Beyond the Carbon-Cost Tipping Point

The transition to net zero infrastructure

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- Example Clients
  - Anglian Water
  - Transport Scotland
  - National Highways
  - Manchester City Council
  - Homes for Scotland
  - British Antarctic Survey
  - Edinburgh University
  - Renfrewshire Council
  - Hemso
  - HS2 Ltd
  - Defence Estates
  - Scottish Government

The Decarbonisation Bar Is Too Low

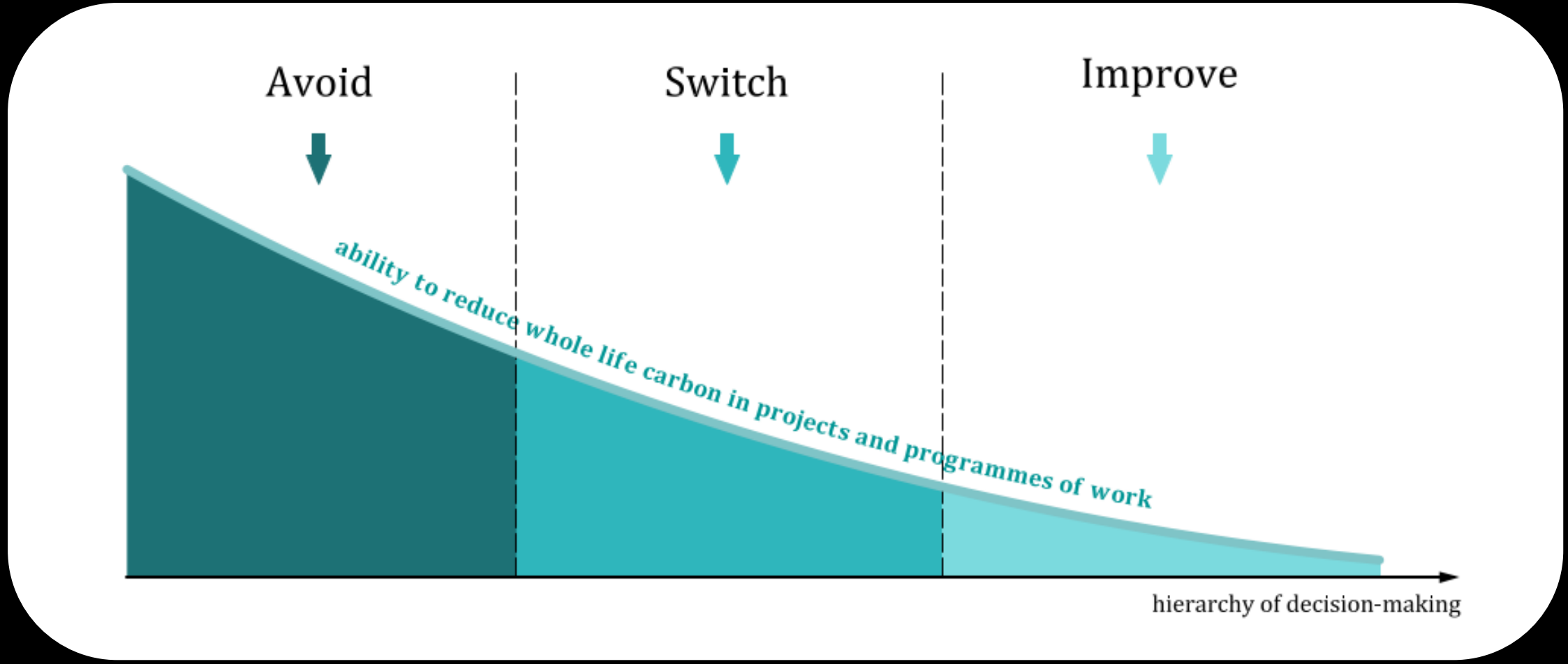
River Polluter: “I reduced the amount by which I pollute the river by 30% this year”

Regulator: “Reduce your pollution to within the environmental limits or face prosecution!”

Developer: “I reduced the amount of carbon in my infrastructure design by 30%”

Industry: “Good job!”

The Carbon Reduction Hierarchy



When Carbon and Cost Align – and When They Don’t

Why “Reduce Carbon, Reduce Cost” Worked

- UK Infrastructure Carbon Review (2013) established the principle that reducing carbon can also reduce cost
- Design-led interventions – optimising alignments, reducing over-specification – cut both carbon and cost
- Carbon acts as a proxy for energy, resource use and material intensity
- PAS 2080 provided a structured framework across the value chain

When This Relationship Breaks Down

- Once efficiency gains are exhausted, further reduction requires different materials, technologies and construction methods
- These alternatives often carry higher upfront costs, at least in the short term
- The industry shifts from optimising existing systems to transforming them
- The challenge becomes coordinating a transition across projects, programmes and markets

Introducing PAS 2080

Intended for:

- Clients / Asset Managers
- Designers / Consultants
- Contractors
- Material Suppliers

PAS 2080 promotes reduced carbon, increased value delivery, more collaborative ways of working, and a culture of challenging convention and traditional practice for decarbonisation

PAS 2080 Key Concepts

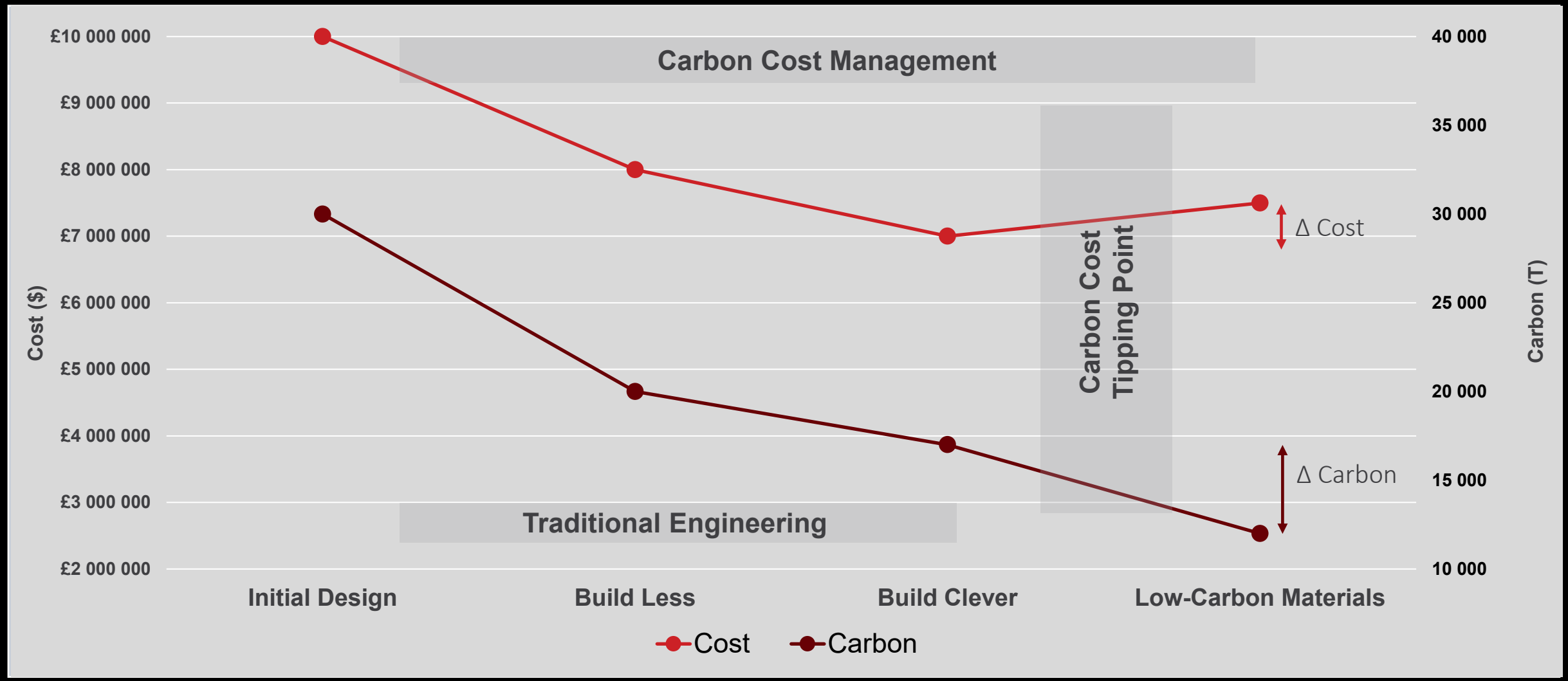
QUANTIFY: Establish a whole-life carbon baseline across the asset lifecycle

LEAD: Embed carbon management in governance, procurement and decision-making

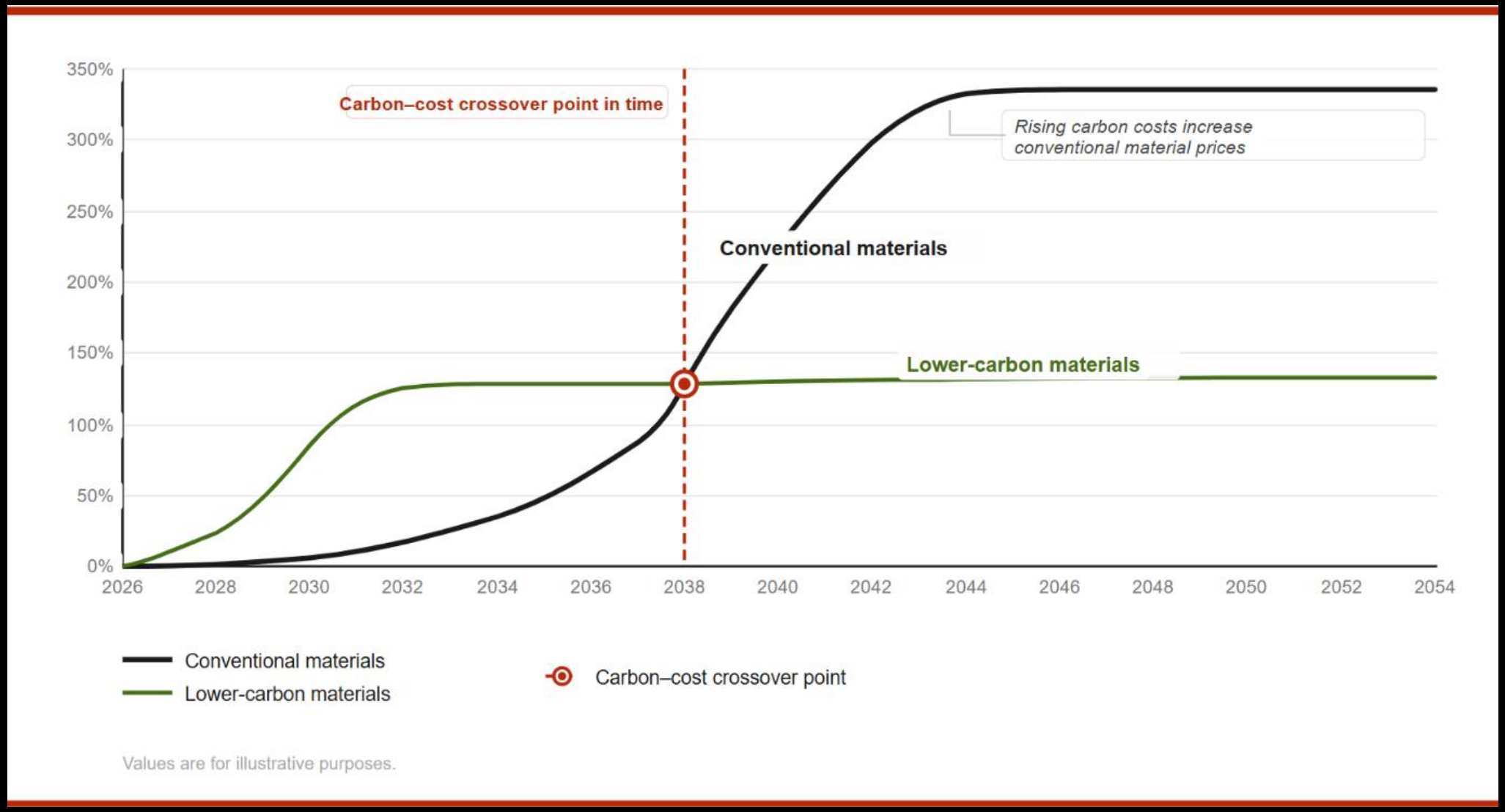
CHALLENGE: Set absolute carbon reduction targets and drive innovation across the supply chain

Not a scorecard but a systematic process embedded across the entire asset lifecycle and supply chain

The Carbon–Cost Tipping Point



The Material Cost Crossover



Market Coordination and Client Leadership

The Coordination Problem

- If clients wait for cost parity, suppliers delay investment in low-carbon production. Supply does not scale, costs stay high, and the transition stalls.

Client Leadership

- Early, consistent demand for low-carbon materials can accelerate change. Through procurement, standards and portfolio commitments, clients provide demand signals that enable suppliers to invest and scale.

PAS 2080 in Practice

- Referenced by NISTA (UK), Scottish Government, and Infrastructure NSW (Australia). Provides a system-level framework to turn carbon ambition into coordinated market signals across portfolios.

From Optimisation to Transition

Key Conclusions

- Achieving net zero requires moving from optimising existing systems to transforming them
- The carbon–cost tipping point is not fixed – it can be shifted through coordinated action by clients, designers, contractors and suppliers
- At system level, clients should manage the tipping point across portfolios to signal demand for low-carbon solutions
- At project level, clear carbon targets and dedicated budgets are needed to move beyond the tipping point
- Carbon management must become part of normal infrastructure governance – embedded in procurement, benchmarking and contractual mechanisms
- The objective shifts from minimising cost to achieving best-value carbon reduction: maximising carbon reduction per unit of investment

Thank you!