Build to Last

An aligned Decarbonisation Roadmap: Addressing Backlog, Energy Efficiency and Net Zero to support a Sustainable Future

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Kelly Crews
NATIONAL HEAD OF DECARBONISATION

Decarbonisation – The Reality

- UK is legally committed to achieving Net Zero by 2050
- The UK has some of the oldest and least energy-efficient building stock in Europe
- Over 80% of the buildings that will exist in 2050 already stand today
- 25-30% of UK greenhouse gas emissions are linked to buildings (operation/construction)
- 17-19% of UK emissions come from heating buildings alone

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What this means for the Public Sector?

- Public Buildings are among the hardest to decarbonise
- Clean Power 2030 – major target to decarbonise the electricity grid by 2030 (scaling up wind, solar and storage capacity)
- Net Zero Targets - need to move away from fossil fuel usage
- Increasing global instability is having significant impact on energy prices
- Increased public scrutiny – what action is being taken at local levels

Why Decarbonisation Matters

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- Climate Risks
- Policy & Regulations
- Financial Drivers & Competitive Advantage
- Asset Performance
- Reputation and Social Values

What is Decarbonisation?

Decarbonisation is not one solution, it's a coordinated set of actions across assets, energy and operations

What it Entails

Effective Designs
Ensure design maximises energy efficiency within existing parameters

Minimising Demand
Reduce as much energy demand as possible, especially for heating, cooling, and lighting

Removing Fossil Fuels
Transition from fossil fuels to electrification, integrating low carbon/renewable solutions

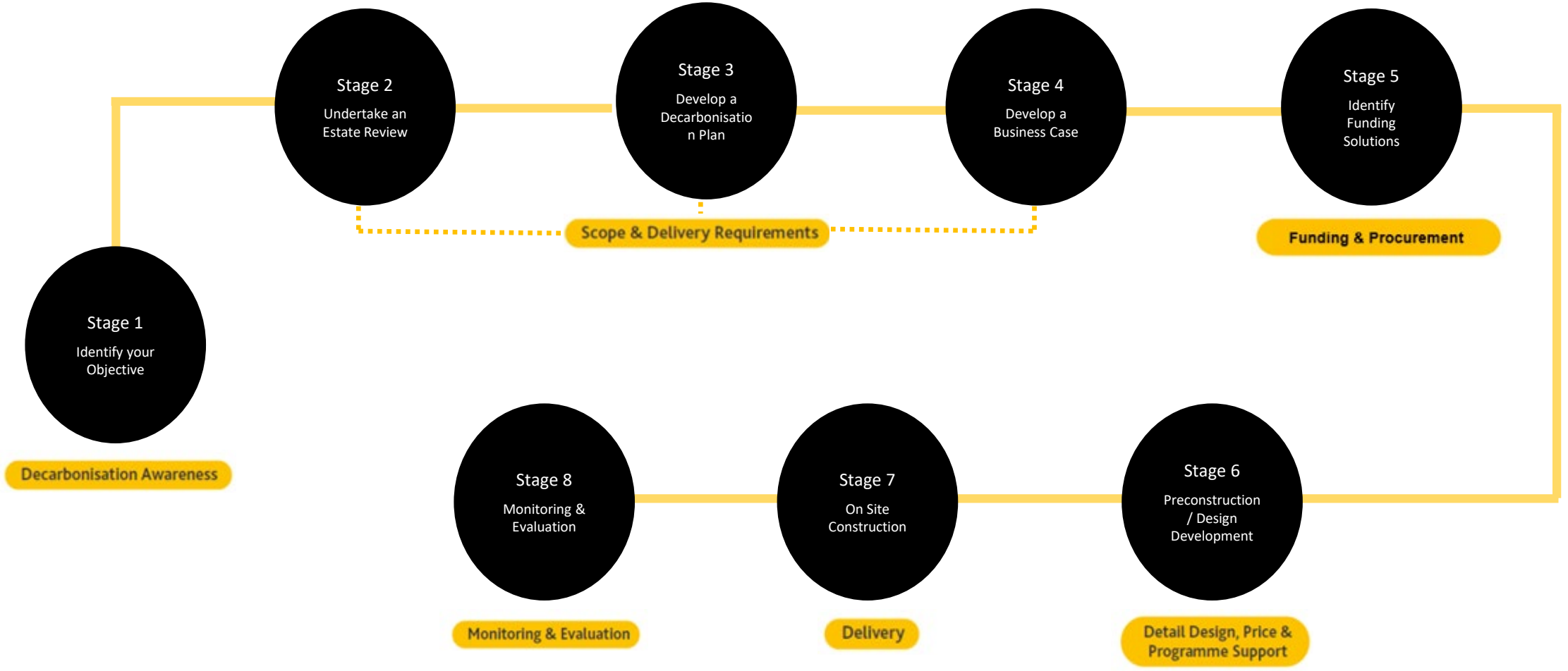
Type of Work

Estate Master-Planning
Establish clear decarbonisation investment plans, prioritising buildings for investment

Low/Zero Carbon Design
Net Zero building standards/equivalent, maximising delivery benefits. Adopt fabric-first principles, energy efficiency and integration of low-carbon solutions

Retrofitting Buildings
Upgrades to reduce energy use and transition from fossil fuel to electrification, adapting to future climate

Delivering a Roadmap toward Net Zero



Identifying priority sites for investment

High carbon/energy use sites
Prioritise investment in high-emission, energy intensive sites

Remaining life of the building
Prioritise sites that will remain operational long-term

Prioritisation and service continuity
Prioritise projects to minimise/avoid major disruptions

Alignment with planned capital works and backlog maintenance
Ensuring efficient use of limited capital, funding and resources

Condition and compliance risks
Prioritise aging or non-compliant buildings addressing any safety/regulatory risks

Adaptability and future-proofing
Identify sites that can integrate low-carbon/renewable solutions adaptable to future demands

Availability of funding or co-investment
Capital Programme, Estates Safety Funding, PPPs

Resilience to climate risks
Addressing areas that are at risk of overheating, flooding and supply disruptions

Understanding Estate Condition & Backlog Maintenance

Overlay estate condition surveys and backlog risks with carbon emission data to create smarter, risk informed, decarbonisation investment strategies

Target investment

Focusing on high-risk, high-emission buildings

Provide better value for money

Combining safety, carbon, and operational upgrades

Correct identification

Avoids investment into stranded assets/sites for future demolition

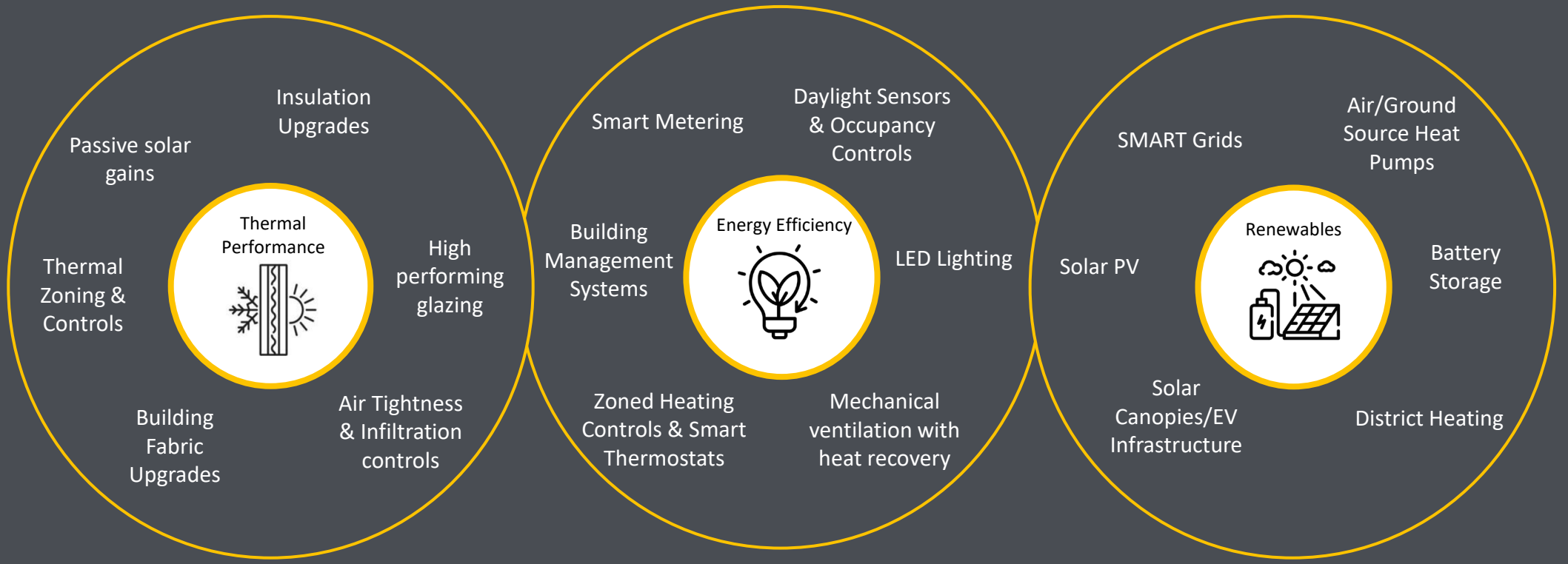
Improve resilience

Tackle risks to safety and service continuity

Creates a stronger business case

Align key delivery objectives to maximise investment

Maximising Building Performance



Optimising thermal performance and energy efficiency, radically cuts energy usage, while helping to ensure the integration of the right sized low carbon/renewable solutions, maximising performance outcomes

Decarbonisation Challenges

Aging & Complex Estates

Many buildings were built decades ago with poor insulation outdated HVAC, gas heating and limited digital controls

Severe Capital Constraints

Decarbonisation of existing systems replacing with low carbon alternatives can often be higher, challenging budgets

Working in a live environment

Hospitals, schools, and public services cannot simply shut down for deep retrofit works

Supply Chain Capacity and Scalability Limits

Manufacturing and installation capacity often cannot meet mass retrofit demands

Procurement Complexity

Traditional public procurement often prioritises lowest costs over lifecycle carbon and long-term value

High Energy Demands & Technology Integration

Increased electrification, storage, smart controls and on-site generation must integrate with legacy systems

Data Gaps and Poor Asset Visibility

Incomplete energy data, information records and limited performance monitoring can hinder prioritisation & planning

Skills and Workforce Shortages

Limited Internal skills & knowledge, availability of retrofit expertise, heat pump/low-carbon specialists can impact delivery

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Scaling Decarbonisation through Supply Chain Alignment

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01 Regulation & Carbon Pricing

Carbon compliance is reshaping construction

02 Aging building stock

Aging building stock requires electrification, insulation and system upgrades at scale

03 Capital Investment

Investors/capital flow is accelerating, sustainability funding is driving project pipelines

04 Procurement

Carbon/building performance has clear influence on contract awards

05 Low carbon materials

Low carbon materials and electrified/renewable systems are redefining clear growth markets

06 AI & Digitalisation

Data is becoming a competitive advantage unlocking performance optimisation

Funding Mechanisms and Blended Finance

Delivering a clear decarbonisation roadmap

Identify & align key delivery objectives
Identify and establish decarbonisation priority objectives, aligning these to other key organisational drivers (resilience, net zero targets, adaptation, back-logs)

High-level site analysis
Identify sites for investment, prioritising high-emission, energy intensive, asset review (sites remaining long-term) to provide a target list for decarbonisation investment

Provision of Decarbonisation Plans
Develop clear decarbonisation plans, identifying priority sites for investment, identifying clear delivery solutions, costs and programme

Identify Finance & Funding Solutions
Identify internal capital availability, alongside any applicable external funding stream/financial models (e.g. PPPs) to support investment and delivery compliance

Early Contractor Engagement
Establish early contractor engagement to help assess technical, financial and operational viability early, helping to turn ideas into actionable, low risk project plans

Cost and Programme Support
Establish clear cost certainty and realistic programmes (including how to deliver works within live environments) enabling informed decisions to be taken to help ensure projects are delivered on-time/on-budget

Compliant Route to Market
Identify compliant route to market, ensuring speed, transparency and regulatory confidence

Oxford City Council – Case Study

£9.8m Decarbonisation Project - 4 swimming pools (2 Leisure/2 Outdoor)

56% Reduction in CO_2

963tCO_2 expected annual savings

Working in a Live Environment

The scheme involved the introduction of electrically driven ASHP heat pumps to transition away from gas heating to low carbon alternative

To support heating of one of the outdoor pools a water source heat pump was introduced, which extracts heat from a nearby lake to heat the pool

Through the installation of temporary heating and ventilation systems, the leisure centres remained operational during the work programme

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Thank you

Any questions?

Kelly Crews
NATIONAL HEAD OF DECARBONISATION

kelly.crews@willmottdixon.co.uk

Connect with me on LinkedIn