

Net Zero and Carbon Management Plans

Supporting carbon reduction programmes for roads

Eoin Harris, Associate Director, Climate Change, Sustainability and Resilience

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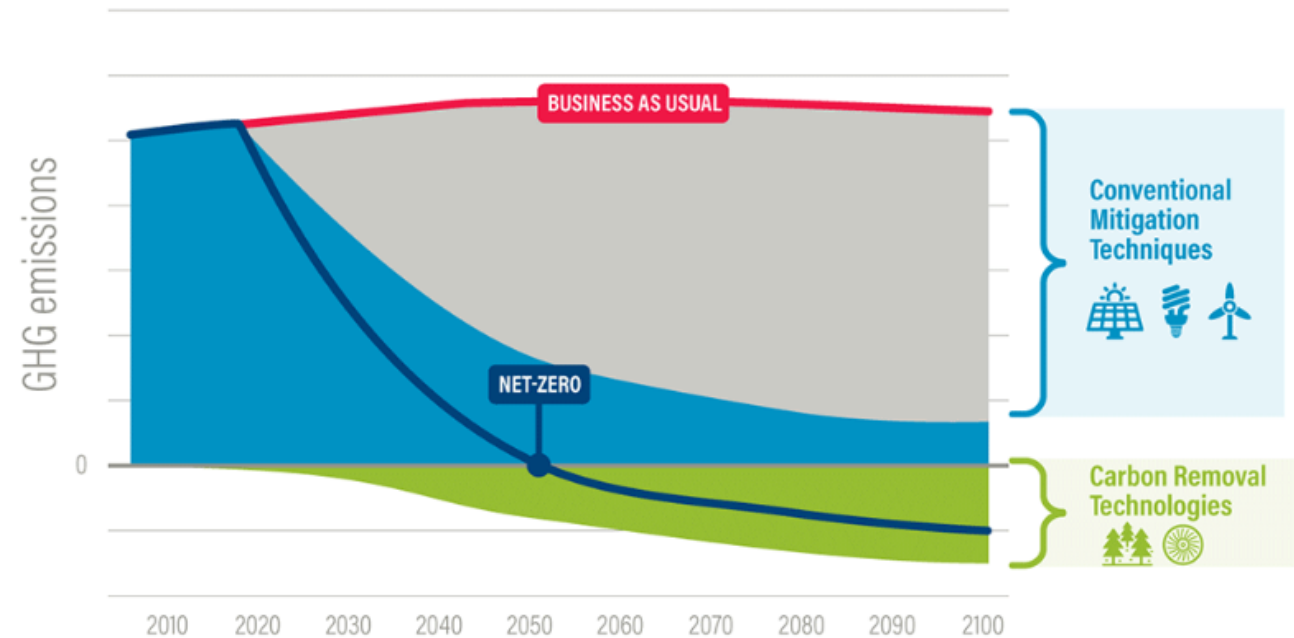
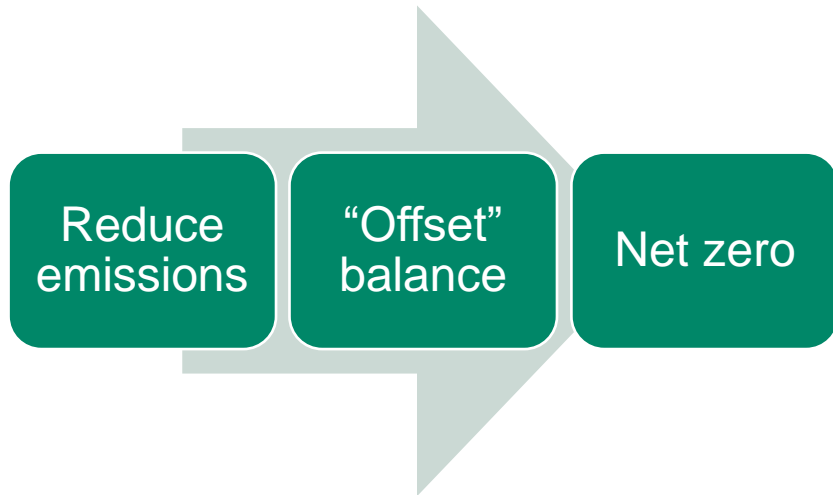


Understanding Net Zero Carbon

Supporting your development of Net Zero commitments

What is Net Zero?

- Net Zero is the balance of human generated GHG emissions with GHG removals. The process should focus on 'absolute reductions' prior to carbon removal/ offsets.



Why is Achieving Net Zero Important?

The UK was the first country to declare a climate emergency, setting a 2050 net zero target. The Committee on Climate Change (UK) shows current targets from countries globally would lead to warming of 3°C by 2100.

- 2018 IPCC report shows we need to **limit global warming to 1.5 degrees** to avoid worst effects of climate change, requiring unprecedented changes globally
- Global CO2 emissions dropped 7% in 2020 due to COVID, but we would **need to achieve this every year until 2030** or miss the opportunity to get on track towards the goal of the Paris Agreement

This is the Climate Decade! We need to act now.

National Highways have already pledged to support the government's ambition to achieve net zero within their Strategic Business Plan and Delivery Plan.

Introduction to Carbon Management Plans

Helping you meet the needs of CMP guidance

Carbon Management Plan (CMP)

Why?



- Department for Transport requires a CMP to be included with business case submissions for funding
- National commitment to net zero by 2050
- Early consideration of carbon results in greatest carbon reduction opportunities

What?



- Carbon Management is the “*assessment, removal and reduction of Greenhouse Gas (‘carbon’) emissions during the delivery of new, or the management of existing, infrastructure assets and programmes*”
- The CMP must indicate how carbon emissions will be managed and reduced across the whole course of the project lifecycle, from project conception to end of life
- Adopt the principles of PAS 2080
- Responsibilities for carbon management at all stages of the project clearly defined

How?



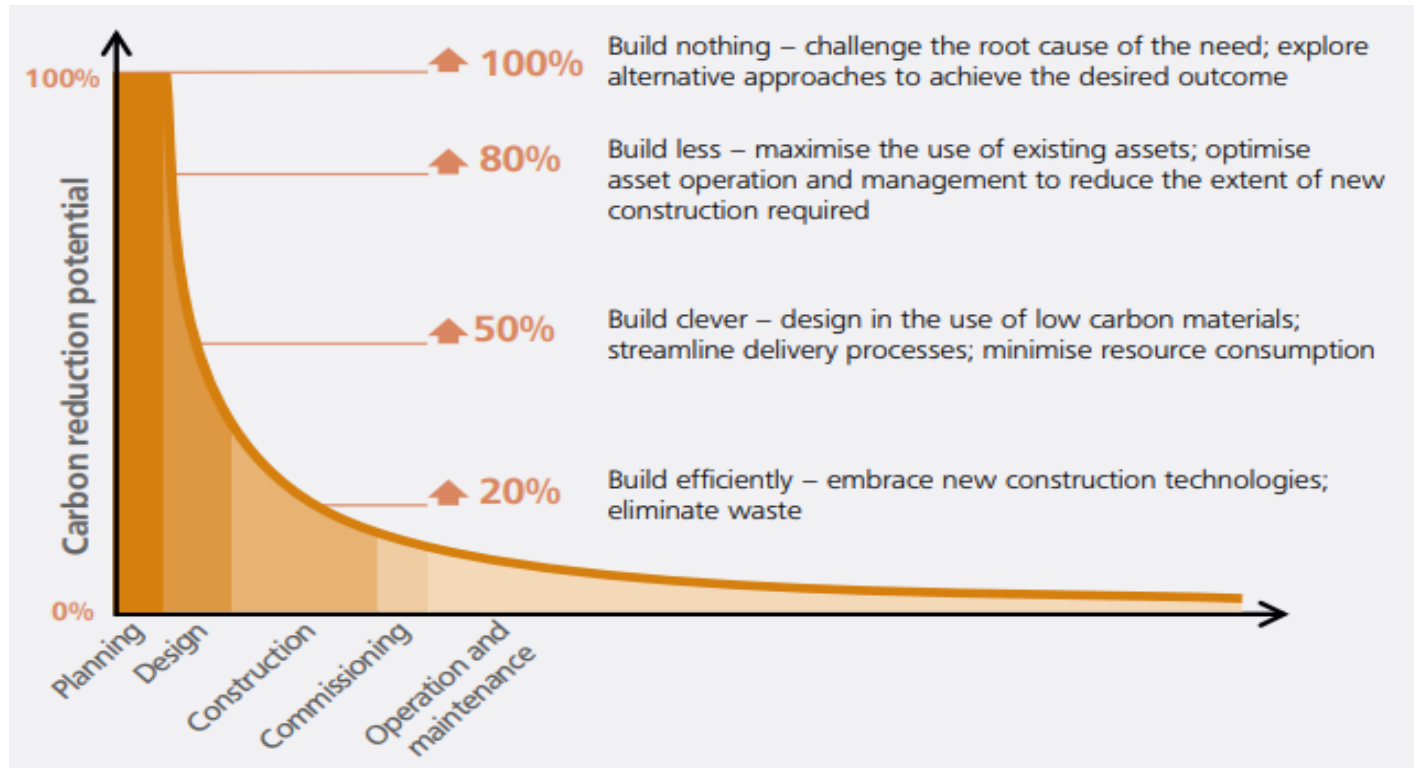
- Collaborative: involving the client, designer, contractor, operator
- Quantify carbon → set targets → identify carbon reduction opportunities → prioritise and implement opportunities
- Document procedural requirements, roles and responsibilities
- Submit CMP to DfT
- Live document: ongoing review and implementation

DfT Carbon Management Guidance

Business Case Stage	Carbon Management Activities
SOBC: Set carbon reduction targets against baseline	Establish the frequency of carbon emissions quantification and reporting during delivery of the project to ensure that quantification sufficiently informs decision-making.
	Calculate a baseline value and set targets relative to the baseline . This can be done at an individual asset and/ or programme level.
	Set carbon reduction targets which are also cost reducing on a whole life basis. Targets can relate to Whole Life Carbon or a breakdown of targets for Capital, Operational or User Carbon can be provided.
	Clarify how carbon reductions will be measured, i.e. as a total reduction figure or as a carbon intensity figure (tCO₂e / £'000).
OBC, FBC, in construction and project closure	Assess and report emissions against baseline in order to track progress against the reductions target. Review and amend policies as needed.

Benefits

- Provides confidence in the project team's overall ability to manage carbon
- Increase employee and contractor engagement
- Overall reduction in project cost
- Opportunities to explore wider sustainability opportunities
- Achieve more ambitious stakeholder and consumer desires
- Early management allows for larger whole life carbon reductions and avoids unintended carbon consequences





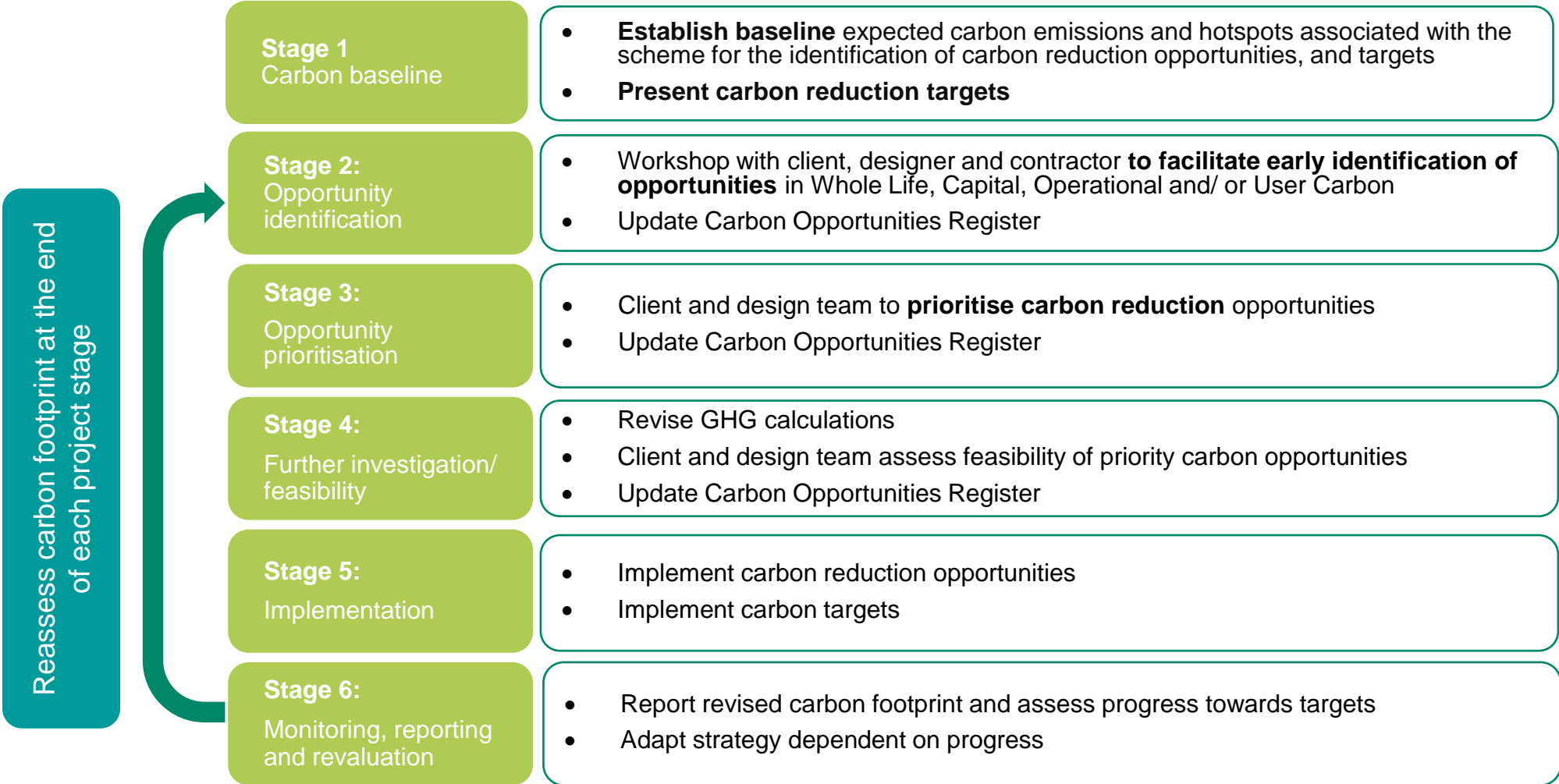
AECOM's CMP approach

Helping you to deliver your CMP

Objective Led Carbon Management Process

Pre-baseline steps:

- Describe carbon management governance, roles and responsibilities
- Determine emission sources from activities under the scope of the project at each PAS 2080 lifecycle stage



Embedding Carbon at a Project Level

Tools for embedding carbon:

Carbon baseline - the expected GHG emissions associated with the lifecycle of the proposed development are calculated. This provides the quantifiable baseline emissions from which targets are set.

Carbon workshop – held in collaboration with design and construction teams, as appropriate, to continually identify, review, assess and prioritise carbon opportunities.

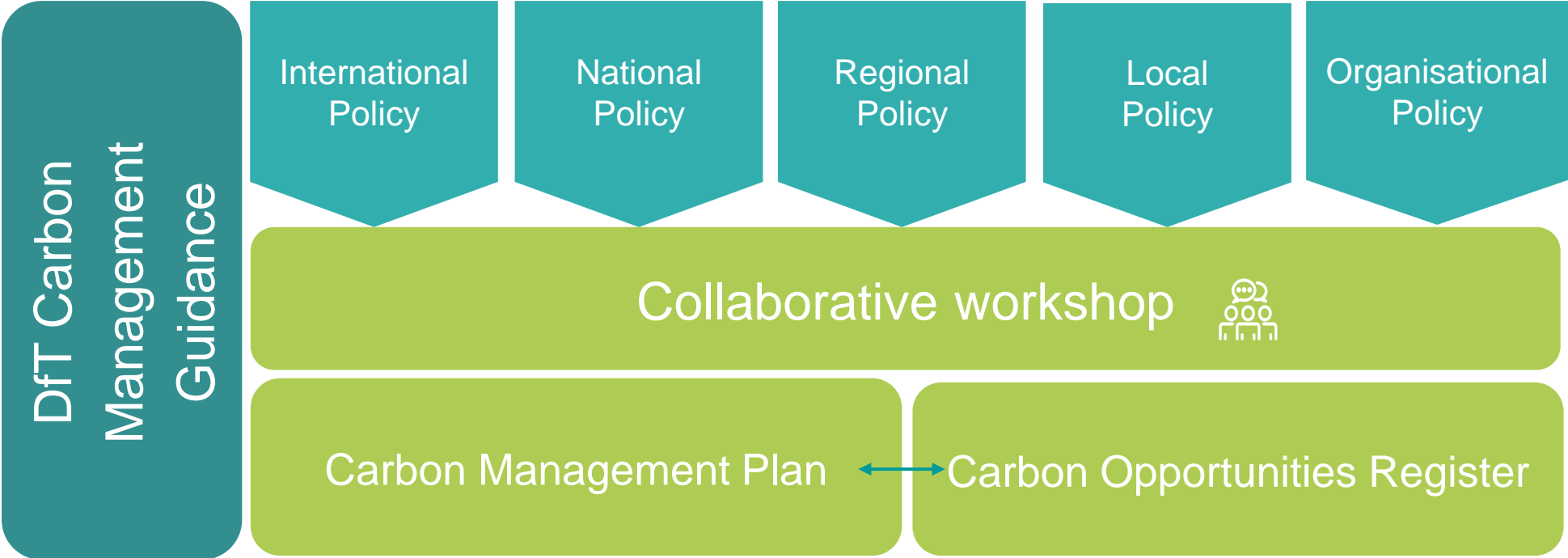
Carbon Management Plan – developed to support the delivery of carbon reduction opportunities across the project lifecycle.

Carbon Opportunities Register – a live register used throughout the project lifecycle by the project team to record carbon reduction opportunities identified during discussions with the project team.

Target Delivery Tracker – a framework mechanism that can be used by the project team to track carbon performance throughout the project lifecycle and evidencing progress to meet targets

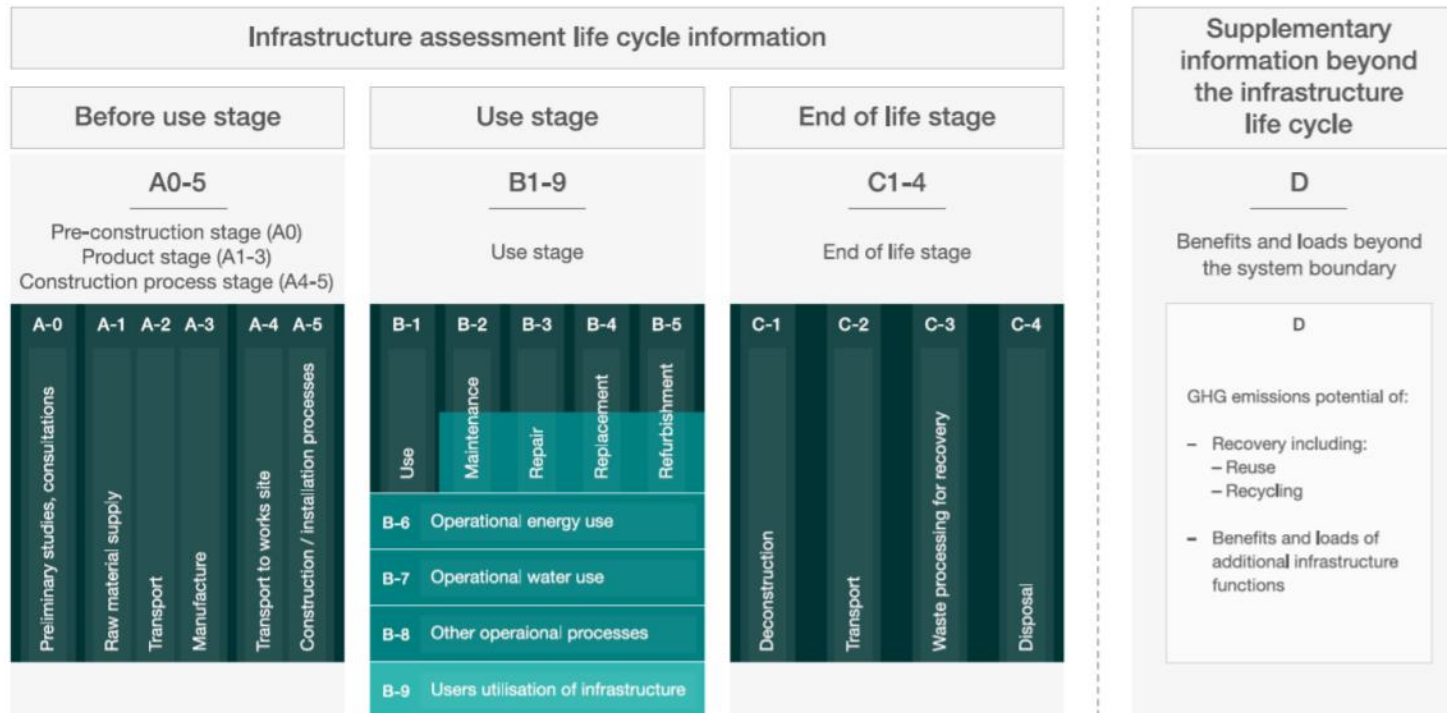


Delivering Carbon Reduction – Building a Foundation



Delivering Carbon Reduction – Baseline and Targets

Establish the baseline emissions associated with the activities with each PAS 2080 stage, and the approximate contribution of the activity per stage.



- Capital GHG emissions
- Operational GHG emissions
- User GHG emissions

The baseline:

- Helps you understand which activities are major sources of emissions
- Highlights any excess emissions
- Provides a basis for carbon reduction targets and activities
- Provides a basis, against which carbon reduction can be measured, tracked and reported.

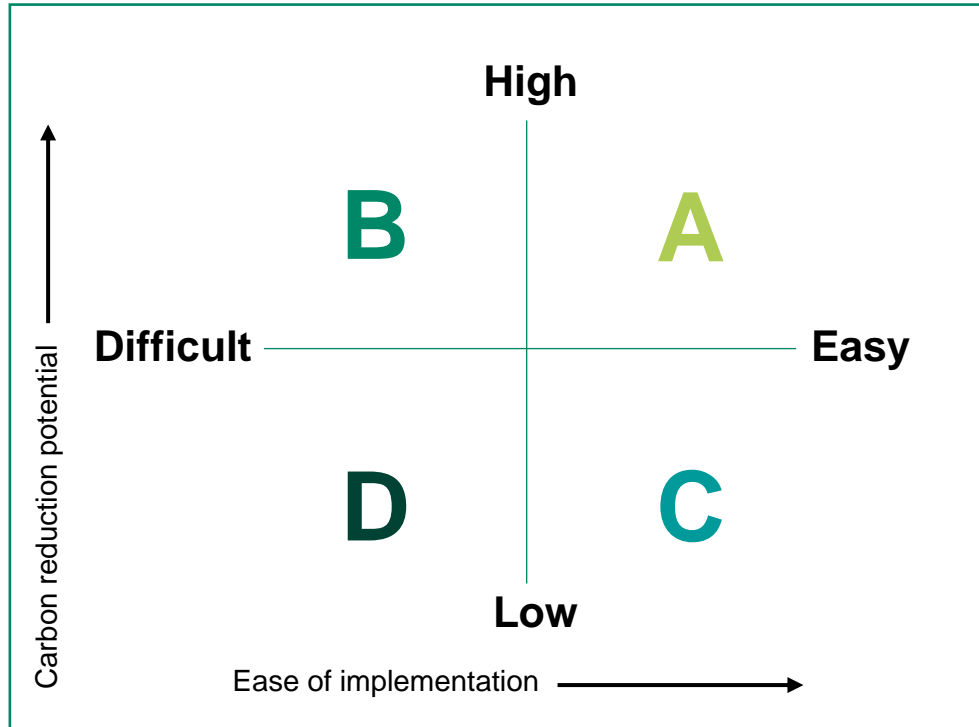


Delivering Carbon Reduction – Carbon Reduction Opportunities

- A wide range of opportunities are required for effective carbon reduction – not only technical solutions
- Opportunities are tailored to the project, with a focus on carbon ‘hotspots’ previously identified
- Collaborative solutions are obtained using specialist expertise and communication across the ‘value chain’
- Four key categories are:



Delivering Carbon Reduction – Prioritising Opportunities



Carbon reduction potential assessment criteria:

- Additional to those that are part of business as usual (decarbonisation policy and market drivers)
- Minimising negative carbon impacts;
- Maximising carbon benefits; and
- Level of confidence in the effect.

Ease of implementation assessment criteria:

- Cost implications – positive or negative;
- Resource capacity and capability;
- Technological impacts – enablers or constraints;
- Legislation – drivers or restrictions;
- Time limitations;
- Whether the opportunity fits with existing priorities and commitments; and
- Wider sustainability impacts – as enablers or constraints.

Delivering Carbon Reduction – Meeting Carbon Reduction Targets

Emission Category	Key Emissions Sources	Possible initiatives to reduce carbon
Capital GHG emissions	Embodied carbon in construction materials	<ul style="list-style-type: none"> • Reuse of material from enabling works • Use of low carbon concrete • Specification of low carbon materials written into contracts
	Fuel and energy consumption from HGVs, plant and machinery for enabling works and construction	<ul style="list-style-type: none"> • Electrified/hydrogen or hybrid vehicles • Route optimisation • Apply warm surfacing technique (reducing the energy requirements for heating of asphalt) • Electrified/hydrogen or hybrid plant • Machine controls: reduce machine idling • Reduce length of construction programme • Site compound – solar energy
	Fuel associated with transport of workers to site	<ul style="list-style-type: none"> • Employ local labour
	All Before use stage capital GHG emissions	<ul style="list-style-type: none"> • Woodland regeneration • Land conversion/ land take
Operational GHG emissions	Energy associated with operations	<ul style="list-style-type: none"> • Contractual specifications for zero carbon lighting • Purchase renewable energy • Innovation for other elements (gully cleansing, gritting etc).
	Energy and embodied carbon associated with road repair and resurfacing (maintenance)	<ul style="list-style-type: none"> • Woodland regeneration • Maintenance and resurfacing initiatives would reflect those for construction activities in terms of embodied carbon, and energy consumption
User GHG emissions	Energy and fuel from road user vehicles	<ul style="list-style-type: none"> • Reducing Demand • Promoting Modal Shift • Provision of EV charging

Thank you.

Eoin Harris

eoin.harris@aecom.com

07941 689036