?
- **Risk/Benefits/Constraints:** Identify key trade-offs, distinguish quantifiable risks from uncertainty, and assess how these affect public value
- **Dependencies:** Identify external factors affecting success and assess exposure to policy, market, technological and climate transition risks
- **Fiscal sustainability screening:** Assess whether the strategic proposal remains consistent with medium-term fiscal constraints and long-term sustainability.

Strategy case: Key considerations cont.

A robust strategy must consider the following key project decisions:

Place, People, and Equity

- Assess how the intervention affects different communities and geographies.
- Assess impacts across income distribution (e.g., quintiles), vulnerable populations and protected characteristics where relevant.
- Identify spatial disparities and ensure the project supports balanced regional outcomes.
- Demonstrate alignment with local socio-economic priorities and levelling objectives.
- Distributional findings must inform option appraisal and may influence the preferred option.

Strategy case: Key consideration example

Demonstration of what a strategy can account for:

- **Challenge/Problem:** Local authority has limited own-source revenue. How can strategy ensure projects generate sufficient revenue?
- **Solution:** Strategy document shall encompass various **Revenue generating strategies** to mitigate the challenge identified above:
 - ✓ **User-Pays model:** Charge users/consumers (e.g., waste management fees, heat network charges, EV charging fees)
 - ✓ **Cross-subsidy:** Generate revenue from profitable activities to subsidise essential services
 - ✓ **Off-balance sheet financing:** Use service concessions/PPPs to transfer operational costs to private sector
 - ✓ **Grant/concessional funding:** Layer grants/concessional loans under commercial finance to improve affordability
 - ✓ **Revenue and financing:** structures must not distort the Economic Case assessment of public value.
 - ✓ **Charing mechanisms:** charging mechanisms must be assessed for affordability impacts and distributional consequences

Green Book Options Framework

Options Framework: Longlist → Shortlist

- **Step 1 | Generate the Longlist** : The options appraisal process must consider multiple ways to address the identified problem. This ensures the preferred option is selected on evidence, not by default. The longlist should include:
 - ✓ **Do Minimum**: Consider what is the minimum intervention needed to address the problem? (distinct from Business As Usual)
 - ✓ **Business As Usual (BAU)**: Consider what happens if we don't invest /what are the costs of inaction if we continuing the current approach without intervention
 - ✓ **Expand Scope**: Additional investments beyond minimum requirement to maximize benefits
 - ✓ **Alternative Solutions**: Different delivery mechanisms, technologies, or partnerships
 - ✓ **Spatial configuration**: ensure longlist options reflect different spatial configurations (e.g., neighborhood-level, city-wide, targeted intervention)
 - ✓ **Distributional considerations**: Document how distributional impacts influence shortlisting decisions.

Green Book Options Framework

Options Framework: MCA & Preferred Option

- **Step 2 | Multi-Criteria Assessment (MCA):** Score longlist options against 5-7 criteria aligned to your strategic objectives. This provides transparent, structured evaluation that can withstand scrutiny. Multi-Criteria Assessment supports decision-making but does not replace full Cost-Benefit Analysis in determining value for money. Key assessment criteria typically include:
 - ✓ **Strategic fit & alignment with council priorities**
 - ✓ **Economic value & cost-effectiveness (value for money)**
 - ✓ **Carbon abatement & environmental benefits**
 - ✓ **Financial affordability & funding availability**
 - ✓ **Risk profile & manageability**
 - ✓ **Distributional & place-based impact – extent to which the option reduces inequalities and support local priorities**
- **Step 3 | Select Preferred Option:** Choose the option with the highest MCA score, whilst taking into account the strategic constraints and stakeholder considerations. The preferred option must be consistent with the findings of the Economic Case unless explicitly justified.

Green Book Options Framework

MCA Example: District Heat Network Options

This MCA illustrates how three options for a district heat network expansion are scored against the five key criteria. The Preferred Option (Phase 1+2) achieves highest score by balancing strong strategic fit and carbon impact with acceptable cost and feasibility. The Expanded option, whilst offering greatest carbon benefits, scores lower due to cost constraints and delivery risk.

Option	Strategic Fit	Cost (£m)	Carbon (tCO ₂)	Feasibility	Score
Do Minimum (2 estates)	Moderate	£12m	8kt	High	60/100
Preferred: Phase 1+2 (4 estates)	High	£28m	18kt	High	85/100
Expanded (6 estates)	Very High	£45m	27kt	Medium	75/100

Final option selection must be validated through full Cost-Benefit Analysis, carbon valuation and distributional assessment. Sensitivity and switching value analysis must confirm robustness of the preferred option.

Preferred Way Forward: Integrating the Five Cases

A robust business case must demonstrate not only which option scores highest, but why it represents the most coherent and deliverable path across all five cases. The Preferred Way Forward (PWF) brings together strategic alignment, economic value, commercial feasibility, affordability, and deliverability into a single narrative.

The Preferred Way Forward should:

- ✓ Clearly state the selected option and why it outperforms alternatives
- ✓ Demonstrate alignment with strategic objectives and policy commitments
- ✓ Show that the option delivers the strongest economic value (NPV/BCR)
- ✓ Confirm commercial feasibility and market appetite
- ✓ Demonstrate affordability within the authority's financial envelope
- ✓ Provide confidence in deliverability, governance, and risk management
- ✓ Demonstrate how the preferred option performs best not only on economic value but also on spatial equity and distributional fairness.
- ✓ Summarise distributional and climate impacts explicitly within the Preferred Way Forward narrative.

What good looks like:

A concise narrative that synthesises evidence from all five cases and explains why this option is the most compelling, viable, and sustainable route to achieving the desired outcomes.

Strategy case: Steps in the process

Step 1: Define Problem

Analyse current situation and articulate specific challenge/opportunity

Step 2: Strategic Alignment

Map to local authority strategy, national policy, and stakeholder objectives

Step 3: Options Appraisal

Develop multiple options (BAU plus other alternatives) and compare criteria

Step 4: Preferred Option

Justify selection and outline how project delivers strategic objectives

Step 5: Stakeholder Input

Engage stakeholders to refine strategy and build support
Include affected groups through distributional analysis

Step 6: Interdependencies

Ensure strategy integration with economic, commercial, financial cases

In some cases, stakeholders (e.g. communities) may be involved as early as Step 1 as they may be crucial to defining the problem and may input into the other steps.

Strategy case: What good looks like

A good strategy typically includes:

- Clear problem statement with quantified baseline data
- Explicitly defined counterfactual scenario used consistently in appraisal
- Explicit link to local authority's strategy and national net zero targets
- Definition of success with measurable outcomes and KPIs
- Options appraisal showing comparison of more than three alternatives (including BAU)
- Identification of preferred option with clear rationale
- Stakeholder engagement plan and communication strategy
- Risk register identifying strategic risks and mitigation approaches
- Timeline for implementation with key milestones
- Clear articulation of distributional impacts and who benefits/bears costs.
- Evidence of quantified impacts across income groups and vulnerable populations where material
- Evidence of place-based analysis using local data, mapping, or segmentation.
- Explicit link to ROAMEF: how objectives will be monitored and evaluated.

Strategy case: Comparing good vs poor examples

	Good Strategic Case	Poor Strategic Case
	Clear problem: Municipality has 5,000 fuel-poor households with EPC Band E-G	Vague problem: We need to get greener
	Strategic fit: Links to national Fuel Poverty Strategy and net zero 2050	No strategic link: Disconnected from local authority's priorities
	Options: BAU (continue supporting fuel poor) vs retrofit programme vs combination	Single option: Only one way forward (no alternatives considered)
	Revenue plan: User fees from water savings, cross-subsidy from commercial retrofit	No revenue plan: Assumption that grants will cover everything
	Scope: Housing + green jobs + health co-benefits integrated from start	Narrow scope: Only housing retrofits; ignores synergies with other services
	Counterfactual clearly defined and quantified.	Inadequately defined counterfactual or baseline scenario.

Strategy case: Case study

Bristol City Leap strategic case - Bristol's approach to net zero energy

- **Context:** Bristol City Council committed to net zero by 2030. City Council needed £1bn+ investment in energy infrastructure across city. Bristol City Leap is a long-term energy partnership focused on transforming the city's energy infrastructure. With over £1 billion of planned investment over 20 years, the project aims to deliver city-wide low-carbon energy solutions, including heat networks, renewable generation, and smart energy systems, supporting Bristol's ambition to become a carbon-neutral city.
- **Strategic Choice:** Rather than BAU (council-led delivery), it chose a joint venture PPP with private energy company (Ameresco & Vattenfall) to:
 - ✓ Access private capital and expertise
 - ✓ Expand project scope beyond council assets to include private households
 - ✓ Create revenue through heat networks, energy efficiency, renewable energy
 - ✓ Generate social value (local employment, supply chain development)
- **Outcome:** £1bn+ investment planned over 20 years with explicit environmental and social co-benefits integrated into strategy.

Economic Case

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Economic case

Purpose of the economic case:

- Demonstrates value for money
- The Economic Case assesses societal value, distinct from financial affordability to the authority.
- Demonstrates that project is economically sound and provides value for society
- Assesses economic costs and benefits across entire project lifecycle
- Considers broader societal impacts, not just financial returns to the local authority
- Identifies options that generate greatest net economic benefit
- The 2026 Green Book requires explicit assessment of distributional impacts and place-based outcomes as part of value for money.
- Carbon valuation and climate risk assessment must be incorporated within the economic appraisal.
- Demonstrate how the preferred option supports place-based outcomes and reduces spatial inequalities.

Economic case

The Economic case assesses whether the preferred option offers value for money by weighing its benefits against its costs. Using the Green Book methodology, it compares the preferred option with the do-minimum scenario and considers both monetary and wider benefits, including carbon savings, improved health, and positive community impacts.

- Quantify costs and benefits across preferred option lifecycle (typically 30-50 years)
- Compare Net Present Value (NPV) of preferred option vs do minimum baseline
- Assess non-monetizable benefits (carbon, air quality, health, community resilience)
- Apply distributional weighting where appropriate, following 2026 guidance.
- Include place-based analysis to show how benefits and costs vary across geographies or communities.
- Consider long-term impacts beyond 30 years where relevant (e.g., climate resilience, infrastructure lifecycle).
- Apply Green Book appraisal rules and sensitivity analysis
- Ensure costs and benefits are expressed in real terms using a consistent price base.
- Consider intergenerational effects for long-lived infrastructure assets
- Demonstrate value for money to justify use of public funds

Economics analysis: Other key considerations for options appraisal and CBA

Key techniques applied

- **Cost-Benefit Analysis (CBA):**
 - ✓ Monetises all project costs and benefits over lifetime
 - ✓ Calculates Net Present Value (NPV) and Benefit-Cost Ratio (BCR)
 - ✓ Enables comparison of very different project types
- **Cost-Effectiveness Analysis (CEA):** Utilised when benefits are difficult to monetise (e.g., lives saved, emissions reduced). Costs can sometimes be divided by units of benefit (e.g., cost per tonne CO₂e abated).
- **Sensitivity Analysis:** Tests how results change when key assumptions vary (e.g., fuel prices, discount rates) and identifies which assumptions drive outcomes. Test sensitivity of distributional outcomes (e.g., affordability, access, exposure to costs and benefits). Distinguish between quantifiable risks and deep uncertainty requiring scenario analysis.
- **Distributional weighting:** include distributional weighting where appropriate. Report transparently where distributional weights materially influence option ranking.
- **Long-term impacts:** consider long-term impacts beyond 30 years for climate-related infrastructure

Place-based and distributional analysis in the economic case

- Identify which groups/areas benefit and which bear costs.
- Distributional analysis forms part of the value-for-money judgement where impacts are material.
- Use local data to quantify spatial disparities.
- Apply distributional weights where justified.
- Present maps or segmentation where relevant.
- Document methodology and data sources used in distributional assessment.

Switching Values and Marginal Abatement Costs

Switching values help decision-makers understand the point at which a preferred option ceases to be viable. Switching values should be calculated for key parameters that materially affect Net Present Value.

Switching values answer questions like:

- ✓ At what carbon price does Option B become better than Option A?
- ✓ How much can capex increase before the NPV becomes negative?
- ✓ What level of demand reduction makes the heat network unviable?

Marginal Abatement Cost Curves (MACC):

- ✓ Compare cost per tonne of CO₂e saved across interventions
- ✓ Help prioritise the most cost-effective carbon reduction measures
- ✓ Useful for strategic portfolio planning
- ✓ Carbon valuation assumptions must align with the Green Book 2026 carbon price trajectory.

Why this matters:

These tools strengthen the economic case and support transparent, evidence-based decision-making. Additionally, these tools support transparent decision-making by showing how distributional and place-based outcomes change under different assumptions.

Economic analysis: Steps in the process

Step 1: Define Scope

Consider the costs/benefits to include, and consider the analysis period

Step 3: Identify Benefits

Examples of benefits encompass direct (revenue), indirect (health), environmental (carbon)
Identify distributional and place-based benefits, including impacts on specific communities or geographies.

Step 5: Discount

Adjust to present value using the social time preference rate (STPR) (3.5% years 1–30; 3.0% years 31–75; 2.5% year 76+).
Discounting must be applied after converting all values into real terms.

Step 2: Identify Costs

Account for capital, operating, maintenance costs over project life

Step 4: Monetise

Convert all to monetary values using latest shadow prices

Step 6: Analyse

Calculate Net Present Value (NPV), Benefit-Cost Ratio (BCR), and sensitivity to key assumptions, to obtain indication of the overall economic desirability of a project
Assess distributional impacts and apply weighting where justified
Where uncertainty is significant, scenario analysis should complement sensitivity testing.

Green Book Appraisal Rules

Discounting & Price Base

- Use social time preference rate: 3.5% (years 1–30), 3.0% (years 31–75), 2.5% (year 76+) (Green Book standard)
- Express costs/benefits in real terms using a consistent price base (typically year 0); remove general inflation using GDP deflators
- For net zero projects: discount non-carbon benefits at standard rate; carbon at shadow price

Optimism Bias (OB)

- Practitioners must account for optimism bias by making explicit adjustments at the outset of an appraisal. Measure average historical forecast errors: the difference between the values that were anticipated in appraisal, and the actual outturn of those values.
- Reduces only where empirical evidence demonstrates risk mitigation and increased certainty.
- Scale appraisal effort to project size, complexity, and risk, in line with proportionality requirements.
- Ensure appraisal links to the ROAMEF cycle, with clear pathways to monitoring, evaluation, and feedback.
- For long-lived climate infrastructure, intergenerational impacts must be considered in appraisal horizon selection.

Green Book Appraisal Rules

Additionality & Deadweight

- **Additionality:** What extra benefit occurs only because of this intervention? (must exclude benefits that would occur anyway and must be evidenced to avoid double counting of benefits)
- **Deadweight:** Benefits that would occur without your intervention (exclude from appraisal)

Distributional analysis

- Who benefits & who bears the costs? (spatial, income groups, vulnerable populations)
- Address equity concerns: fuel poverty, regional inequality, environmental justice
- Distributional impacts may influence the value-for-money judgement where material

Appraisal period

- Infrastructure projects: typically, 30-60 years; net zero projects often 40-50 years

Proportionality and ROAMEF

- Apply proportionality to determine the appropriate depth of analysis.
- Link appraisal to monitoring and evaluation through the ROAMEF cycle.

Price Base, Inflation and Real vs Nominal Treatment

Green Book appraisal requires consistent treatment of prices to ensure comparability across time.

Key principles:

- ✓ Use real prices (exclude inflation) for economic appraisal
- ✓ Select a consistent price base (typically year 0 of the appraisal); nominal and real values should align in year 0
- ✓ Convert nominal to real using GDP deflators
- ✓ Apply discounting only after converting to real terms
- ✓ All options must use the same price base year for comparability.
- ✓ Ensure carbon values remain in the mandated 2010 price base

Why this matters:

Mixing real and nominal values leads to distorted NPVs, incorrect BCRs, and inconsistent comparisons between options.

Economic appraisal example: Heat Network NPV calculation

The worked example below illustrates how capital costs, optimism bias, lifetime carbon benefits, and shadow carbon pricing combine to produce the Net Present Value. The positive NPV of £11m indicates value for money benefits substantially exceed costs over the 40-year project life.

Item	Value	Notes
Capital Cost (2010 prices)	£28.0m	Tendered estimate
Optimism Bias (+15%)	£4.2m	Infrastructure sector standard
Total Capital (OB-adjusted)	£32.2m	Present Value, Year 0
Lifetime CO ₂ savings (40 yrs)	360kt CO ₂	18kt/year × 40 years
Shadow price of carbon (£/t)	£120	Green Book 2026 net zero pathway
PV of carbon benefits	£43.2m	Discounted at 3.5% declining
Net Present Value (NPV)	+£11.0m	Positive Value for Money

Distributional impacts should be assessed alongside aggregate NPV.

Economic case: Comparing good vs poor examples

	Good Economic Analysis (Generic values utilised for demonstration purpose)	Poor Economic Analysis
	Clear options are compared (BAU vs retrofit programme vs heat network)	Only one option analysed (no comparator)
	All costs/benefits are analysed monetised over long period (e.g. over 30-year project life)	Analysis period is short and misses long-term benefits (e.g., analysis less than 5 years)
	Carbon benefit valued at £95/tonne CO2 (as per HM Treasury guidance)	No carbon valuation or health impact quantification
	Health benefits quantified (reduced fuel poverty, air quality)	Benefits are vague (e.g., environmental improvements)
	Sensitivity analysis shows NPV remains positive even if fuel prices drop 20%	No sensitivity testing ; assumes all assumptions are correct
	Distributional impacts quantified and reported.	Inadequately defined counterfactual or distributional assessment.

Economic case: Case study

Retrofit programme economic analysis

- **Context:** UK social housing retrofit programme targeting 5,000 fuel-poor homes, upgrading each dwelling to at least Energy Performance Certificate (EPC) Band C in line with national efficiency and fuel-poverty objectives. The programme focuses on low-income or fuel-poor households whose homes are typically older, poorly insulated and expensive to heat, making them a priority for EPC C upgrades in UK policy and advisory reports
- **Economic analysis showed:**
 - ✓ Capital cost: £40,000/unit = £200m total
 - ✓ Benefits over 30 years: Energy bill savings (£350/year per household) + health (reduced respiratory disease) + carbon abatement (£1,000/year in social value)
 - ✓ NPV: £150m (at 3.5% discount rate)
 - ✓ BCR: 1.25 (£1.25 of benefits per £1 of cost)
- **Key insight:** Even though capital costs are high, long-term operational savings and health benefits make economically compelling case for investment.

Commercial Case

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South East Net Zero Hub

Commercial case

Purpose of commercial case:

- Demonstrates project will result in viable procurement and well-structured investment
- Outlines how public sector will engage with private sector/service providers
- Defines service/product requirements, charging mechanisms, risk allocation
- Risk allocation must reflect the party best able to manage the risk.
- Assesses market viability based on demand, affordability, competition
- Identifies how revenue will be raised and reinvested in service
- Ensure commercial structures support place-based outcomes, including local supply chain participation and local economic benefits.
- Assess distributional impacts arising from commercial arrangements (e.g., affordability, access, service coverage).
- Commercial arrangements should support long-term resilience and public value

The 2026 Green Book also requires commercial arrangements to support place-based outcomes, address distributional impacts, and include clear provisions for long-term monitoring and evaluation.

Market Failure Analysis: Why Public Intervention Is Needed

Green Book guidance requires business cases to demonstrate why public intervention is justified. Market failure analysis explains the underlying economic rationale for the project. Evidence of specific market failures must be clearly documented and quantified where possible.

Common market failures relevant to net zero projects:

- ✓ **Positive externalities:** Carbon reduction, air quality, health benefits not captured by private investors
- ✓ **Information asymmetry:** Households or SMEs lack information to invest in energy efficiency
- ✓ **Coordination failures:** Heat networks, EV infrastructure, and retrofit programmes require system-level planning
- ✓ **High upfront costs:** Private sector unwilling to invest without public risk-sharing
- ✓ **Split incentives:** Landlord/tenant issues in retrofit markets

Market Failure Analysis: Why Public Intervention Is Needed Cont.

What to include in the Commercial Case:

- ✓ Evidence of the specific market failure(s)
- ✓ Explanation of how the proposed intervention addresses them
- ✓ Rationale for public sector involvement vs private delivery
- ✓ Implications for procurement strategy and risk allocation
- ✓ The depth of market failure analysis should be proportionate to project scale and risk.

Commercial case: Key considerations

- **Service requirements and specifications:** Identify what is being procured, key performance standards, service levels, and quality requirements
- **Risk allocation and management:** Identify who bears which risks in the following areas: design, construction, operational, demand, financial
- **Charging mechanisms and revenue:** Consider how will service users be charged, review if the municipality can raise revenue, consider what is the pricing model etc.
- **Affordability equity requirement:** Assess affordability impacts on vulnerable users and potential distributional consequences.
- **Market viability and affordability:** Consider supplier market competition, evaluate if users afford charges, evaluate demand elasticity etc.

Commercial case: Steps in the process

Step 1: Service Definition

Clearly define what is being procured with performance metrics

Step 3: Demand Assessment

Analyse customer demand and price sensitivity for service

Step 5: Risk Allocation

Define which party bears which risks in procurement contract

Step 2: Market Engagement

Consult with potential suppliers to understand if there is a competitive market
Assess supplier exposure to climate transition risks and supply chain resilience.

Step 4: Pricing Model

Design charges/revenue mechanism that covers costs sustainably

Step 6: Affordability Test

Verify end customers can afford charges without undue hardship

Commercial case: OBC requirements

The Commercial case sets out how the preferred option will be procured and how supplier relationships will be managed. At the OBC stage, this is indicative, and it becomes definitive at the FBC stage once procurement has been completed. Key elements include:

- Identifying procurement route (direct delivery, contracted, PFI/PPP, joint venture, community model)
- Outlining procurement strategy & realistic timelines
- Estimating likely supplier costs based on market testing & benchmarking
- Identifying risks and how they will be allocated in supplier contracts
- Quantified risk exposure must align with Economic and Financial modelling.
- Confirming if market capacity exists & suppliers are willing to bid

What changes from OBC → FBC in the commercial case

As projects progress through procurement towards financial close, commercial arrangements move from indicative to confirmed. The table below illustrates key transitions from OBC to FBC stage:

Element	OBC Status	FBC Status
Supplier selection	Procurement planned & scoped	Supplier selected, due diligence complete
Commercial terms	Indicative framework	Heads of Terms signed
Price	Market estimate (±20-30%)	Final tender price confirmed (±5-10%)
Risk allocation	Draft risk matrix & strategy	Agreed & allocated in contract
Value for Money	Competitive dialogue target	Confirmed via actual procurement and consistent with Economic Case findings.

FBC: Risk allocation matrix

At FBC stage, all significant risks must be identified, quantified, and allocated to the party best able to manage them. The example below illustrates a typical risk allocation for a heat network project, showing how construction risk, technology risk, user risk, and cost inflation risk are distributed between contractor, operator, and local authority

Risk Category	Description	Owner	Mitigation
Construction cost overrun	Capex +10%	Contractor	Fixed-price contract
Technology failure	Efficiency <40%	Operator	Performance warranty
User take-up	Connections <70%	Local Authority	Engagement plan
Operating cost inflation	Energy costs rise faster	Shared (RPI caps)	Price adjustment mechanism

Residual risk exposure must be reflected in contingency and financial modelling.

Commercial case: Comparing good vs poor examples

	Good Commercial Case (Heat network context) (Generic values utilised for demonstration purpose)	Poor Commercial Case
	Engagement: engaged 5+ competitive heat network operators; gauged multiple interest	No market engagement; assumes one supplier will bid
	Demand analysis: 70% of eligible buildings interested; willing to pay £40/GJ	No demand assessment; assumes all buildings will connect
	Revenue model analysis: user charges plus council subsidy for fuel-poor households	Vague revenue model (i.e., hopes grants will cover everything)
	Risk analysis: supplier bears construction & operational risk, whilst council bears demand risk	Risk allocation is unclear; the ambiguity can create misunderstandings as project progresses
	Affordability analysis: average bill savings offset connection costs	Charges are not tested with customers; no affordability analysis conducted

Commercial case: Case study

Heat Network Commercial Strategy

- **Project context:** The South-East London Combined Heat and Power (SELCHP) - based district heating network in the London Borough of Southwark, supplies low-carbon heat via buried hot-water pipes to thousands of homes and other developments, serving an estimated 3,000 buildings
- **Commercial approach:**
 - ✓ **Procurement:** Concession agreement with private heat provider responsible for design, build, operate for 20 years
 - ✓ **Revenue:** User-pays charges (£50/GJ), and municipal grant for vulnerable users to ensure affordability
 - ✓ **Demand:** Pre-commitment from anchor customers (council buildings) to guarantee minimum revenue
 - ✓ **Risk:** Provider bears construction cost overruns; local authority bears demand shortfall risk (mitigated by anchor customers)
- **Outcome:**
 - ✓ The South London heat network achieved successful procurement with £120 million in private investment
 - ✓ Connected 2,800 buildings (originally planned to serve 3,000 buildings) and delivering average user savings of £400 per year
 - ✓ Overall contributed to significant carbon reduction and energy efficiency across the region

Recap Test

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Short test

Q1: Which stage of the business case process involves finalizing procurement terms with the selected supplier and confirming affordability?

- a) Strategic Outline Case (SOC)
- b) Full Business Case (FBC)
- c) Outline Business Case (OBC)

Q2: A local authority is developing a retrofit business case. Which is most important to include in the Strategic Case?

- a) Detailed cost-benefit analysis showing NPV
- b) Options appraisal showing why retrofit is preferred over BAU and alternatives
- c) Contractor selection process and procurement timelines

Q3: What does a Cost-Benefit Analysis NOT do?

- a. Compare monetised costs and benefits over project lifetime
- b. Show which stakeholders benefit and which bear costs
- c. Determine the final go/no-go decision on project

Short test answers

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- b. Show which stakeholders benefit and which bear costs
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Financial Case

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Financial case

Purpose of financial case:

- Demonstrates affordability within medium-term fiscal constraints and long-term public finance sustainability.
- Shows how the project will be funded: capital and revenue requirements
- Assesses impact on local authority's balance sheet, income/expenditure
- Identifies all potential funding sources (public, private, grants, concessional)
- Identify contingent liabilities and off-balance sheet risks where applicable.
- Demonstrates stakeholder support for funding and affordability arrangements

Financial case: Key considerations

- **Capital requirements:** Describe the total upfront investment needed for the project, broken down by year, indicating how much infrastructure or capacity must be built and when the spending will occur
- **Revenue/Operating requirements:** Explains the annual costs to keep the project running, including operations, maintenance, and staffing, and shows the ongoing cash the council must commit each year
- **Funding sources:** Set out how the project will be paid for, identifying the mix of grants, loans, municipal own-source funds, PPP contributions, and any revenue generated by the project itself
- **Balance sheet & financial statement impact:** Describe how the project will change the council's overall financial position over time, including effects on debt levels and ratios, cash reserves, and other key financial indicators. Demonstrate consistency with prudential borrowing limits and fiscal sustainability rules.
- **Sensitivity & resilience analysis:** describes the different factors that could impact the commercial performance of the project and to what extent. This type of analysis is useful to identify risks (e.g., significant energy price increase) and develop strategies to mitigate risks. Including stress testing against inflation, revenue variability and downside scenarios.

Financial case: Funding sources for Net Zero projects

Public Sector

- ✓ Central government grants
- ✓ Central government investment (debt/equity)
- ✓ Local authority budgets
- ✓ Borrowing (Public Works Loan Board)
- ✓ Council reserves

Private Sector

- ✓ Commercial loans & bonds
- ✓ Infrastructure funds
- ✓ Equity investment
- ✓ PPP/concessions
- ✓ Community funding

Concessional/Climates Sources

- ✓ Green Climate Fund
- ✓ Development banks
- ✓ Climate finance grants
- ✓ Green bonds

Blended Approaches

- ✓ Layered capital structures
- ✓ Revenue from operations
- ✓ Cross-subsidy models
- ✓ Guarantees

Financial case: Steps in the process

Step 1: Quantify Costs

Detail all capital and operating costs by year and category

Step 2: Identify Revenue

Identify what revenue will the project generate (user fees, sales, savings)

Step 3: Map Funding Gap

Identify shortfall between costs/revenue and available resources

Step 4: Source Funding

Develop funding stack to cover gap from multiple sources

Step 5: Test Affordability

Model impact on P&L, balance sheet, cash flow and debt ratios under multiple scenarios.

Step 6: Secure Approval

Get stakeholder buy-in on funding arrangement and risks

Financial modelling assumptions must align with Economic Case and Commercial risk allocation.

Financial case requirements at OBC stage

The Financial case demonstrates that the council can afford to fund and operate the project within available budgets and borrowing limits. At OBC, this is provisional testing; at FBC, all funding must be confirmed. Key elements include:

- **Developing high-level financial model with cost and revenue projections over project lifetime**
- **Ensure financial projections are consistent with Economic Case appraisal assumptions.**
- **Identifying potential funding sources** (grants, PWLB borrowing, council reserves, third-party investment)
- **Testing provisional affordability against council financial limits & prudential borrowing rules**
- **Outlining whole-life cost** (capital, operating, maintenance, decommissioning)
- **Confirming approach to accounting treatment** (on/off balance sheet implications)

Financial case requirements at FBC stage

At Full Business Case stage, financial arrangements must be fully confirmed:

- **Final funding agreements:** All sources confirmed in writing (grants, loans, council contribution)
- **Complete financial model:** Detailed monthly/annual cashflows for entire project lifecycle
- **Whole-life cost analysis:** Total cost of ownership including capex, opex, maintenance, decommissioning
- **Stress testing/Sensitivity testing:** Model runs at high/low cost and revenue scenarios to test resilience
- **Accounting treatment:** Confirmed under IFRS (relevant for council balance sheet & reporting)
- **Affordability certification:** Section 151 officer sign-off on financial sustainability & prudential borrowing compliance
- **VFM divergence:** Confirm no material divergence from Economic Case value-for-money assessment.

Aligning the Financial Model with Commercial Contract Terms

At FBC stage, the financial model must fully reflect the commercial deal agreed with the supplier.

Reconciliation* should include:

- ✓ Contracted unit prices, indexation rules, and escalation mechanisms
- ✓ Payment schedules and milestone payments
- ✓ Risk allocation impacts (e.g., who bears energy price risk)
- ✓ Ensure residual risk exposure is reflected in financial contingencies
- ✓ Performance deductions or availability-based payments
- ✓ Lifecycle and maintenance obligations
- ✓ Revenue-sharing or gain-share arrangements

Purpose:

To ensure the financial case is not theoretical but grounded in the actual commercial commitments that will govern delivery.

***Reconciliation:** proving that the financial model and the commercial contract match each other exactly

Project funding stack example

This example shows how a generic £28m district heating network project might be financed through a combination of grant funding (GHF), PWLB borrowing, and council equity contribution. Each funding source has different implications for financial risk and balance sheet treatment:

Funding Source	Amount (£m)	Notes
Green Heat Network Fund (Grant)	£10.0	Capital grant from the UK government’s GHNF, which can cover up to just under 50% of eligible commercialisation and construction costs for heat networks in England
Local Authority Borrowing (PWLB)	£15.0	Prudential borrowing by the council via the Public Works Loan Board to fund the remaining capital costs not covered by the grant or equity
Council General Fund (equity)	£3.0	Direct capital contribution from the council’s own resources, typically treated as equity in the heat network SPV or as funded capital in the council-owned scheme.
Total Funding	£28.0	

Funding structure must be transparent regarding risk transfer, guarantees and fiscal exposure.

Financial case: Comparing good vs poor examples

Good Financial Case (Generic values utilised for demonstration purpose)	Poor Financial Case
Capital indicated: £50m, broken down by component and year	Vague cost estimate: e.g., approximately £50m
Revenue indicated: £3m/year from charges; £2m from central grant	Insufficient articulation of revenue model
Funding indicated : £20m grant + £30m Public Works Loan Board (PWLb) loan (30-year term)	Funding: unclear funding strategy or mechanisms identified (e.g., it mentions 'will seek grants and loans to cover project cost')
Affordability analysis: modelled P&L shows positive project cashflow by year 5	Insufficient financial modelling or impact analysis conducted
Sensitivity testing/Risk assessment: identified sensitivity to fuel prices, and modelled various scenarios	Insufficient risk assessment or sensitivity testing conducted
Stress testing confirms affordability under downside scenarios.	No assessment of contingent liabilities or fiscal risk.

Financial case: Case study

Bristol City Leap Financial Structure

- **Project context:** Bristol City Leap is a long-term energy partnership focused on transforming the city's energy infrastructure. With over £1 billion of planned investment over 20 years, the project aims to deliver city-wide low-carbon energy solutions, including heat networks, renewable generation, and smart energy systems, supporting Bristol's ambition to become a carbon-neutral city.
- **Financial approach:**
 - ✓ **Capital funding:** Private sector (Ameresco/Vattenfall) invested capital upfront; council contributed through energy efficiency grants
 - ✓ **Revenue model:** Private partners recover investment through heat charges, renewable energy sales, efficiency service revenue
 - ✓ **Council role:** Provides guaranteed minimum revenue through council buildings; anchors market for private investment
 - ✓ **Affordability:** User bill reductions from energy savings cover majority of new charges
- **Key insights:** Demonstrated financing structure innovation
 - ✓ One of the most innovative aspects of the Bristol City Leap project is its use of off-balance sheet financing; the city council does not need to borrow funds or carry the financial risk on its own books
 - ✓ Instead, the project mobilizes private capital through a Public-Private Partnership (PPP) structure
 - ✓ This approach enables large-scale energy infrastructure development without increasing public debt, while leveraging private sector expertise and resources to accelerate Bristol's transition to a low-carbon economy

Management Case

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Management case

Purpose:

- Demonstrates robust management arrangements are in place to deliver the project
- Establishes clear governance structure and decision-making authority
- Outlines project management methodology and delivery approach
- Identifies risk management processes and mitigation strategies
- Plans for post-implementation monitoring, evaluation, and learning
- Evaluation design must be developed at OBC stage in line with ROAMEF.

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Management case: key considerations

- **Governance arrangements:** Describe who has authority to make decisions on the project, including the composition and role of steering committees, the allocation of decision-making powers, and the approval processes that must be followed
- **Theory of change:** Develop a theory of change linking inputs, outputs, outcomes and long-term impacts
- **Project management:** Set out how the project will be delivered in practice, specifying the management methodology, key timelines and milestones, and the resources required to implement each stage
- **Risk management:** Explain what risks the project faces and how they will be handled, covering the risk register, mitigation strategies, and contingency plans to address potential problems
- **Measurable outcomes:** Define measurable outcomes consistent with Strategic and Economic objectives.
- **Post-implementation review:** Describe how success will be measured after implementation, outlining the monitoring and evaluation activities and the approach to capturing lessons learned and improving future projects

Management case: Steps in process

Step 1: Define Governance

Establish steering committee, Project Management Office (PMO), decision-making hierarchy

Step 3: Team & Resources

Identify core team, skills required, recruitment/engagement plans if necessary

Step 5: Communication Plan

Identify how will stakeholders stay informed - frequency, channels, content

Step 2: Project

Develop schedule with phases, milestones, dependencies

Step 4: Risk Register

Identify risks, assess probability/impact, plan mitigation

Step 6: Monitoring & Evaluation

Define KPIs, data collection methods, baseline values and evaluation timeline.

Management case: OBC Requirements

The Management case demonstrates the organisation's capability to successfully deliver and operate the project. It addresses arrangements for governance, resourcing, risk management, and benefits realisation. At the OBC stage, this is largely indicative; at the FBC stage, systems and processes must be fully operational. Key elements include:

- **Outlined governance structure with clear decision-making roles & escalation**
- **Identified key delivery partners & conduct capability assessment**
- **Proposed benefits realisation approach and success metrics**
- **Ensure benefits are measurable and aligned with Economic Case outputs.**
- **Outlined risk management framework and escalation protocols**
- **Confirmed resource requirements (staff, expertise, funding for delivery team)**

Management case requirements for FBC approval

For FBC approval, management readiness must be fully demonstrated:

- **Delivery readiness assessment:** All suppliers, teams, and systems confirmed in place
- **Detailed implementation plan:** Gantt chart with critical path, milestones, dependencies, and timeline in place
- **Contract management plan:** How supplier performance will be monitored, managed, and remedied is accounted for
- **Benefits realisation plan:** Mechanism for tracking carbon savings, cost reductions, and community benefits post-completion in place
- **Monitoring of outcomes:** Confirm monitoring of distributional and equity outcomes where material.
- **Change control procedures:** How scope changes will be evaluated and approved during delivery is accounted for
- **Gateway Review readiness:** Preparation for IPA (Infrastructure and Projects Authority) or Cabinet assurance gates

Benefits Realisation Map

A benefits realisation map links project activities to outputs, outcomes, and long-term impacts. It provides a clear line of sight between investment and public value.

Example structure:

Inputs	Activities	Outputs	Outcomes	Long-term Impacts
Funding, staff, data	Retrofit programme delivery	Homes upgraded	Reduced energy bills	Reduced fuel poverty
Procurement, contracts	Heat network construction	Network connections	Lower carbon heat	Carbon reduction
Partnerships	Community engagement	Awareness campaigning	Behaviour change	Improved health

Why it matters:

A clear benefits realisation approach supports monitoring and evaluation through the project lifecycle.

Benefits realisation plan

The Benefits realisation plan establishes how the project team will track whether the project actually delivers the predicted benefits. Baseline values must be established at OBC stage to enable robust post-implementation evaluation. The example below is a template illustrating key benefits for a heat network project.

Moreover, tracking post-completion is essential for organizational learning and accountability

Benefit	Metric	Target (Year 5)	Monitoring Method
Carbon reduction	tCO ₂ /year	18,000	SCOPE 3 emissions report
User savings	£/year per customer	£180	Bill analysis, fuel poverty metrics
Jobs created	FTE permanent roles	15	Payroll records
User satisfaction	% satisfaction score	85%	Annual user survey
Distributional impact	% of benefits reaching low-income or vulnerable households	≥50% of benefits accrue to fuel-poor households (example)	Disaggregated billing data / postcode analysis / income segmentation

Change Control and Project Variation Management

Large infrastructure and net zero programmes require structured processes to manage changes in scope, cost, risk, or timelines.

A robust change control process includes:

- ✓ **Change request form:** Description, rationale, cost/time implications
- ✓ **Impact assessment:** Financial, commercial, economic (value-for-money), risk, and benefits impacts.
- ✓ **Decision thresholds:** Officer-level vs Cabinet-level approvals
- ✓ **RACI* matrix:** Who initiates, reviews, approves, and implements changes
- ✓ **Audit trail:** Documentation of decisions and rationale
- ✓ **Integration with contract management:** Ensuring supplier variations follow agreed procedures

Outcome:

A controlled environment that prevents scope creep, unmanaged cost escalation, and delivery delays.

* RACI matrix: demonstrates who is responsible for doing the work, who is accountable (owns) the outcome, who is consulted, and who is informed.

Assurance & approvals: OBC and FBC cycle

Net zero business cases progress through formal assurance and approval gates. These checkpoints ensure appropriate scrutiny at each stage and protect public investment:

- **Gateway 0 (SOC):** Internal appraisal → Cabinet approval → Proceed to OBC
- **Gateway 1 (OBC):** Finance, legal, procurement review → Cabinet decision → Market engagement & procurement
- **Gateway 2 (FBC):** Final price validation → Section 151 affordability sign-off → Confirmation of continued value for money → Cabinet final approval.
- **External Assurance:** IPA review (major projects), peer authority review, independent technical review
- **Post-Implementation:** Benefits review (12 months), impact evaluation (3-5 years)

The level of assurance must be proportionate to project cost, complexity and risk.

Post-Implementation: Monitoring, Evaluation & Learning (MEL)

Why MEL matters for net zero projects

- **Accountability:** Demonstrate that project delivered promised outcomes to stakeholders
- **Adaptive Management:** Identify what's working; adjust approach if needed
- **Learning:** Share lessons with other municipalities to reduce cost of replication
- **Continuous Improvement:** Refine operations to maximise benefits and minimise costs
- **Benefits realization:** Confirm whether forecast Economic Case benefits and distributional impacts were realised.
- **Evaluation timing:** Evaluation milestones should be defined at OBC stage.

Management case: Comparing good vs poor examples

	Good Management Case (Generic values utilised for demonstration purpose)	Poor Management Case
	Steering Group includes senior officers and delivery leads; monthly decision gates scheduled and aligned with Programme Board and Delivery Group inputs.	Governance structure is vague (e.g., 'project will be managed by project team')
	Detailed Gantt chart compiled (e.g., 18-month delivery timeline with phases, key milestones, key activities)	Timeline is unclear e.g., project indicated to be 'approximately 18 months' with no detail
	Project staffing is clear: core project team identified e.g., 17-person core team	Staffing is unclear (e.g. 'team will hire as needed')
	Risk & Issue register compiled and tracked: 22 risks and 3 issues identified, with mitigation plans for the critical issues and risks	Identified generic risks and issues with no mitigation plans
	KPIs identified: on-time delivery, within budget, stakeholder satisfaction >80% etc.	No KPIs or monitoring approach have been articulated
	Contracts and plans with 3rd party stakeholders are in place: procurement plan for contractors is signed off and aligned with key stakeholders	Contractual agreements are not documented or aligned across key stakeholders, causing misalignment in project expectations
	Evaluation framework defined prior to delivery.	No defined Theory of Change or measurable outcomes.

Cross-Cutting Requirements

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Cross-Cutting Green Book Requirements

1. Distributional impact analysis

Distributional analysis examines who benefits from the net zero project and who bears the costs. This is increasingly important for climate justice and equitable transition. Where distributional impacts are material, they must inform the value-for-money judgement Green Book guidance requires assessment across multiple dimensions:

- ✓ **Geographic equity:** Which neighborhoods/wards benefit most? Are costs fairly distributed?
- ✓ **Income distribution:** Impact on low-income households vs. affluent areas - does it reduce inequality?
- ✓ **Fuel poverty:** Will project reduce energy bills for vulnerable households? Who gets access first?
- ✓ **Employment equity:** Are local jobs created in deprived areas? Training for disadvantaged groups?
- ✓ **Environmental justice:** Are clean technology benefits distributed fairly across all communities?

Methodology, data sources and assumptions used in distributional analysis must be documented.

Cross-Cutting Green Book Requirements

1. Distributional impact analysis cont.

Green Book requires explicit analysis of who benefits and who bears costs. This example shows distributional analysis for a heat network serving four wards. Ward A (low-income) benefits most (lowest bills, job creation) whilst Ward D benefits less due to lower uptake. This informs affordability protections and engagement strategy

Ward	Population	Fuel Poverty %	HN Access	Bill Savings (Year 5)	Jobs Created (Local)	Equity Score
Ward A (Low-income)	12,500	18%	85%	£240/hh	8 FTE	High
Ward B (Mixed)	14,200	9%	72%	£185/hh	5 FTE	Good
Ward C (Mixed)	10,800	6%	68%	£145/hh	2 FTE	Fair
Ward D (Affluent)	8,500	2%	40%	£90/hh	0 FTE	Low

*HN ~ Heat Network

Cross-Cutting Green Book Requirements

2. Environmental value beyond carbon

Net zero projects generate important co-benefits beyond carbon reduction. While carbon savings are primary, monetizing these additional benefits strengthens the economic case and demonstrates broader value. Key co-benefits include:

- ✓ **Health co-benefits**: Reduced respiratory disease, active travel promotion, mental health from green space
- ✓ **Biodiversity**: Green infrastructure benefits (habitat restoration, species corridors, pollinator support)
- ✓ **Air quality**: Nitrogen oxide (Nox)/ Fine particle matter (PM_{2.5}) reductions in urban areas (valued using WHO health cost estimates)
- ✓ **Noise reduction**: Heat networks and EVs are quieter than gas boilers and petrol vehicles
- ✓ **Water resources**: Reduced demand where renewable heat reduces energy-intensive cooling

Where monetised, values must align with recognised Green Book supplementary guidance. Care must be taken to avoid double counting benefits already captured in carbon valuation.

Cross-Cutting Green Book Requirements

3. Sensitivity analysis

Sensitivity analysis tests how NPV and value for money conclusions change if key assumptions vary. This is critical for demonstrating robustness of the appraisal and identifying which assumptions are most critical to project success. Sensitivity analysis tests parameter variation; scenario analysis addresses broader structural uncertainty.

- ✓ **What if capital costs:** Rise by 10% or 20% (consider how does this affect NPV?)
- ✓ **What if discount rate:** Changes to 2% vs 3.5% vs 4.5% (test sensitivity to time preference)
- ✓ **What if carbon price:** Ranges from £80/t to £150/t (identify impact on benefits valuation)
- ✓ **Take-up rates:** Conservative to optimistic user adoption scenarios
- ✓ **Switching values:** Consider at what carbon price does NPV break even. Switching values should be calculated for parameters that materially affect NPV.

Cross-Cutting Green Book Requirements

4. Scenario analysis

Scenario analysis tests project resilience under different assumptions. Scenario analysis should test a range of plausible outcomes (often presented as pessimistic/base/optimistic). This example shows heat network NPV under varying capital cost, carbon price, and take-up assumptions. Scenario analysis addresses structural uncertainty beyond parameter variation tested in sensitivity analysis

Scenario	Capital Cost	Carbon Price (£/t)	User Take-up	NPV (£m)	VfM Status
Optimistic	£26.0m (-10%)	£140	80%	£18.4m	Excellent
Base Case	£28.0m	£120	70%	£11.0m	Good
Pessimistic	£32.0m (+15%)	£100	55%	£2.1m	Marginal
Break-even	At what carbon price = £0 NPV?	£73	Base case take-up (70%)	NPV = £0	Switching value identified

Interpretation: Project delivers value across all scenarios. Even pessimistic case shows £2.1m NPV, confirming robustness. Carbon price only needs to reach £73/t (well below Government net zero pathway assumption of £120) for value for money. Risk of becoming non-viable is <5%.

Cross-Cutting Green Book Requirements

5. Proportionality: scaling effort to project size

Proportionality: appraisal effort should scale with a project's cost, complexity and risk. Larger, more complex projects require deeper analysis and more rigorous assurance. This reduces unnecessary burden on smaller projects whilst ensuring adequate scrutiny of major investments. Proportionality scales analytical depth but does not remove mandatory appraisal requirements.

- ✓ **Small projects (<£5m):** Simplified OBC (1-2 options, high-level costs, qualitative risk register)
- ✓ **Medium projects (£5-50m):** Standard OBC/FBC with full options appraisal, quantified risks, sensitivity analysis
- ✓ **Large projects (>£50m):** Comprehensive OBC/FBC plus external assurance, detailed distributional analysis, robust gateway reviews. Material distributional and climate impacts require enhanced analytical treatment.
- ✓ **Key principle:** More certainty and detail required at higher values, and earlier gating for major projects

Cross-Cutting Green Book Requirements

6. Risk quantification

Risk and uncertainty should be assessed; quantify expected risk impacts where proportionate and reflect them in costs/contingency. This example shows a quantified risk register for a heat network project. Each risk has probability, impact, and mitigation cost calculated. Total exposure (£2.5m) is factored into contingency budgets and NPV sensitivity analysis

Risk	Probability	Impact (£m)	Exposure (£m)	Mitigation Cost	Residual Exposure
Ground conditions/survey	35%	£2.1m	£0.74m	Detailed survey (£150k)	£0.25m
User take-up below forecast	40%	£1.8m	£0.72m	Engagement plan (£200k)	£0.35m
Supply chain inflation	60%	£1.5m	£0.90m	Fixed-price contracts	£0.15m
Regulatory/permit delays	25%	£0.5m	£0.13m	Early engagement with regulator	£0.04m
Total Risk Exposure			£2.49m	Total mitigation: £550k	£0.79m

Key Principle: Total residual exposure (£0.79m) is added to optimism bias contingency in financial model. Risks must be monitored monthly; triggers define escalation to project board. Quantified risk exposure must align with both Economic and Financial modelling. Risks that cannot be robustly quantified should be addressed through scenario analysis.

Cross-Cutting Green Book Requirements

7. Dependencies and constraints

Dependencies and constraints should be identified early, as they affect deliverability, timelines and risk. Identifying these early informs realistic timelines, risk allocation, and contingency planning. Failure to acknowledge them is a common cause of project delays and cost overruns. Examples of external dependencies and internal constraints are listed below:

External Dependencies

- ✓ Grant funding confirmation (timing & conditions)
- ✓ Planning permission & environmental approvals
- ✓ Utility connections/grid capacity headroom
- ✓ Third-party land/asset access agreements
- ✓ Technology supply chain availability
- ✓ Policy changes related to net zero and carbon pricing.

Internal Constraints

- ✓ Capital budget ceiling (prudential limits)
- ✓ Staff capacity & technical expertise
- ✓ Site/property constraints (space, condition)
- ✓ Existing service continuity requirements
- ✓ Organisational change management capacity
- ✓ Medium-term fiscal envelope and borrowing constraints.

Cross-Case Alignment: Ensuring Coherence Across the Five Cases

A strong business case demonstrates that the preferred option is consistently supported across all five cases.

Alignment table example:

Case	Evidence supporting preferred option
Strategic	Strong alignment with Net Zero Strategy and local priorities
Economic	Highest NPV and BCR; strong non-monetised benefits
Commercial	Market appetite confirmed; viable procurement route
Financial	Affordable within Medium Term Financial Strategy; funding secured
Management	Deliverable with existing capacity; risks manageable

Alignment must confirm that Commercial, Financial and Management cases remain consistent with the Economic Case value-for-money assessment.

Short test

Q1: Why is it important to break capital requirements down by year?

- a) To comply with national audit rules on procurement
- b) To help plan construction safety inspections
- c) To align the investment schedule with annual budgets, cash flow, and borrowing plans

Q2: Which statement best describes the main purpose of the formal assurance and approval gates in the OBC and FBC cycle?

- a) To speed up procurement by reducing the number of cabinet approvals required
- b) To ensure appropriate scrutiny at each stage and protect public investment
- c) To allow projects to bypass external assurance and post-implementation review

Q3: What is the primary purpose of post-implementation MEL in management case?

- a) Determine if project was a success or failure
- b) Capture lessons and adaptive insights to improve operations and share with other municipalities
- c) Assess whether management team performed well

Short test: Answers

Q1: Why is it important to break capital requirements down by year?

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Section 2:

Tailoring the Business Case for Different Audiences

Summary:

Focuses on adapting business cases to meet the needs of diverse stakeholders, including internal teams, government bodies, investors, and communities.

Learning Outcomes:

- Identify key stakeholder groups and their priorities
- Tailor messaging and emphasis to suit different audiences
- Communicate strategic, financial, and social value effectively
- Build confidence and support across political, technical, and public domains

Section 2 requires 2 learning hours: 1 hours of Guided Learning and 1 hours of Independent Learning.

Overview of key stakeholders

Who are the different audience for the business case?

- **Internal stakeholders:** Executive team, finance committee, elected members, service managers
- **Local/national government agencies:** Central Treasury, sector regulators, planning authorities, other councils. Scrutiny bodies will assess compliance with Green Book 2026 requirements.
- **Commercial:** Debt providers, equity providers, contractors, service providers
- **Community:** Residents, community groups, environmental NGOs, social enterprises

Each audience has different priorities, preferences, risk tolerances, and information needs

Factors to consider when engaging audiences

- **Stakeholder priorities:** Identify what matters most to each audience, such as cost, risk, environmental impact, financial return, or social value
- **Decision authority:** Clarify who formally makes decisions, who significantly influences those decisions, and what level of risk they are willing to accept
- **Information needs:** Determine whether the audience requires detailed technical material or a high-level executive summary, and which data points are most important for them. All tailored communication must remain consistent with the approved business case.
- **Communication preferences:** Choose the most effective way to engage the audience (formal presentation, written submission, one-on-one meetings, community events etc.)
- **Technical/Complexity level:** Identify the technical understanding of the audience and adjust the complexity of discussions / material presented during engagements

Internal stakeholders

Key information types for the various internal stakeholders

Executive Leadership

- ✓ Strategic fit & risk profile
- ✓ Budget impact & financial sustainability
- ✓ Timeline & key milestones
- ✓ Political/reputational benefit
- ✓ Risk register
- ✓ Confirmation of value for money under Economic Case.

Elected Members

- ✓ Constituent benefits & co-benefits
- ✓ Local jobs & supply chain
- ✓ Budget & affordability for residents
- ✓ Delivery timeline

Finance Committee

- ✓ Capital cost & funding mix
- ✓ Impact on P&L & balance sheet
- ✓ Debt ratios & affordability
- ✓ Grant confirmation & risk scenarios
- ✓ Governance

Service Managers

- ✓ Operational impact & disruption
- ✓ Resource requirements & skills
- ✓ Service continuity assurance
- ✓ Integration with existing services

Local/national government agencies

Key information types for the various governmental stakeholders

HM Treasury

- ✓ Five Case Model rigor
- ✓ Value for money (BCR, NPV)
- ✓ Affordability & fiscal impact
- ✓ Green Book compliance
- ✓ Distributional analysis and carbon valuation compliance.

Sector Regulators

- ✓ Compliance with standards
- ✓ Consumer/customer protection
- ✓ Service quality & safety

Planning Authority

- ✓ Land use & planning fit
- ✓ Environmental assessment
- ✓ Community benefit/impact
- ✓ Consultation & permissions

Other Local Authorities

- ✓ Lessons learned & replicability
- ✓ Implementation approach
- ✓ Costs and financing model
- ✓ Risks & mitigation

Commercial audience

Investors

- ✓ Market size & demand certainty
- ✓ Revenue, cashflow & return profile
- ✓ Risk allocation & mitigation
- ✓ Exit strategy & contract terms
- ✓ Competitive advantage
- ✓ Pipeline and scalability
- ✓ Transparent disclosure of residual public sector risk exposure.

Project Developers

- ✓ Commercial and financial analysis
- ✓ BAU and alternative options
- ✓ Financial structure and scalability
- ✓ Quantified climate/environmental impact
- ✓ Analysis of key risks (technical, delivery, regulatory, market, counterparty) and mitigation strategies
- ✓ Policy environment and incentives

Community audience

Community & Residents

- ✓ Local benefits & job opportunities
- ✓ Cost/affordability impact
- ✓ Environmental benefits
- ✓ Disruption during delivery
- ✓ Service improvements
- ✓ Health benefits
- ✓ Clear reporting on how benefits are distributed across communities.

NGOs & Environmental Groups

- ✓ Just transition for workers & vulnerable communities
- ✓ Climate/environmental benefits
- ✓ Environmental justice & equity considerations

How to tailor business case for audiences

Key components to capture

- **Executive summary layers:** Create brief 2-page summaries tailored to each audience. Create one main business case; multiple executive summaries. Executive summaries must remain faithful to the full Economic Case analysis.
- **Emphasis and messaging:** Lead with key messaging that interests the audience, for example, for finance committee: lead with affordability. For community: lead with benefits. For investors: lead with returns
- **Appendices and detail:** Keep the main document concise; include detailed technical analysis in appendices for stakeholders who need it
- **Engagement format:** Utilise most effective format to present information to the various stakeholders, for example, using infographic to present to community or detailed presentations with key figures for investors

Short test

Q1: When engaging different audiences in a project, which of the following factors should you consider to ensure effective communication and decision-making?

- a) Stakeholder priorities, decision authority, information needs, and communication preferences
- b) Project timeline, budget allocation, and technical specifications only
- c) Marketing strategy and branding guidelines

Q2: Which of the following best describes the difference between community information needs and executive leadership information needs in project communication?

- a) Communities focus on strategic fit and risk profile, while executives prioritize local benefits and job opportunities
- b) Communities only care about disruption during delivery, while executives only care about cost impact.
- c) Communities prioritize local benefits and service quality, executives focus on strategic alignment and financial viability

Short test answers

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Further readings: Section 1 and Section 2

UK Government & Treasury Guidance:

- ✓ HM Treasury Green Book (2026). *The Green Book: Appraisal and Evaluation in Central Government*
- ✓ HM Treasury Business Case Guidance (2024). *Five Case Model Framework*
- ✓ HM Treasury (2022). *Accounting for the Effects of Climate Change* (Supplementary guidance to Green Book)
- ✓ Local Partnerships Business Case Templates (Heat Networks, Retrofit)

Net Zero & Climate Finance References

- ✓ IUK (2023). *Financing Local Net Zero Projects: A Guide for Local Authorities*
- ✓ Local Government Association. *Delivering Local Net Zero Case Studies*
- ✓ UK-ICE. *A Business Case Framework for Local Authority Net Zero*
- ✓ UK Department for Energy Security & Net Zero (2023). *Local Authority Net Zero Procurement Guide*
- ✓ Greater London Authority Heat Network Strategy

Project Finance & Procurement

- ✓ APMG Better Business Cases. *Five Case Model for Public Sector Projects*. Global standard guidance.
- ✓ CISL. *The Business Case for Integrated Retrofit*

Section 3

Integrating Development of Business Case with Project Development & Delivery

Summary:

Demonstrates how business case development aligns with procurement, governance, and financing. Covers commercial structuring, risk allocation, and management case development.

Learning Outcomes:

- Link business case stages to procurement and delivery milestones
- Develop commercial cases with viable procurement strategies
- Allocate risks appropriately and define mitigation plans
- Build strong management cases with governance, staffing, and KPIs
- Ensure readiness for financial close and implementation

Section 3 requires 2 learning hours: 1 hours of Guided Learning and 1 hours of Independent Learning.

Overview of project development

Step 1: Concept

Problem identification, initial scoping, strategic alignment

Step 2: Development

Full business case development, stakeholder consultation, Confirm that Strategic and Economic assumptions remain valid before approval.

Step 3: Approval

Formal approval, funding secured, procurement initiated

Step 4: Delivery

Project execution, contractor management, monitoring

Step 5: Operations

Service delivery, benefit realisation, performance management

Step 6: Evaluation

Post-implementation review, lessons learned, knowledge sharing

Importance of regular communication and review against business case

It is important to revisit the business case due to:

- **Changing conditions:** These should be monitored because shifts in market prices, technology, or the policy environment can erode the original assumptions, requiring a check on whether the business case still holds. Material changes must trigger reassessment of Economic Case value-for-money conclusions.
- **Delivery issues:** Need to be communicated early, since slippage on timelines or budgets can undermine affordability and overall project viability and may require scope, schedule, or funding adjustments
- **Benefit tracking:** Is essential to confirm whether the project is delivering the planned benefits, and if it is not, to understand the reasons and decide what corrective actions or design changes are needed. Confirm whether distributional and equity objectives are being achieved.
- **Stakeholder confidence:** Is strengthened by regular, transparent updates, which help maintain buy-in from executives, elected members, and partners and reduce the risk of surprises or loss of support
- **Learning loop:** is created when feedback from implementation is captured and used to refine both the business case and the project, improving decision-making and the design of future initiatives

Good practice for regular engagement with different stakeholders

Engagements should not be a one-time event; ongoing dialogues maintain alignment and ensures project issues are identified early-on

▪ During Development

- ✓ Co-design workshops with community
- ✓ Market engagement with suppliers
- ✓ Internal stakeholder forums
- ✓ Regular steering committee meetings

▪ During Operations

- ✓ User satisfaction surveys
- ✓ Service quality reporting
- ✓ Annual review meetings
- ✓ Community benefit updates

▪ During Delivery

- ✓ Monthly project team briefings
- ✓ Quarterly progress to steering committee
- ✓ Community liaison & communication
- ✓ Supplier feedback loops

Engagement updates must remain consistent with approved Economic and Financial Case assumptions.

Monitoring, Evaluation & Learning (MEL) for ongoing project management: Practices and approach

■ Monitoring

- ✓ Definition: Ongoing tracking of outputs & activities.
- ✓ Key question: Are we doing the project as planned? Are assumptions underpinning the Economic Case still valid?
- ✓ Key metrics: timeline, budget, activity completion etc.
- ✓ Frequency: monthly/quarterly

■ Evaluation

- ✓ Definition: Periodic assessment of outcomes & impacts
- ✓ Key question: Are we achieving intended benefits? Are forecast Net Present Value drivers and distributional impacts being realised?
- ✓ Key metrics: impact (carbon reduced, energy saved, jobs created), cost per unit etc.
- ✓ Frequency: annual/mid-term (dependent on project duration))

■ Learning

- ✓ Definition: Systematic capture of lessons
- ✓ Key question: What worked? What didn't? Why?
- ✓ Mechanisms used: after-action reviews, case studies, publications, peer-learning events etc.
- ✓ Frequency: quarterly/bi-annual/mid-term (dependent on project duration)

MEL: Practical toolkits

- **KPI dashboard:** Monthly tracking of project metrics (budget, schedule, quality indicators). Traffic light system/ RAG status (red/amber/green) for quick status assessment
- **Data collection framework:** Define what data to collect, when, how, from whom (energy consumption, cost data, user satisfaction surveys, employment data). Baseline values must be clearly documented at OBC stage.
- **After-action review:** Conduct structured reflection on a consistent basis (e.g., quarterly) with project team: What happened? Why? What did we learn? How do we improve?
- **Learning dissemination:** Publish case studies, host peer learning events, document lessons in accessible formats for other municipalities to learn from

MEL example

Greater London Authority (GLA) Heat Networks Learning

- **Context:** Multiple London boroughs are developing heat networks independently; there is significant variation in approaches, costs, timelines
- **GLA learning initiative:**
 - ✓ **Consolidated learning:** GLA captured lessons from 5+ heat network projects (design, procurement, operations)
 - ✓ **Common framework:** Developed standardised business case template and procurement approach
 - ✓ **Peer learning:** Hosted quarterly forums where boroughs shared experiences and problem-solved together
 - ✓ **Cost reduction:** Standardised approach reduced procurement costs 15-20% for subsequent projects
 - ✓ **Faster deployment:** Learning transfer enabled new boroughs to deliver projects in 50% shorter timeline
- **Lesson:** Systematic knowledge sharing across local authorities dramatically improves delivery efficiency and reduces costs for net zero projects

Short test

Q1: After project approval, what is the most important role of ongoing MEL?

- a) Prove that the project was approved correctly
- b) Capture learning to improve delivery and share knowledge with other local authorities
- c) Demonstrate project manager competence

Q2: Which statement best distinguishes monitoring from evaluation within an ongoing project?

- a) Monitoring tracks outputs in real time; evaluation assesses merit of results at strategic moments
- b) Monitoring measures long-term impact only; evaluation records daily activities and budgets
- c) Monitoring is optional in agile projects; evaluation replaces monitoring when sprints end

Short test answers

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Further readings: Section 3

■ **Project Management & Delivery**

- ✓ PRINCE2 Project Management Methodology
- ✓ HM Treasury: Project Delivery Assurance Guidance
- ✓ Cabinet Office: Project Initiation Routemap

■ **Monitoring, Evaluation & Learning**

- ✓ UK Aid: MEL Framework for Development Projects
- ✓ UNFCCC: Guidelines for Monitoring and Evaluating Climate Change Adaptation
- ✓ Better Evaluation: MEL Toolkits and Frameworks

■ **Knowledge Sharing & Learning Networks**

- ✓ GLA: Learning Hub for London Net Zero
- ✓ LGA: Good Practice Guides & Case Studies
- ✓ Retrofit Information: RISE Knowledge Bank

Section 4

Module Conclusion

Summary:

Wraps up the module by reinforcing the importance of structured, evidence-based business cases in net zero investment. Encourages application of learning to real-world projects.

Learning Outcomes:

- Consolidate understanding of business case development
- Apply Green Book principles to net zero infrastructure projects
- Confidently lead or contribute to business case preparation
- Support investment decisions with robust, tailored documentation

Section 4 requires 2 learning hours: 1 hours of Guided Learning and 1 hours of Independent Learning.

Review: what we've covered

■ Section 1: Building an effective business case

- ✓ Five Case Model: Strategic, Economic, Commercial, Financial, Management cases.
- ✓ Components, processes, and examples of good vs poor cases
- ✓ Real-world case studies (e.g., Bristol City Leap)
- ✓ Economic Case as primary value-for-money assessment.

■ Section 2: Tailoring business case for different audiences

- ✓ Identifying the differing priorities and information needs across key stakeholders (internal, government, commercial, community)
- ✓ How to engage effectively with internal, government, commercial, and community audiences

■ Section 3: Integration with delivery

- ✓ Project development lifecycle
- ✓ Importance of business case reviews
- ✓ Importance of consistent stakeholder engagement
- ✓ MEL frameworks and tools

Key Takeaways

- **Business cases are essential:** They justify investment, demonstrate value, and guide decision-making for net zero projects
- **All the five cases matter equally:** All five cases are critical; however, the Economic Case determines value for money and preferred option.
- **Data quality is foundational:** Good business cases built on solid data. Invest in data collection and analysis upfront. Distributional and climate impacts must be evidenced, not assumed.
- **Audience matters:** Tailor messaging and emphasis to stakeholder priorities. One business case; multiple presentations
- **It's a living process:** Business case doesn't end at approval. Regular review and adaptation throughout delivery ensures relevance
- **Share learning continuously:** Systematic MEL and knowledge sharing amplifies impact across local authorities and accelerates net zero delivery

Common business case pitfalls to avoid

Learning from common mistakes improves business case quality and reduces risk of project failure:

- **Weak options appraisal:** Only comparing preferred option vs do-nothing (must instead compare vs do-minimum)
- **Underestimated costs:** Failing to apply optimism bias uplift, and having no price contingency or risk buffer
- **Unrealistic carbon savings:** Overstating additionality, and ignoring rebound effects & deadweight
- **Insufficient funding certainty:** Assuming grants at OBC stage, and uncertain of council affordability at FBC
- **Weak risk management:** Risks identified but not quantified or allocated to responsible parties
- **Missing benefits realisation:** No plan to track if promised carbon/financial benefits actually materialise post-completion
- **Inconsistent counterfactual baseline:** Failure to define and maintain a consistent counterfactual baseline.
- **Mistreatment of distributional analysis:** Treating distributional analysis as descriptive rather than decision-relevant.

Conclusions and next steps

You now have the skills to:

- Develop robust business cases using HM Treasury Five Case Model
- Confirm alignment with Green Book 2026 appraisal, distributional and climate requirements.
- Build strategic, economic, commercial, financial, and management cases with real data and examples
- Engage diverse stakeholders with tailored messaging and information
- Integrate business case development with project delivery
- Establish MEL frameworks to capture learning and share knowledge

Recommended Next Steps: Apply these frameworks to your project, engage peers and partners, build capability and capacity, contribute to net zero delivery at pace and scale

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0.1	05-Dec-25	First Draft	Mineral Springs	Justin Olosunde	19-Dec-25
0.2	15-Jan-26	Second Draft – addressed first draft issues & restructure	Mineral Springs	Justin Olosunde	29-Jan-26
1.0	26-Feb-26	Final Draft	Mineral Springs	Justin Olosunde	27-Mar-26

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