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I'VE CALCULATED MY CARBON FOOTPRINT; WHAT'S NEXT?

05TH JUNE 2024, WEDNESDAY

One Click LCA

PRESENTERS

Shivani Soni

Head of Impact & Innovation

Oversee Co-Innovation Lab | Global

Symetri

Samuel Boswell

LCA Consultant

Co-Innovation Lab | Global

Symetri

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01

ABOUT US

Overview of Symetri

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AT SYMETRI WE HAVE CONTINUOUSLY EXPANDED TO PROVIDE EVEN BETTER LEADING-EDGE SOLUTIONS AND SERVICES TO MORE MARKETS.

1000
EMPLOYEES

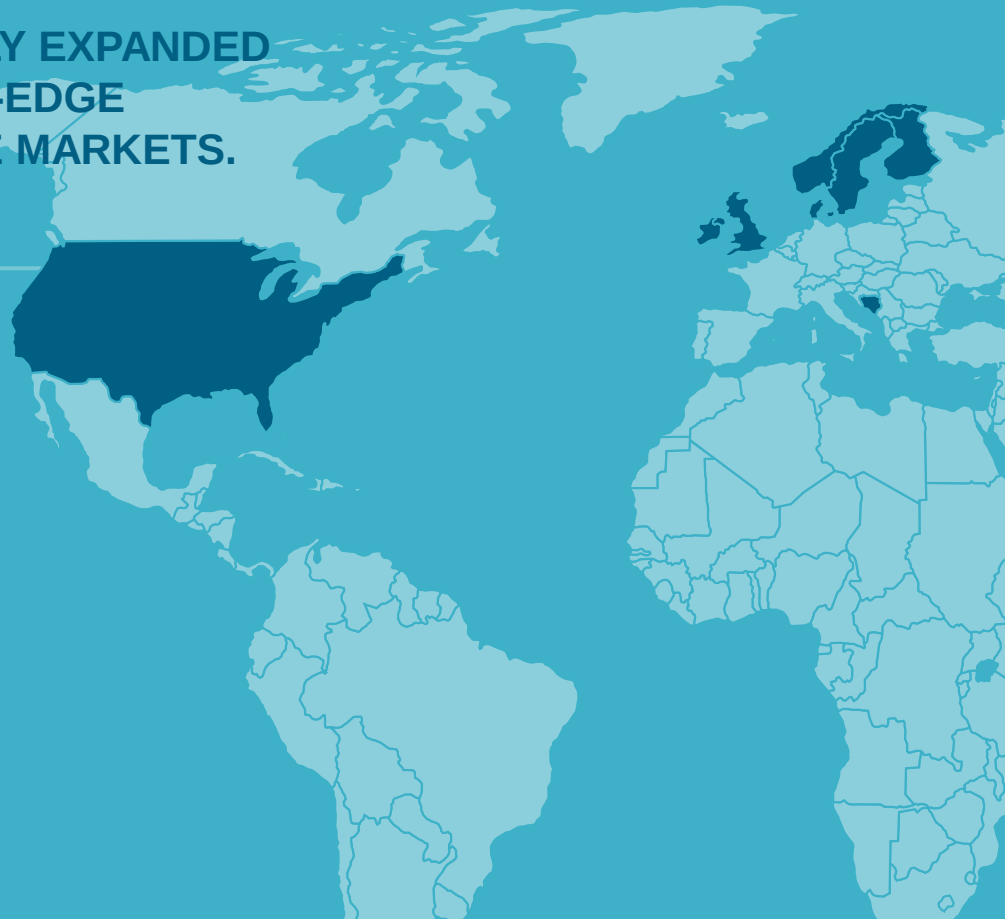
400K
USERS DAILY

100
DEVELOPERS

7
COUNTRIES

600
CONSULTANTS

450
MEUR



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TEAMS, TECHNOLOGY & SERVICES

- Product Design and Lifecycle (MFG)
- Building and Infrastructure (AEC)
- Symetri Technology

AUTODESK Platinum Partner

One Click LCA

NAVIATE®

SOVELIA®

CQ™

Includes, but is not limited to:

- Software Configuration and Enablement
- Client Representative and Advisory Services
- Decarbonization Solutions Services
- Design and Construction Management
- Digital / BIM Implementation for AEC and MFG
- Discovery Workshops, Assessments, and Roadmaps
- Product and Application Development
- Project Support, Mentoring, and Training Workshops
- Digital Strategy and Co-Innovation Services
- XR: VR + AR and Digital Twin Services

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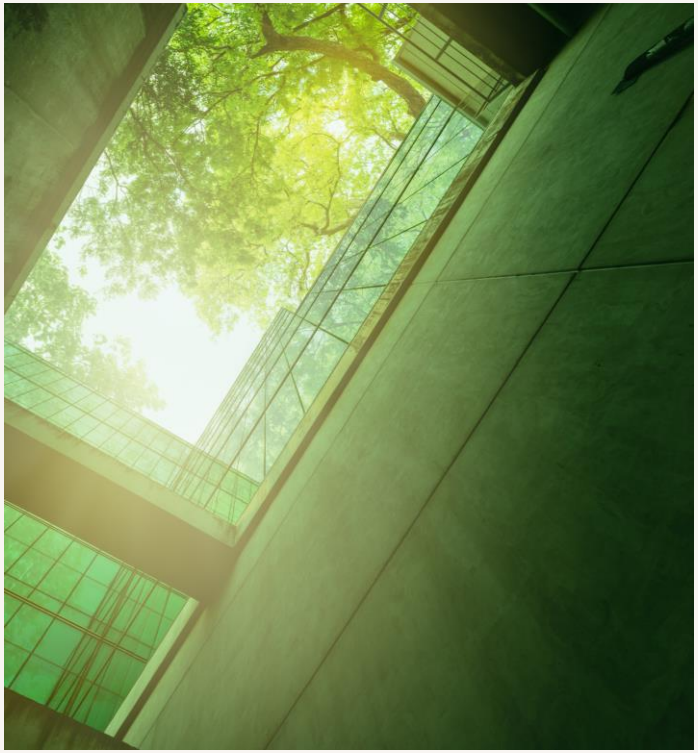
02

DECARBONISATION MISSION

Symetri’s mission towards Decarbonisation

MISSION

Symetri is committed to driving sustainability in the industry based on our leading-edge technology offering and expertise, and we are dedicated to impact the market positively through our focus on decarbonisation.



CLIMATE CHANGE

HEATWAVES

ECOSYSTEMS

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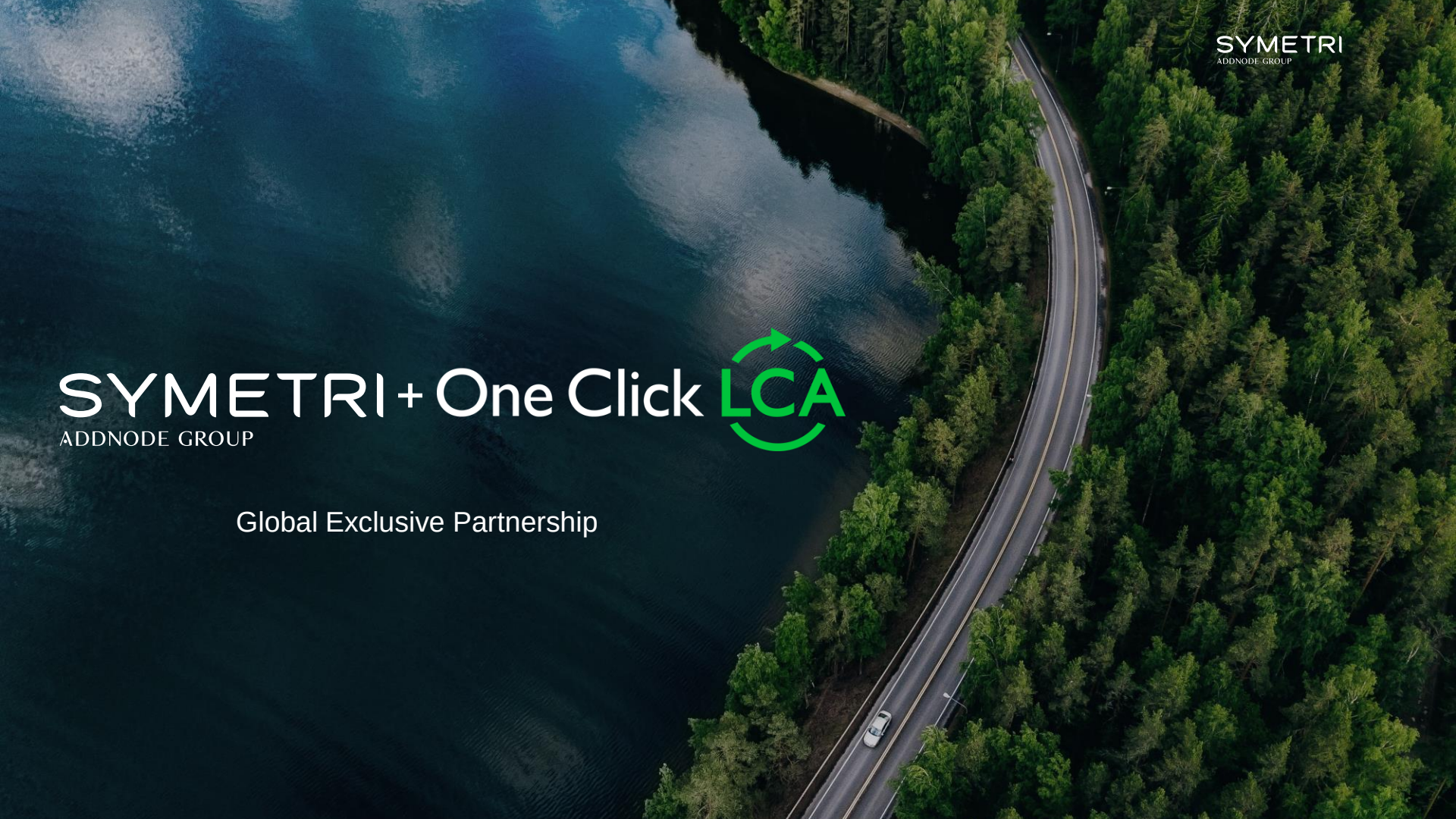
FOOD SECURITY

FLOODING

BIODIVERSITY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ADDNODE GROUP
SYMETRI + One Click LCA
ADDNODE GROUP
Global Exclusive Partnership

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SUSTAINABLE CONSTRUCTION

100% Increase in global building floor area by 2060 owing to population growth and urbanization.

50% Of all global material consumption comes from the construction industry.

40% Of solid waste comes from the construction industry.

39% Of all carbon emissions comes from the construction industry.

11% Of carbon emissions are related to construction’s embodied carbon.

Source: World Green Building Council

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03

DRIVERS

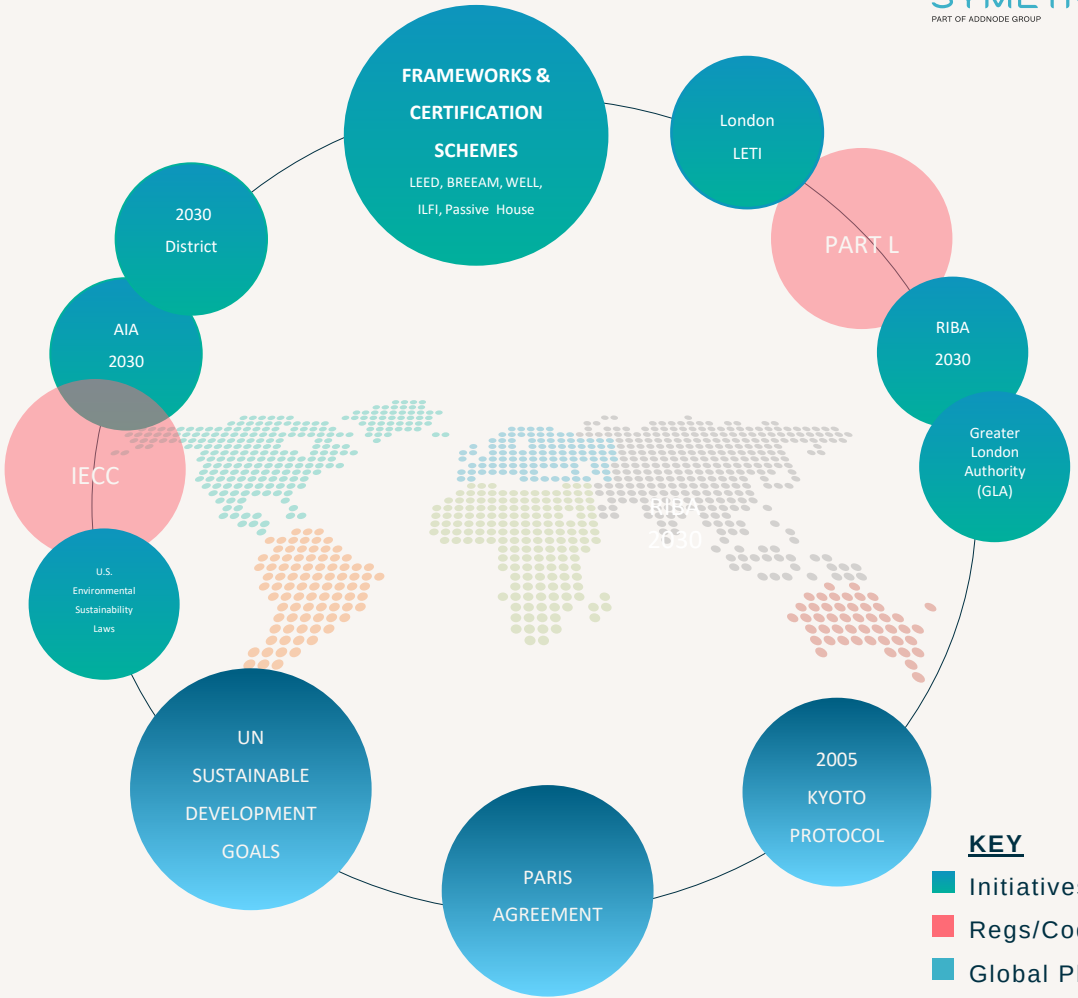
Drivers and Objective

DRIVERS


Environmental Impact
Regulatory Compliance
Demand & Reputation
YOU
Cost Reductions & Efficiency
Future Growth & Adaptation
Competitive Advantage

“

Driving policies around the world

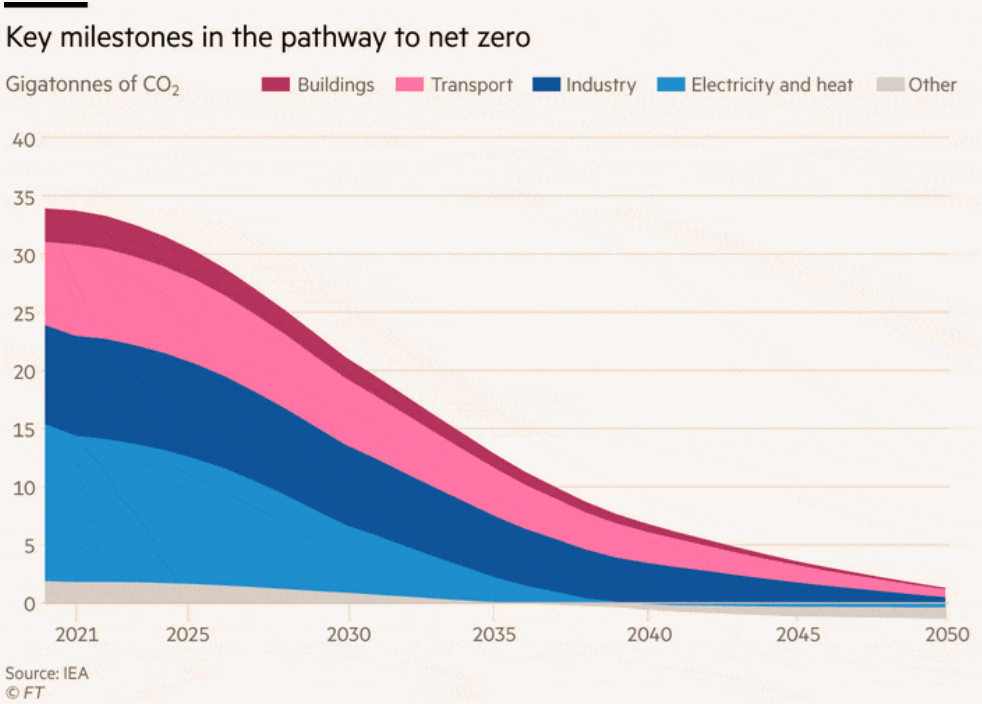


NATIONALLY DETERMINED CONTRIBUTION (NDC), UK

TARGET FOR NET ZERO

Average reduction on 1990 levels

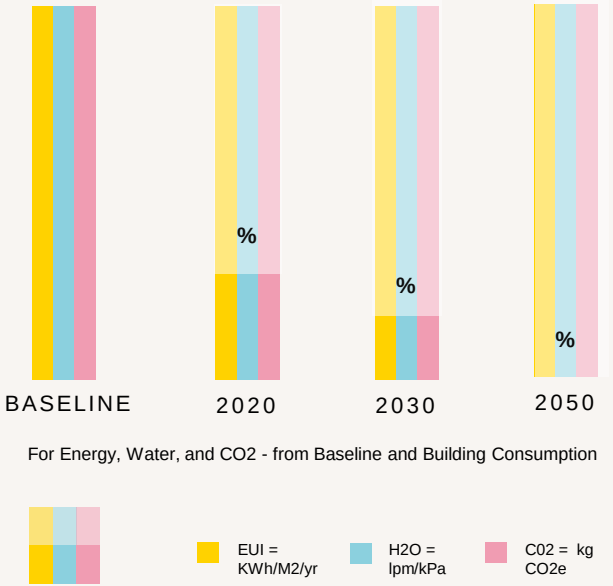
- **2008 - 12:** 26% average reduction
- **2013 - 17:** 32% average reduction
- **2018 - 22:** 38% average reduction
- **2023 - 27:** 52% average reduction
- **2028 - 32:** 58% average reduction
- **2033 – 37:** 78% average reduction
- **2038 – 42:** % due to be set in **2025**



Burnett, N., Edwards, T., & Watson, N. (2023) 'The UK's Plans and Progress to Reach Net Zero by 2050', House of Commons, 14 November.

Image SourceHow can the world get to net zero emissions by 2050?, Leslie Hook, Steven Bernard and Chris Campbell MAY 21 2021

REDUCTION OVER TIME



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- Solar Analysis
- Air Flow Simulation
- Lighting Analysis
- Local Materials
- Energy Simulation
- Cost / Payback Analysis
- Life Cycle Assessment
- Parametric Design
- Glare Analysis
- CO2 Calculation
- Codes & Standards
- Renewable Energy
- Climate / Site Analysis
- Water Use Analysis
- Data Analytics
- Analytics Dashboard

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04

CO2 CALCULATED

C02 through Project Stages

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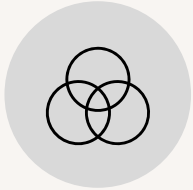
INTRODUCTION TO LCA RESULTS

Hot Spot Analysis



Comparative Study

Benchmarking Designs

Building Circularity

Opportunity Costs & LCC Integration

Regulatory & Certification Impacts

Stakeholder Engagement

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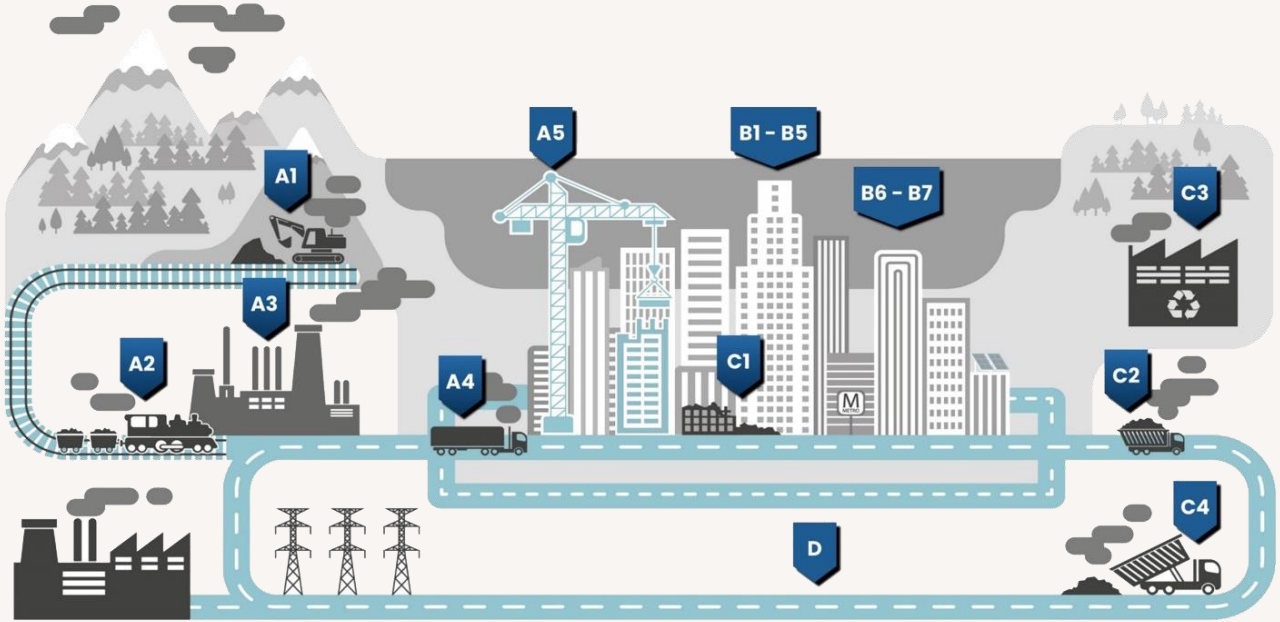
INTRODUCTION TO LCA RESULTS



A1-A3 Product Stage A4-A5 Construction Stage B1-B5 Use Stage C1-C4 End of Life Stage

Building LCAs for the UK construction industry will generally follow RICS WLCA guidance unless it is for BREEAM UK. But they are all derivative of EN 15978

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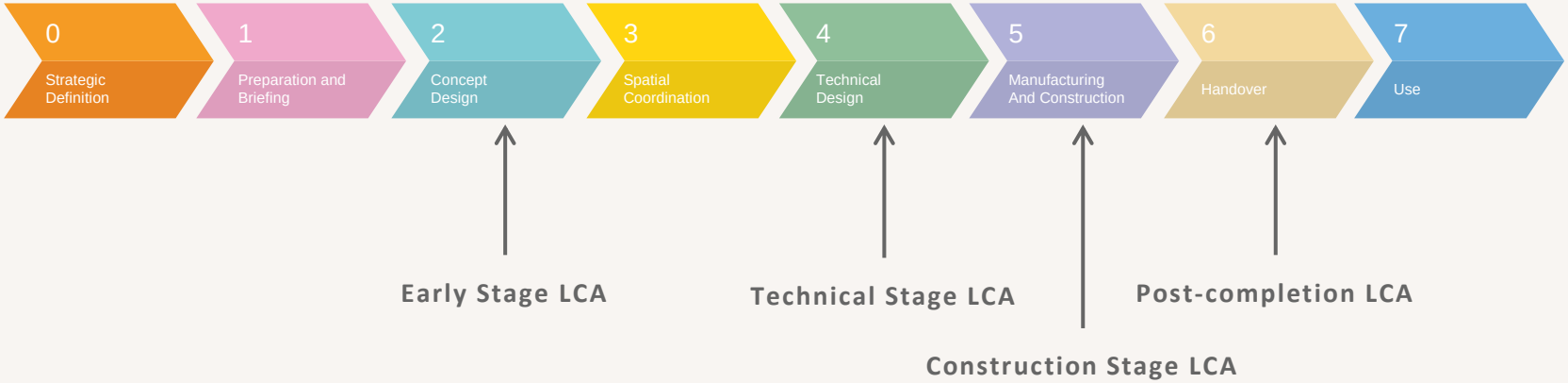
WHEN TO DO AN LCA?



The level of detail and accuracy of the LCA increases as the project develops.

Low accuracy

High accuracy

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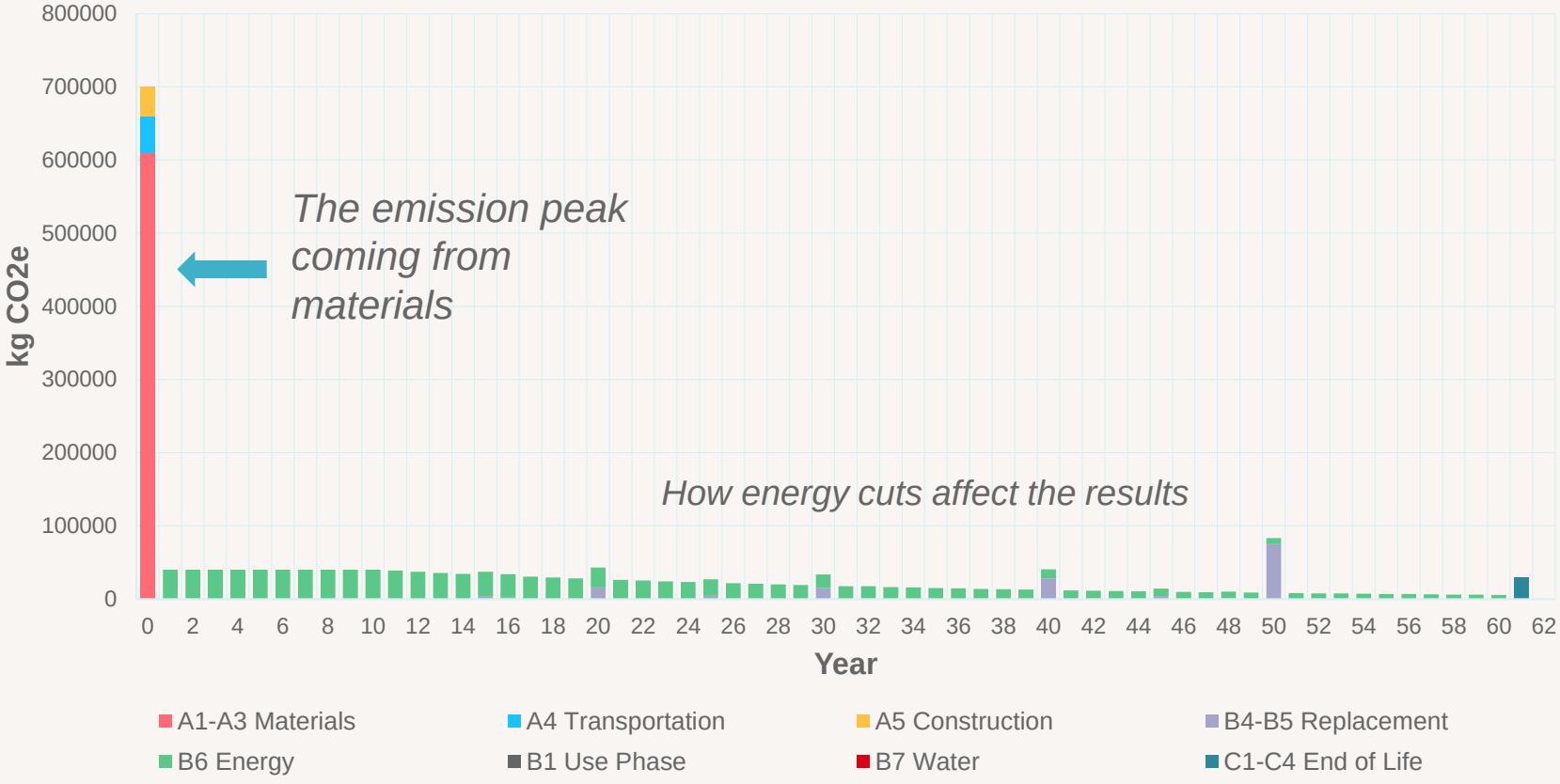
TYPICAL BUILDING LIFETIME IMPACTS



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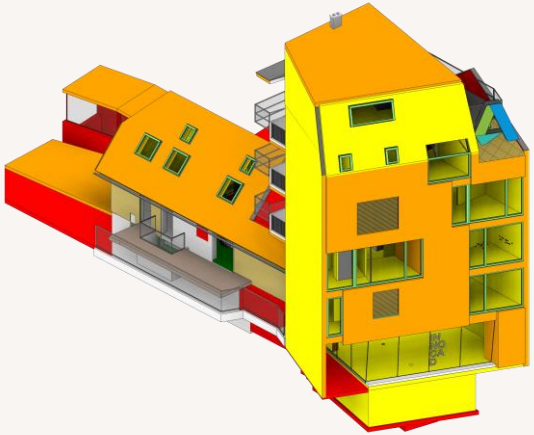
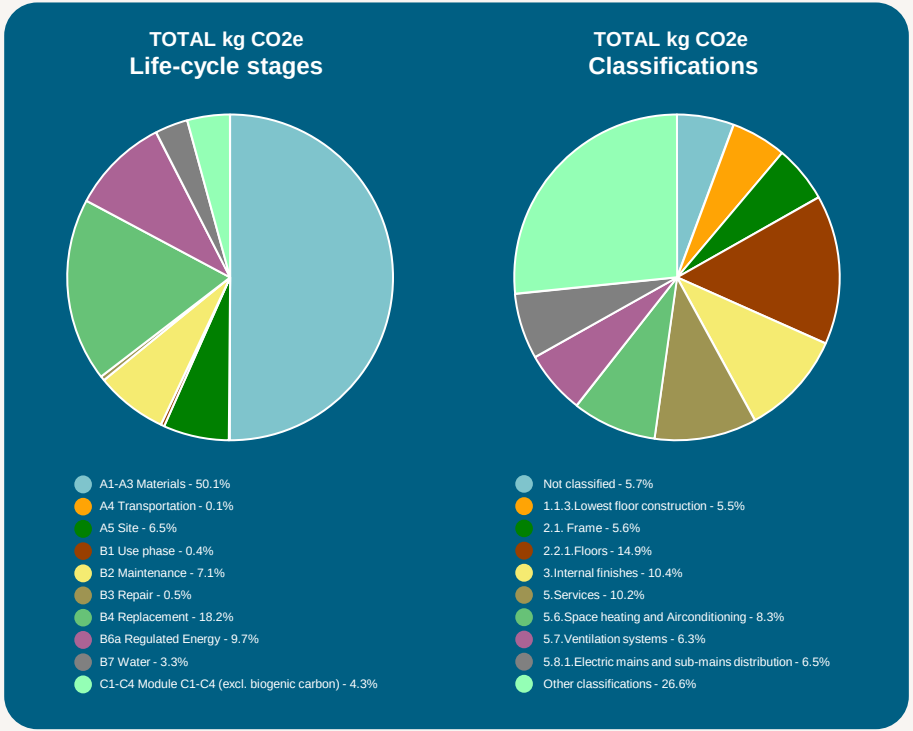
HOT SPOT ANALYSIS



Understanding where the main impacts come from allows you to know what changes to make to decarbonise a design.

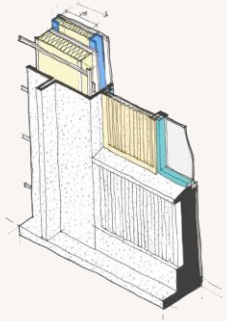


COMPARATIVE STUDIES

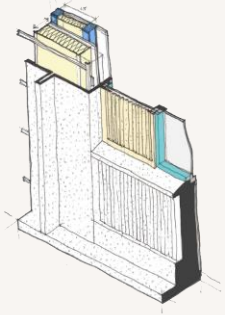
65.9 kgCO2/m²	
No Change	-0.0 kgCO2 /m2
Hybrid Aluminium-timber frames	-8.3 kgCO2 /m2
Hemp + Cotton mix insulation	-3.9 kgCO2 /m2
Increased to 600mm Centres	-2.3 kgCO2 /m2
Perforated GRC Sheet	-1.9 kgCO2 /m2

62.4 kgCO2/m²	
No Change	-0.0 kgCO2 /m2
Timber frames	-9.0 kgCO2 /m2
Hemp bat insulation	-4.0 kgCO2 /m2
Softwood at 400mm Centres	-5.0 kgCO2 /m2
Perforated GRC Sheet	-1.9 kgCO2 /m2

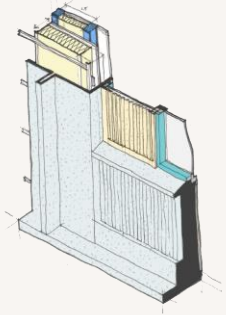
56.4 kgCO2/m²	
Natural Stone Façade (50mm)	-5.9 kgCO2 /m2
Timber frames	-9.0 kgCO2 /m2
Hemp bat insulation	-4.0 kgCO2 /m2
Softwood at 400mm Centres	-5.0 kgCO2 /m2
Perforated GRC Sheet	-1.9 kgCO2 /m2



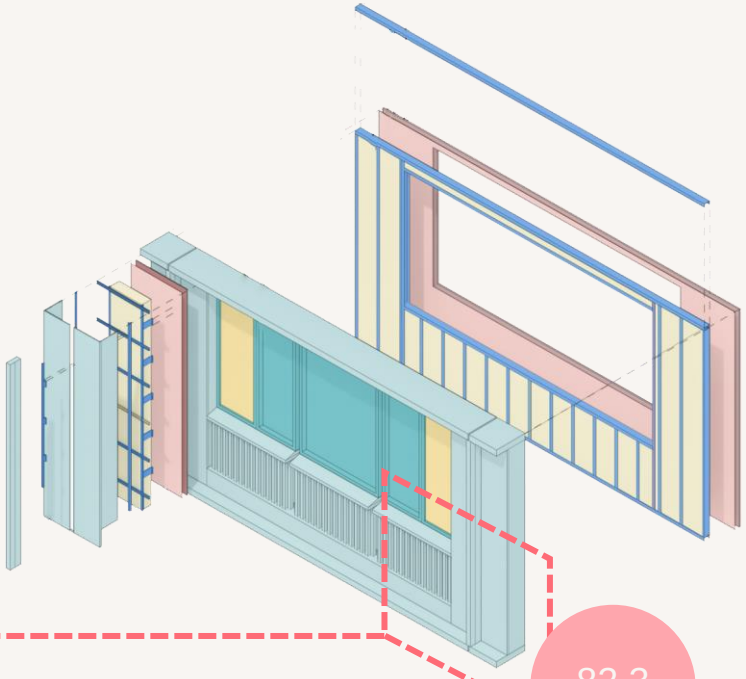
Alternative A



Alternative B



Alternative C



Baseline

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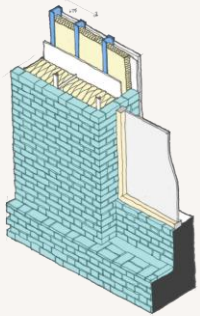
COMPARATIVE STUDIES

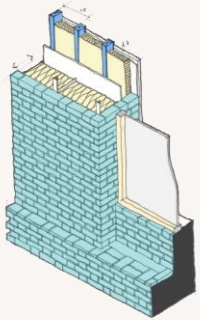
52.8 kgCO2/m²	
Reclaimed bricks	-21.6 kgCO2 /m2
Increased to 600mm Centres	-6.6 kgCO2 /m2
Hybrid Aluminium-timber frames	-4.5 kgCO2 /m2
Hemp + Cotton mix insulation	-6.9 kgCO2 /m2
No change	-0.0 kgCO2 /m2

44.8 kgCO2/m²	
Reclaimed bricks	-21.6 kgCO2 /m2
Softwood at 400mm Centres	-13.7 kgCO2 /m2
Timber frame windows	-5.1 kgCO2 /m2
Hemp bat insulation	-7.1 kgCO2 /m2
No change	-0.0 kgCO2 /m2

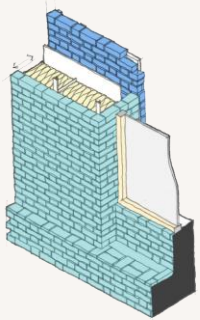
36.0 kgCO2/m²	
On-site Re-used bricks	-27.7 kgCO2 /m2
Masonry 2nd Leaf (On-site Reuse)	-16.4 kgCO2 /m2
Timber frame windows	-5.1 kgCO2 /m2
Hemp bat insulation	-7.1 kgCO2 /m2
No change	-0.0 kgCO2 /m2



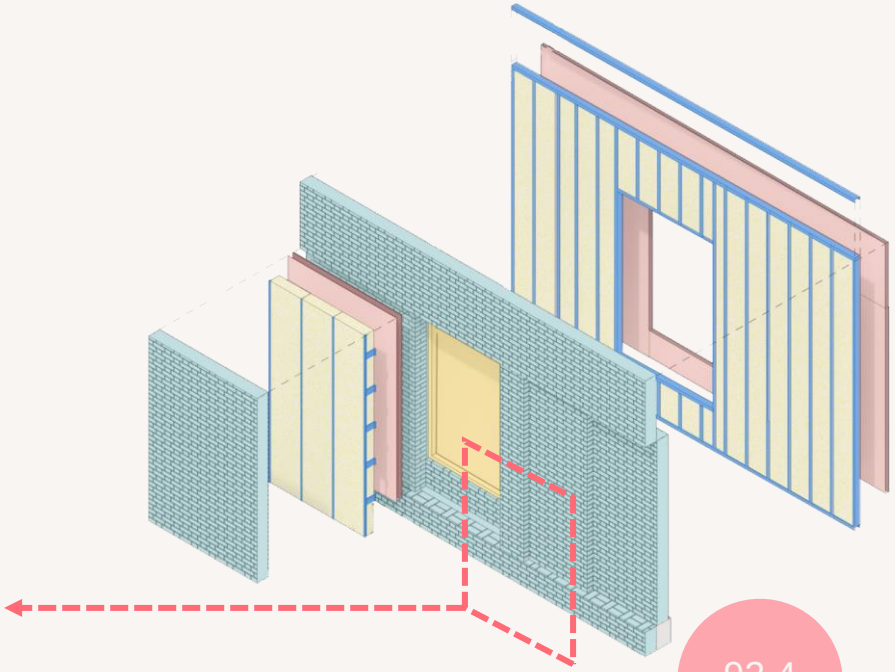
Alternative A



Alternative B



Alternative C

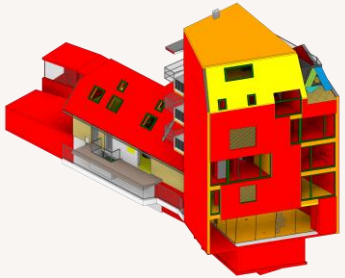


92.4
kgCO2e/m2

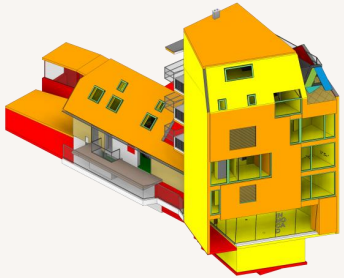
HAPTIC

Baseline

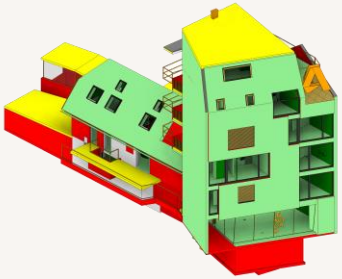
COMPARATIVE STUDIES



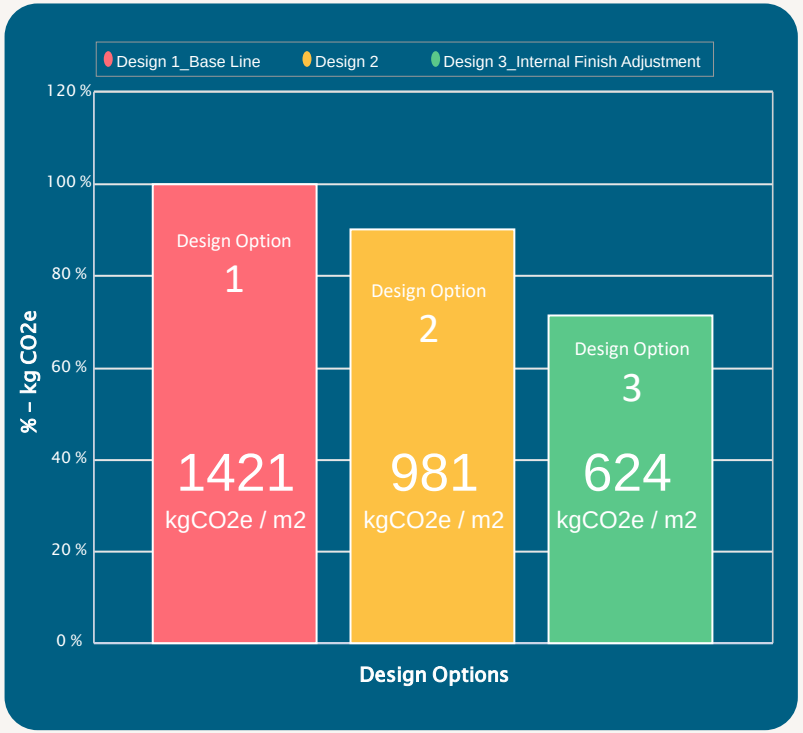
Design Option
1



Design Option
2



Design Option
3



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BENCHMARKING DESIGNS

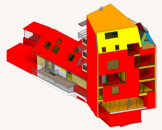
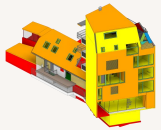
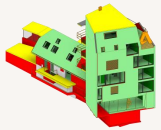
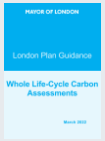
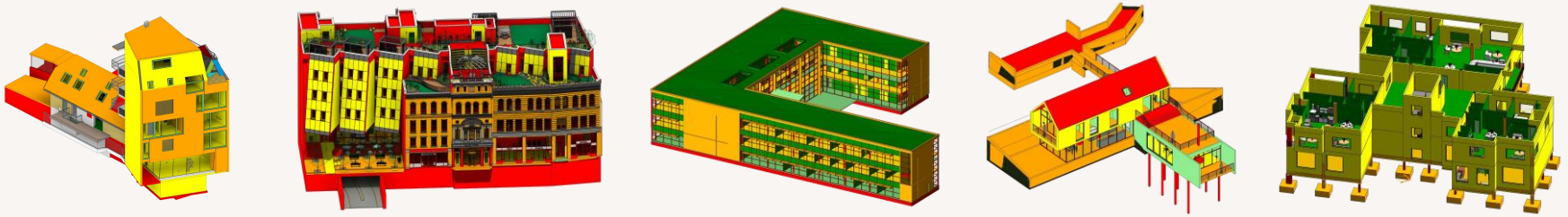




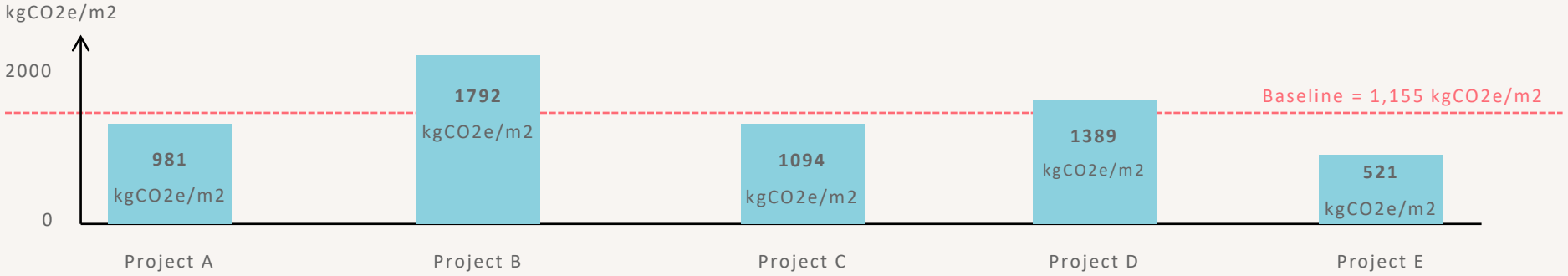
Image	Organisation	Note	Baseline/ Business as Usual	2020/2025 Targets	2030 Targets/ Aspirational Targets	Design 1 kgCO2e/m2	Design 2 kgCO2e/m2	Design 3 kgCO2e/m2
	**Greater London Authority**	(WLC benchmarks (excluding modules B6, B7 and D)	<1400 kgCO2e/m2	-	**<970 kgCO2e/m2**	**1421**	**-**	**624**
	**LETI**	(Building Life Cycle Stages A1-A5)	1000 kgCO2e/m2	<600 kgCO2e/m2	**<350 kgCO2e/m2**	**811**	**584**	**342**
	**RIBA 2030 Climate Challenge**	(modules A1-A5, B1-B5, C1-C4 incl sequestration)	1400 kgCO2e/m2	<970 kgCO2e/m2	**<750 kgCO2e/m2**	**1421**	**981**	**624**

Example of an office building.

Benchmarking is measured in kgCO2e/m2 so that the values can be compared amongst different designs.

BENCHMARKING DESIGNS

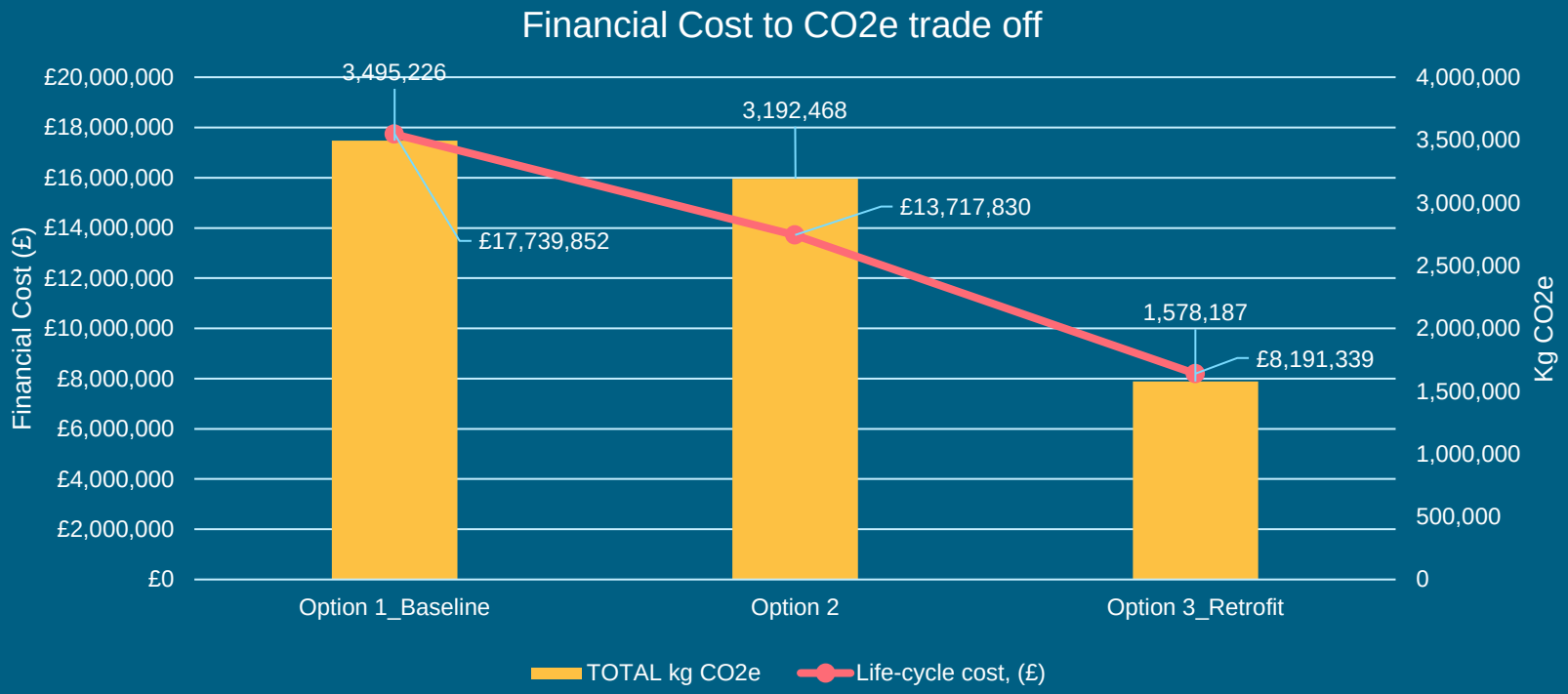




Perform LCA across a portfolio of building projects to:

- Highlight consistent impacts
- Hit ESG targets with Scope 3 Analysis

OPPORTUNITY COSTS AND LCC



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OPPORTUNITY COSTS AND LCC

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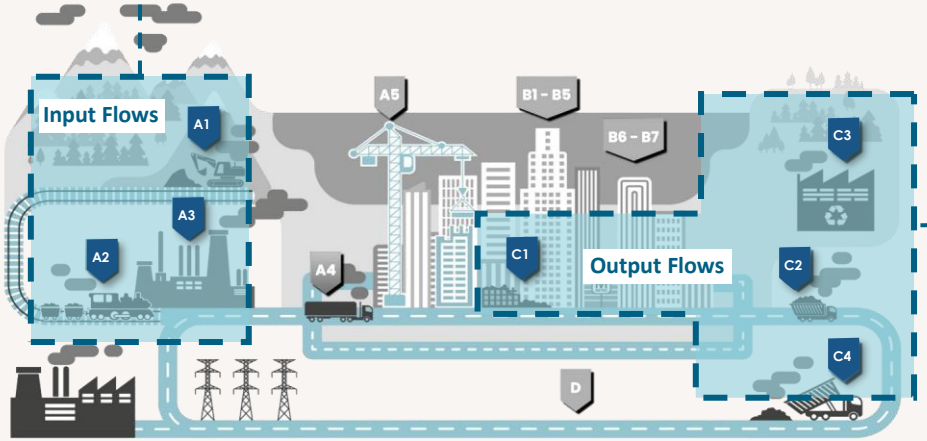
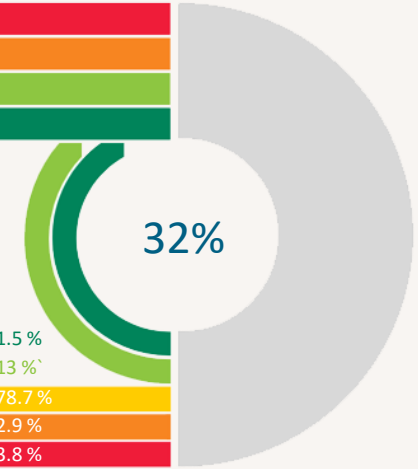
BUILDING CIRCULARITY

Stages A1-A3 provide the information for the input flows. And Stages C1-C4 provide the information for the output flows.



Input Flows

Virgin	90.9 %
Renewable	2.4 %
Recycled	6.7 %
Reused	0 %



Output Flows

Reuse as material	1.5 %
Recycling	13 %`
Downcycling	78.7 %
Use as energy	2.9 %
Disposal	3.8 %

The data input for an LCA is the same as that needed for a Building Circularity study, meaning very little work is required to analyse the circularity.

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DRIVING FORCES OF LCA IN THE AEC INDUSTRY

Required by Regulators

- UK's Dept for Transport
- New Building code (2025)
- EU Taxonomy
- Dutch building code
- French RE2020
- Danish BR18
- CalGreen
- London Plan
- Part Z Building reg
- EPBD (2027>)
- Australian states
- Swedish code
- Federal & local regulation
- New York Law 97

Required for Certifications

BREEAM, U.S. Green Building Council Community, DGNB, E+ C- Énergie positive & réduction carbone, Level(s), greenstar

Required by Customers

lendlease, Unibail Rodamco Westfield, Landsec, Statsbygg, Grosvenor, Bouygues Immobilier, British Land, CBRE, SEGRO

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05

SUMMARY

Opportunities for calculating my carbon footprint

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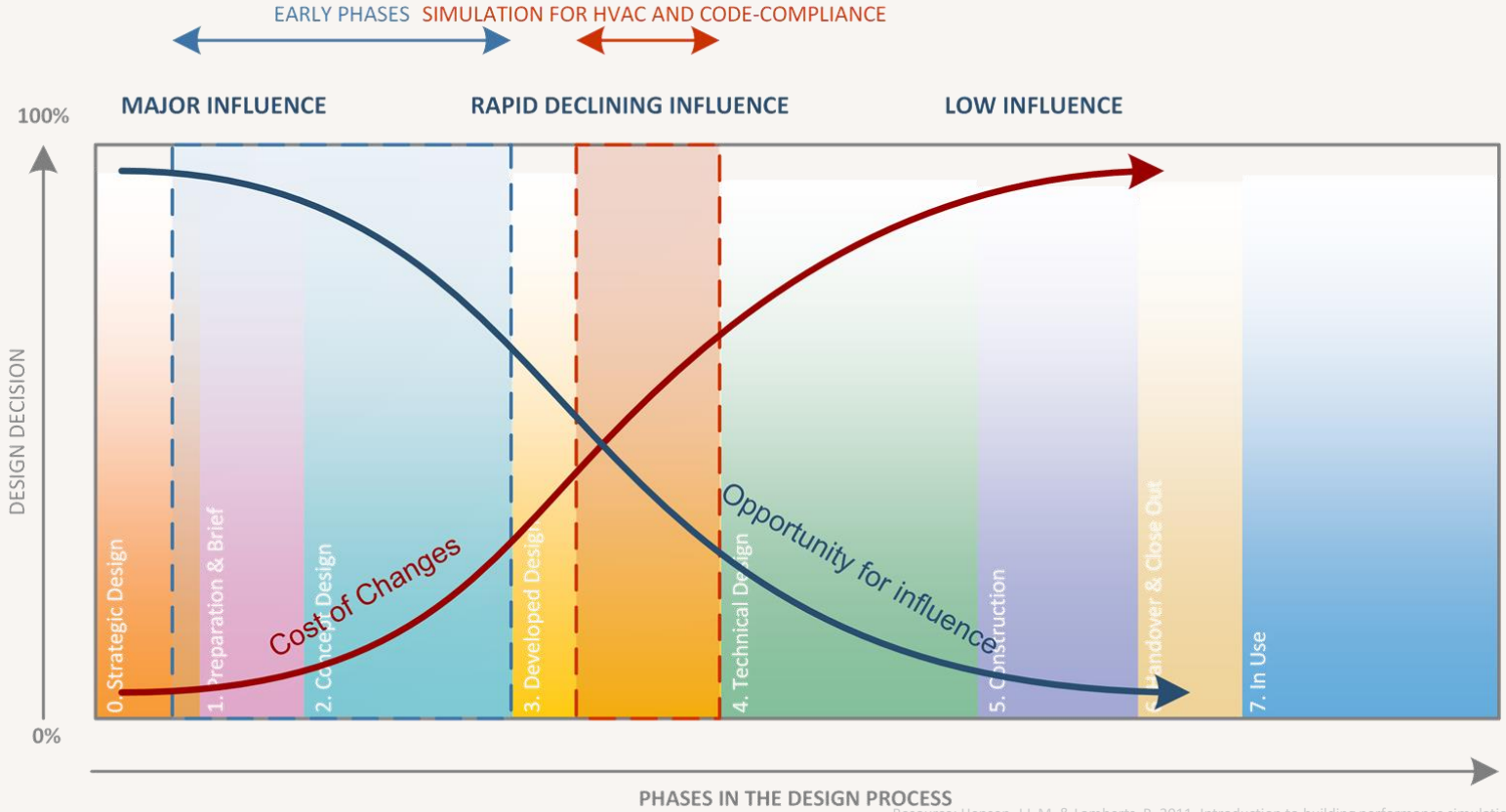
IMPACT OF EARLY-STAGE DECISION MAKING



Resource: Hensen, J.L.M. & Lamberts, R. 2011. Introduction to building performance simulation. In: Hensen, J.L.M. & Lamberts, R. (eds.) Building Performance Simulation for Design and Operation. New York, NY, USA: Spon Press.

OUTCOMES

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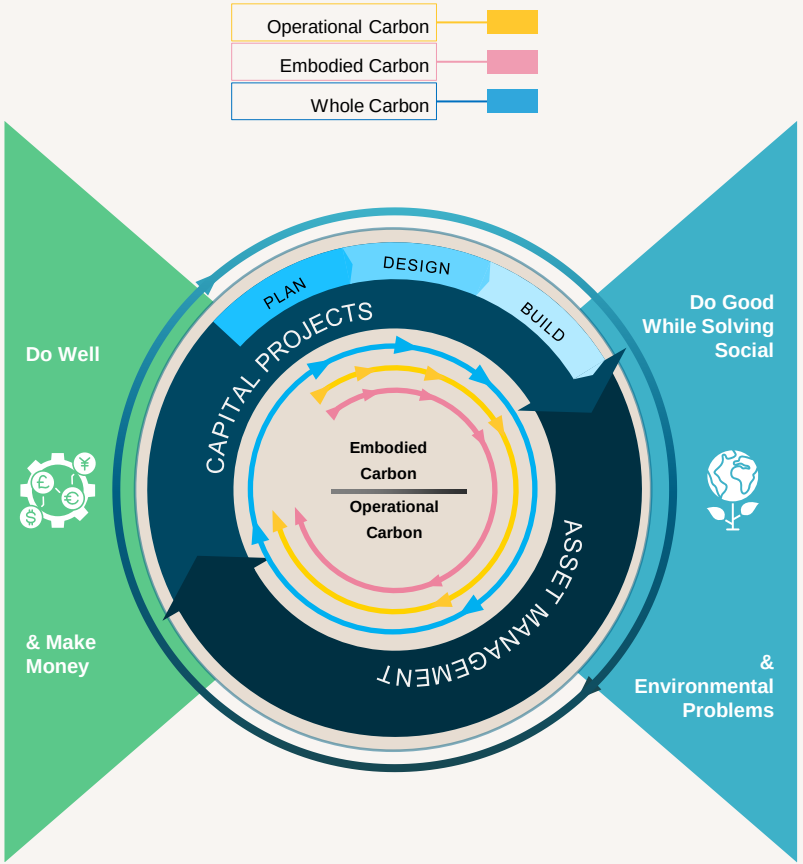
- Demonstrate Cost Savings to client and Internally
- Demand Sustainable Premiums
- Win more work with Carbon Figures in the RFP/Bids/Tenders
- Gain the competitive edge
- Generate new services and attain appropriate fees



- Assurance in Regulatory Compliance
- Meet and Exceed BREEAM and LEED requirements
- Ability to apply carbon reduction strategies to all projects!
- Enhanced Reputation
- Greater Impact on Carbon Reduction

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Together we need to democratise sustainability by making complex topics accessible to everyone.

- SYMETRI CO-INNOVATION LAB

THANK YOU!

Shivani Soni

Head of Impact & Innovation

Oversee Co-Innovation Lab | Global

Symetri

shivani.soni@symetri.com

Samuel Boswell

LCA Consultant

Co-Innovation Lab | Global

Symetri

samuel.boswell@symetri.com

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GET IN TOUCH!

VISIT US ON STAND D500

Our experts will be on-hand to answer any questions you may have. Plus, we're sponsoring the coffee stand so grab a free hot drink on us!

THANKS!

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CONNECT WITH US!

INFO@SYMETRI.CO.UK | 0345 370 1444