

Decarbonisation strategy from Smart Future Tech
delivered by Four Seasons HVAC

**SMART FUTURE TECH** · and **FOUR SEASONS HVAC**

# Retrofitting Offices for Energy Reductions and Net Zero

## The Case for Landlords and Managing Agents

Key findings from UKGBC's **Building the Case for Net Zero**, January 2024




# The market is paying a green premium

## 15-20%

potential investment value uplift from retrofit, according to **FORE Partnership**

- **Flight to quality** favours grade A space with sustainability credentials, higher yields and shorter voids.
- About **6,500 London offices over 20,000 sq ft** urgently need retrofit. Fixing them could save **over £1 billion a year** in electricity.
- Policy pressure includes **EPC B proposals** and performance-based ratings such as **NABERS UK**.

# Existing buildings are the challenge

Retrofitting existing stock is where most of the carbon reduction must happen.

**23%**

**Operational carbon**

Non-domestic buildings' share of built environment operational carbon emissions

**80%**

**Still in use in 2050**

Of today's buildings will still be in use

**87%**

**Of the 1.5°C pathway**

Improved performance needed for European real estate that must come from existing buildings (CRREM)

**7%**

**Over 1,000 sqm**

Only 7% of non-domestic buildings, yet they use over half of all non-domestic energy

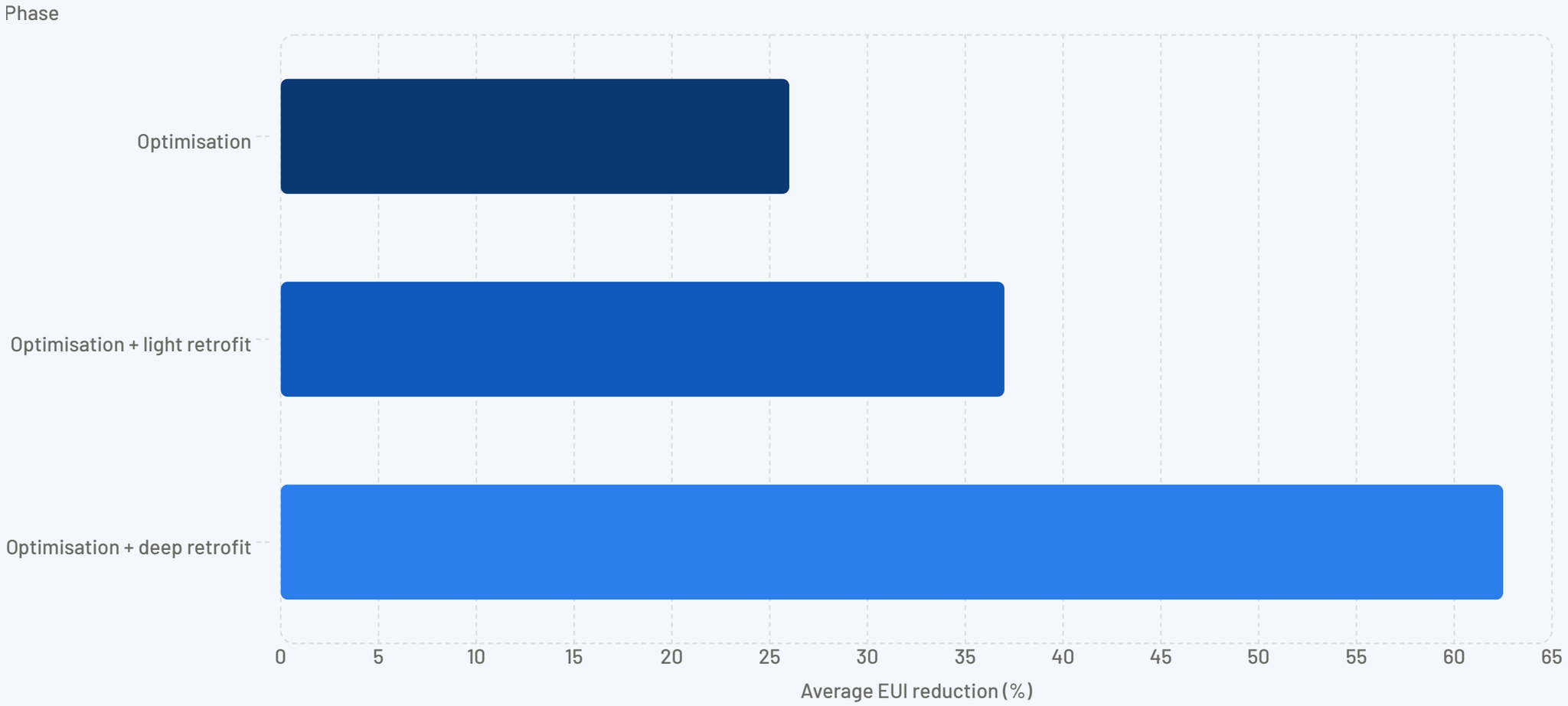
**15.5%**

**Largest electricity user**

Offices, the largest single consumers of electricity (excluding factories)

# Three phases, three levels of saving

Average reduction in **energy use intensity (EUI)**




**26%**

Optimisation alone

**37%**

With light retrofit

**60-65%**

With deep retrofit

Deep retrofit more than doubles the savings of optimisation alone. Chart value of 62.5% represents the 60-65% range.

# Start with the easy wins: optimise and go light

### Optimise first

The **most cost-effective phase**, with the lowest embodied carbon. Landlords or tenants can lead.

### Make performance visible

Managing agents and facilities teams let everyone see how performance responds. **Share data** to prevent “slip back” to old consumption levels.

### Prepare for heat pumps

Light retrofit can prepare the ground for heat pumps later.



# Light vs deep retrofit

Three levels of intervention, each with a different cost and energy outcome.

### Optimisation

Tune controls and set points together with occupier behaviour. **Lowest cost** and embodied carbon.

**26%** average energy use intensity cut

### Light retrofit

Single-focus upgrades, for example asset monitoring, that can prepare the building for heat pumps.

**37%** average energy use intensity cut

### Deep retrofit

Fundamental change to structure and/or services, such as major plant replacement. Reconsider the building as a whole system.

**60–65%** average energy use intensity cut



# Policy and market pressure

Regulation and investors are moving the same way: towards better-performing buildings.

### 1 Minimum standards

Government consultations on an **EPC B minimum** for non-domestic rented buildings, and a performance-based framework for buildings over 1,000 sqm.

### 2 NABERS UK rating

Voluntary **1–6 star** energy rating from BRE, adapted from Australia's system launched in 1999.

### 3 Flight to quality

Grade A space with sustainability credentials attracts **higher yields and shorter voids**.

### 4 ESG and retrofit first

Growing ESG scrutiny and a **retrofit first** approach.

### 5 Read EPCs with care

EPC ratings indicate **potential**, not actual energy use.

# A nine-step retrofit strategy

From understanding the building to verifying its performance.

01

**Understanding the building**

02

**Assessing what is required**

03

**Making the business case**

04

**Barriers and opportunities**

05

**Performance targets**

06

**Establishing an approach**

07

**Building management and optimisation**

08

**Monitoring and performance verification**

09

**Develop the golden thread of information**

*"Decarbonisation is a team sport."* — Basil Demeroutis, FORE Partnership





# Watch the fabric and the heat pump

Sequencing matters: the order of upgrades decides cost and carbon.

### Fabric upgrades

Can carry **high embodied carbon**. Plan them with significant refurbishment or when components reach end of life.

### Heat pumps first

Risk **oversized plant**, extra cost and carbon unless phased or hybrid.

### Air tightness alone

Can **increase energy use intensity** through cooling loads. Pair it with overheating measures.

### Whole life carbon

Consider whole life carbon as well as **operational energy**.

# Deep retrofit is needed to hit future targets

### 70 kWh/m$^2$

The **2030-2035 target**. An average building needs deep retrofit to reach it.

### 55 kWh/m$^2$

The **2035-2050 target**. Average projects still fall short.



### Improve fabric first, or phase the plant

Avoid **oversized heat pumps**.



### Replace gas heating with heat pumps

Cut fossil fuel use and deliver the **greatest improvement in EPC ratings**.



# Wider benefits beyond energy

Retrofit creates value well beyond lower bills.

### Climate resilience

Prepares buildings for a changing climate.

### Natural environment

Positive impacts on biodiversity.

### Health and wellbeing

Better health outcomes and social value.

### Net zero grid

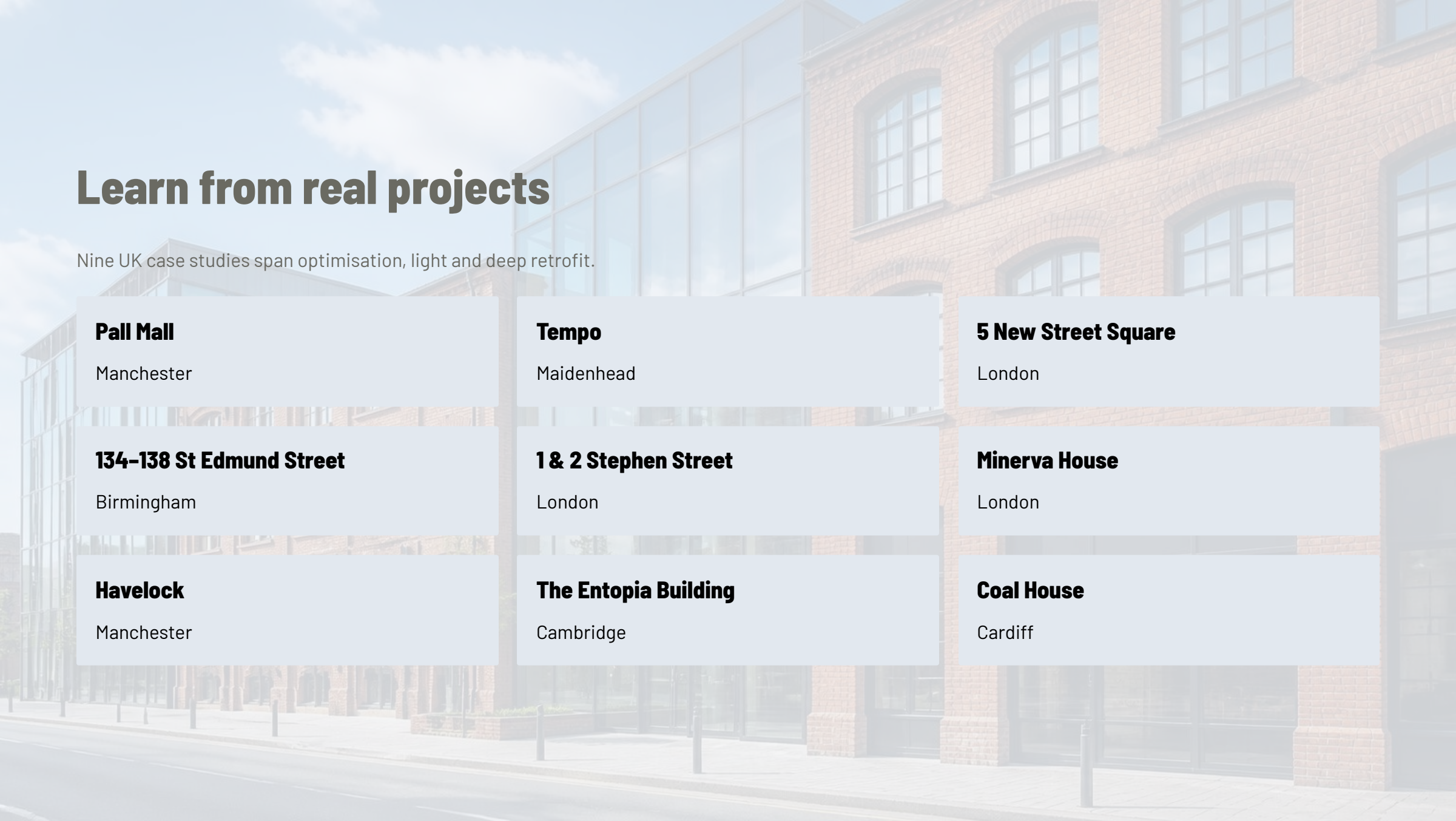
Supports the transition to a net zero electricity grid.

### More floor area

Added floor area and repositioning opportunities.

### Green jobs

Upskilling and green jobs for local communities.



# Learn from real projects

Nine UK case studies span optimisation, light and deep retrofit.

**Pall Mall**

Manchester

**Tempo**

Maidenhead

**5 New Street Square**

London

**134–138 St Edmund Street**

Birmingham

**1 & 2 Stephen Street**

London

**Minerva House**

London

**Havelock**

Manchester

**The Entopia Building**

Cambridge

**Coal House**

Cardiff

# Five calls to action



## Retrofit now

Plan, grab easy wins and use **trigger points**.




## Greater transparency

Share **building performance data**.




## Minimise whole life carbon

Assess it to choose strategies.



## Invest in long-term value

Social, economic and environmental.



## Collaborate

Share **lessons learnt**.

# What landlords and managing agents do next



## Landlords

Set an **asset or portfolio retrofit strategy**, with trigger points mapped and targets raised.




## Managing agents

Lead **optimisation**, share data with tenants, and sustain performance **year on year**.



## Together

Use **building-specific assessments**. Impacts of the same measure varied widely across projects.



# Decarbonisation is a team sport



> “We need to act collectively, now, to plan and implement retrofit strategies that simultaneously align with our business goals and close the gap towards net zero.”

**Basil Demeroutis**
Managing Partner, FORE Partnership

Source: UKGBC, Building the Case for Net Zero: Retrofitting Office Buildings, January 2024.

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# Start your retrofit strategy

Landlords and managing agents can begin with the easy wins and plan deep retrofit for future targets.

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