

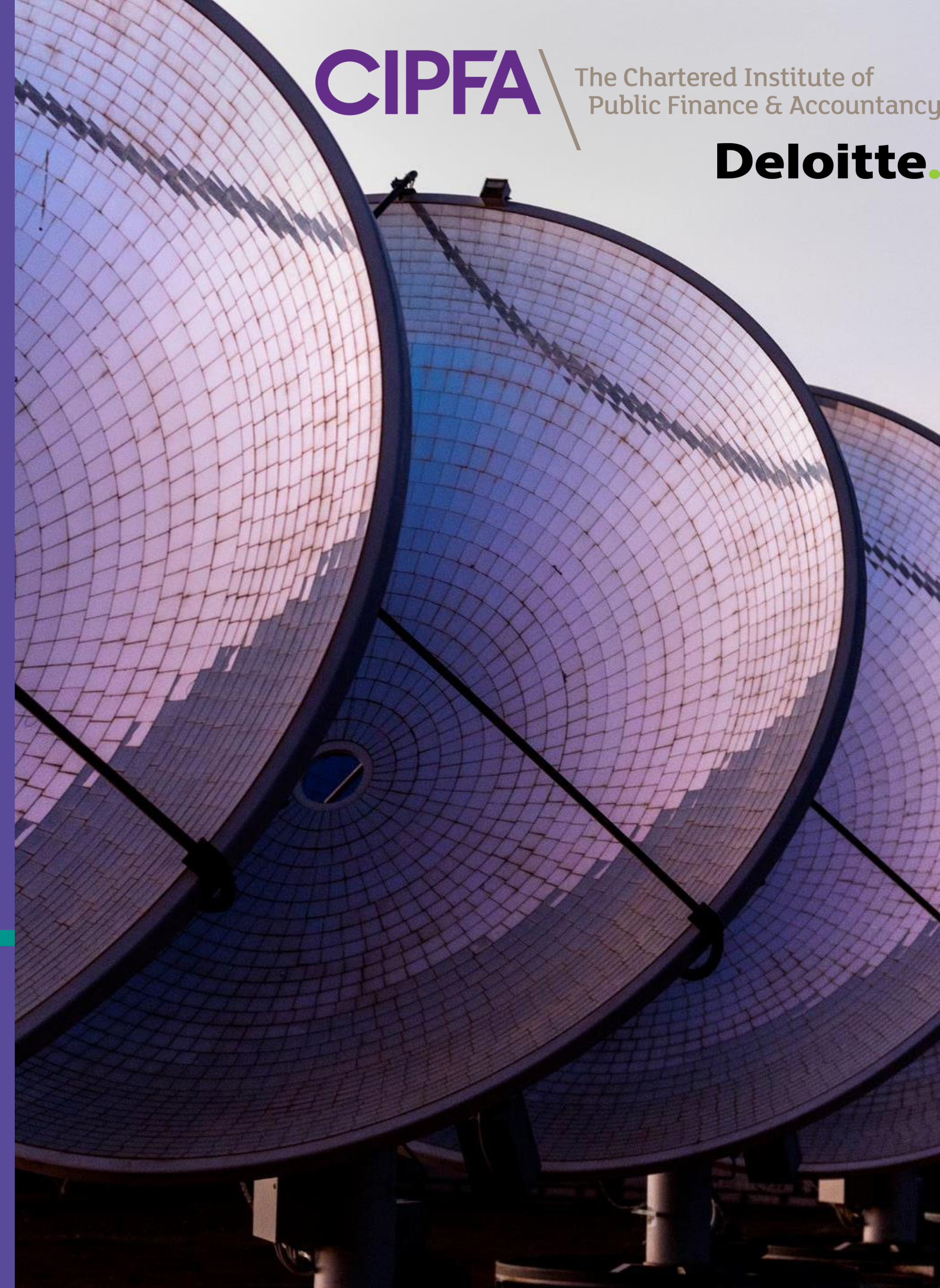
# The Journey to Net Zero Pathways to Sustainability

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30<sup>th</sup> January 2023

**CIPFA** | The Chartered Institute of  
Public Finance & Accountancy

**Deloitte.**





01

# Welcome



**Hamza Yusuf**





# Agenda

01

## Introductions

14:00 - Welcome

14:05 - Deloitte opening speaker

02

## Case studies

14:15 - Transport for London - Jasmine Moss

14:35 - Mayor of London's office - Mark Williams

14:55 - Saber Renewables - Ashley Bullock

15:15 - E.ON - Phil McDermott

03

## Concluding thoughts

15:45 - Question and Answer panel discussion

16:00 - Networking and Drinks



# 01 Introduction



**Mick Krupa**

Opening speaker and moderator





# Who is presenting



**Jasmine Moss**

Senior sourcing manager  
*Transport for London*



**Ashley Bullock**

Commercial Director  
*Saber Renewables*



**Mark Williams**

CIPFA  
Learnings from the *Mayor of London's office*



**Phil McDermott**

Cities Transformation Lead  
*E.ON*





**“...It’s simple –  
we can still put  
things right;  
everyone just  
needs to make  
better  
choices.”**

**Evie Krupa, aged 13**



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**02**  
**Client Case studies**

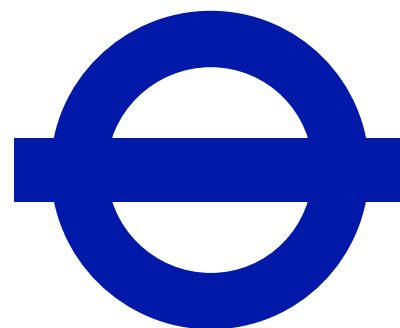






## Transport for London

Jasmine Moss – Senior Sourcing Manager, Utilities



EVERY JOURNEY MATTERS

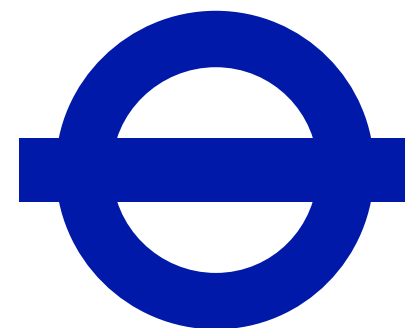


# Agenda

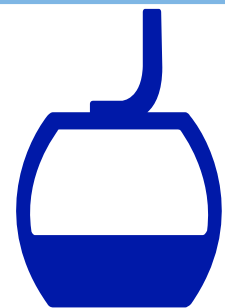
- Who are TfL?
- What's our ambition?
- What's our strategy for delivery?

Deep dives on decarbonisation:  
Private Wire  
Corporate PPAs

- Where are we now?







**MAYOR OF LONDON**

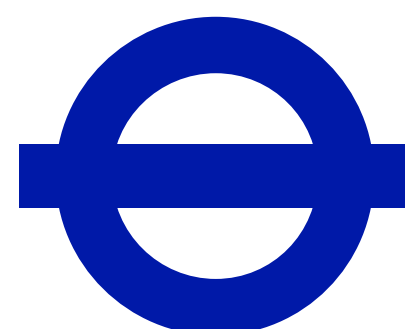
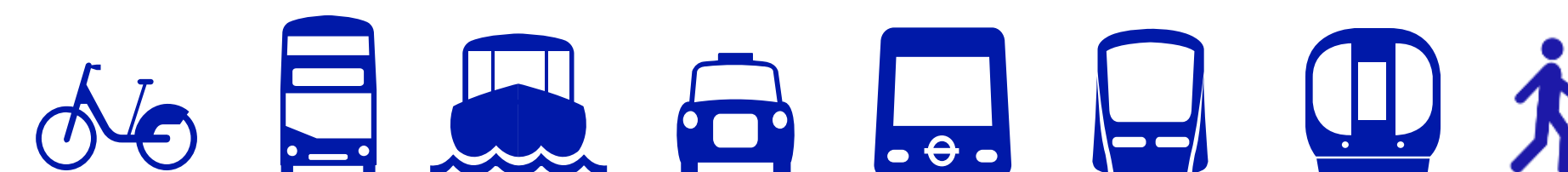
GREATER  
**LONDON**  
AUTHORITY



**Transport  
for London**

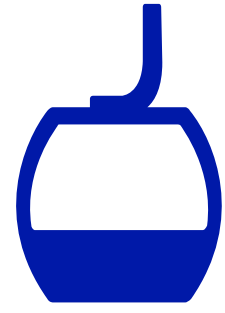
We are the integrated transport authority responsible for meeting the Mayor's strategy on transport in London. We run the Capital's public transport network and manage London's main roads.

## Who are we?

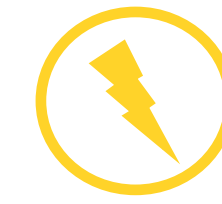


**EVERY JOURNEY MATTERS**





## TfL as an energy consumer



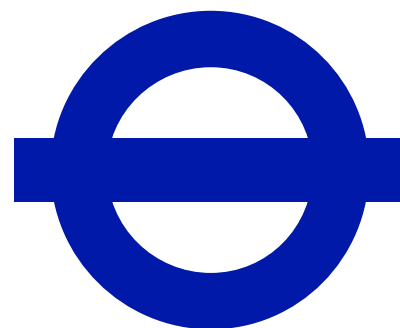
The single largest energy consumer in London, consuming c.**1.6 TWh pa**



Consumption expected to increase to **2.4 TWh pa by 2030** due to electrification of bus fleet



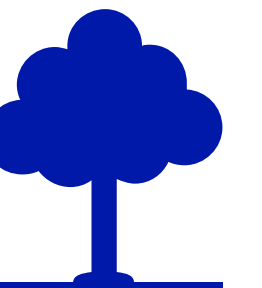
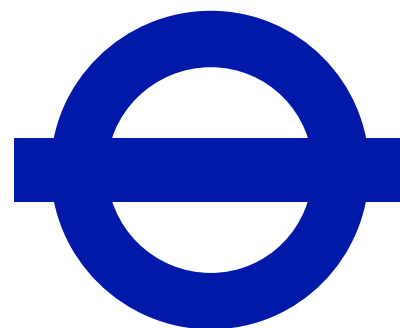
FY22/23 - c.£265m on electricity and c.£2.5m on gas







Our vision is  
to be a strong,  
green heartbeat  
for London

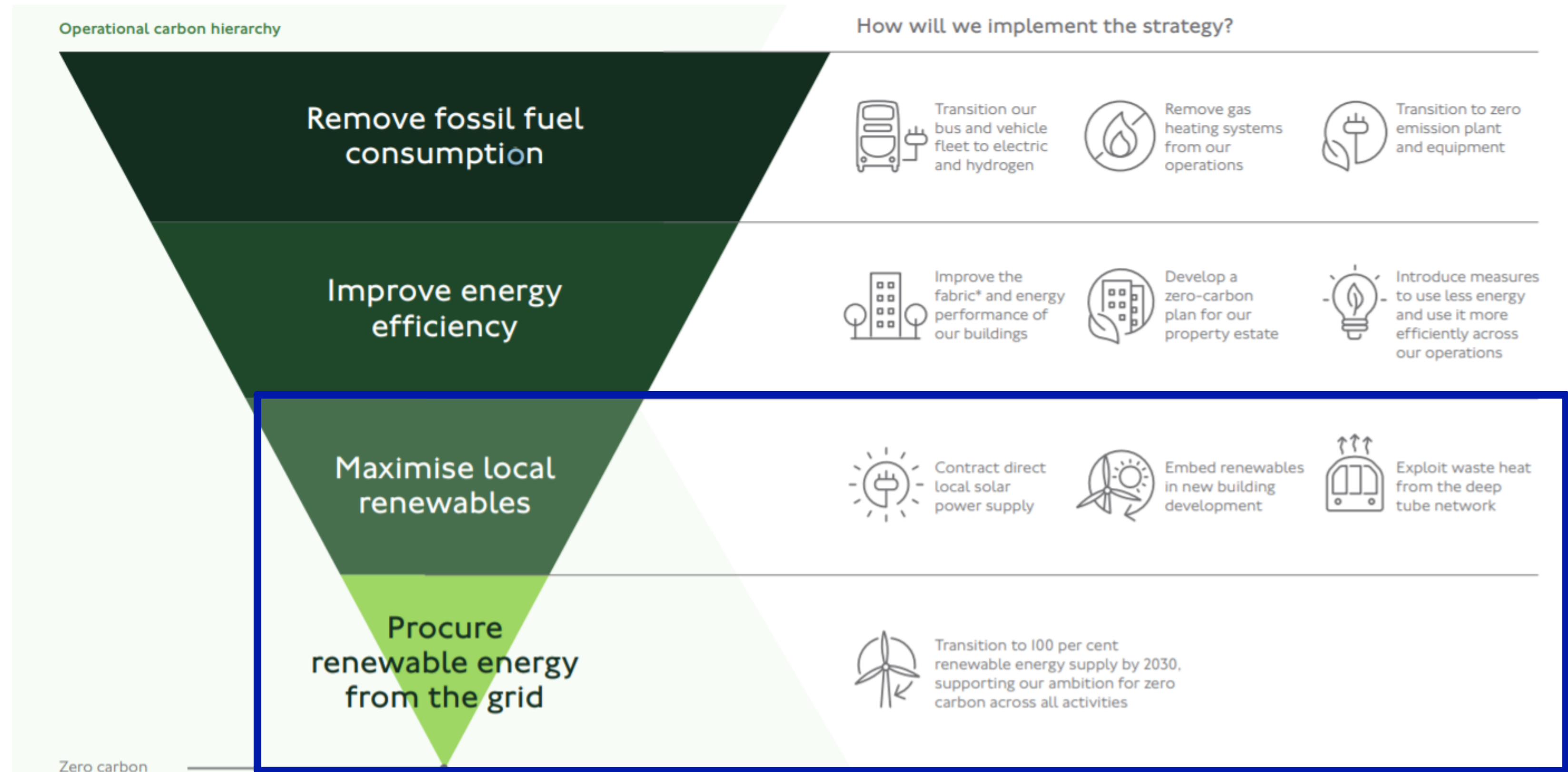




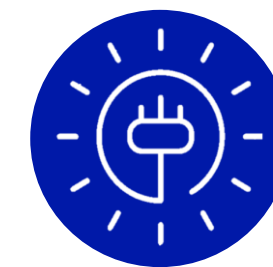
# TfL's ambition

Our Corporate Environment Plan sets out our goal to achieve net zero carbon across our operations by 2030.

Even if we increase energy efficiency and maximise local renewables we will still be reliant on electricity delivered via the grid.



## Maximise Local Renewables

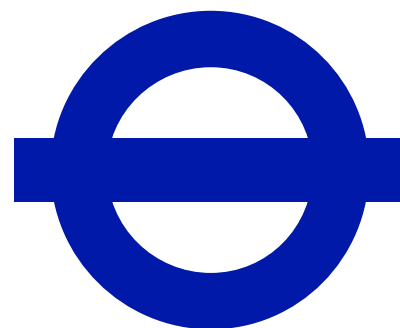


Private Wire

## Procure Renewable Energy From the Grid



Corporate Power Purchase Agreements





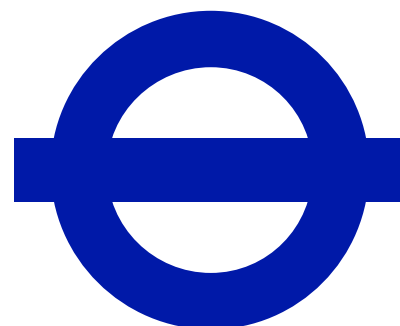
# TfL's Energy Purchasing

## Current:

- We purchase through the Crown Commercial Service (CCS) Energy Framework
- CCS generate savings through aggregation of volume for the public sector
- Energy can be purchased up to 3 years ahead
- For renewables purchasing, the framework only offers a 'Green Tariff'

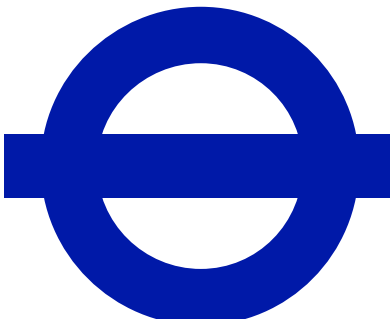
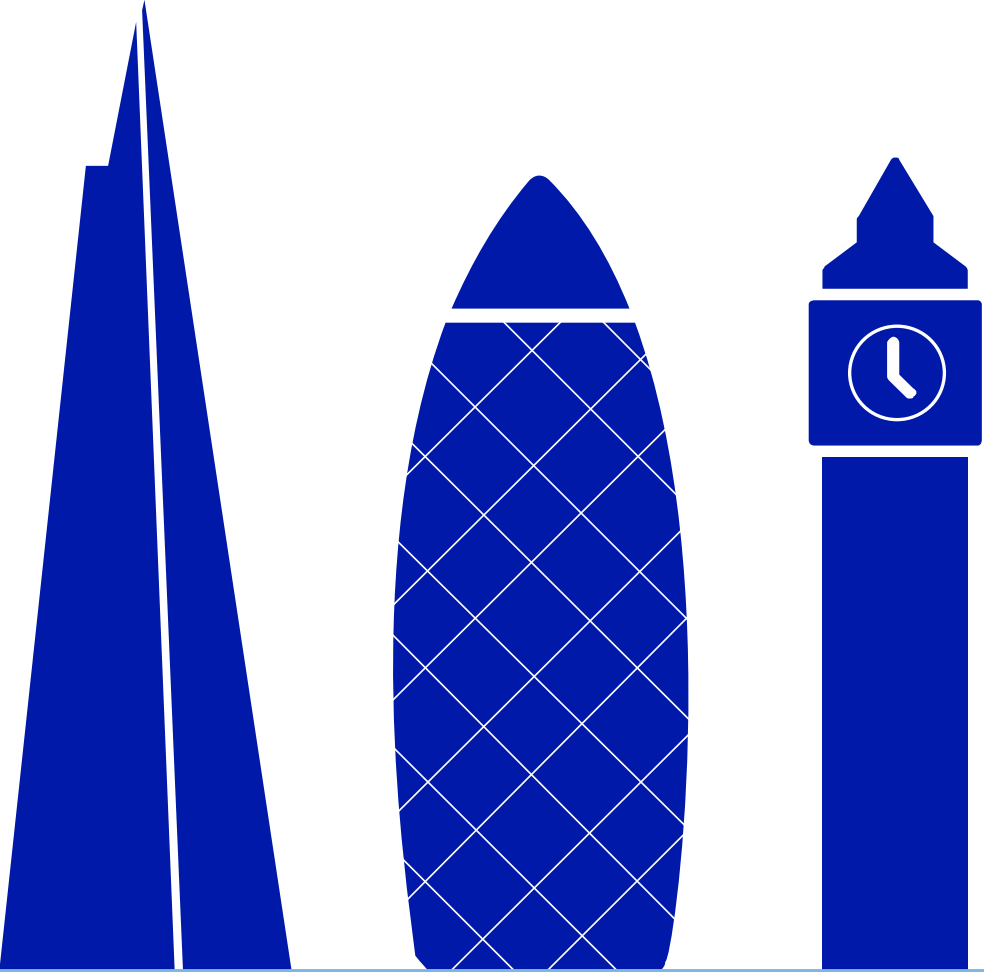
## Future:

- Corporate PPAs to at least 50%
- Private Wire, up to 5% (limited by network infrastructure constraints)
- Strategy on remaining power is still under development

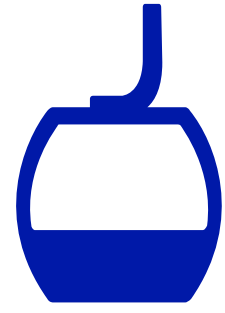




# Solar Private Wire

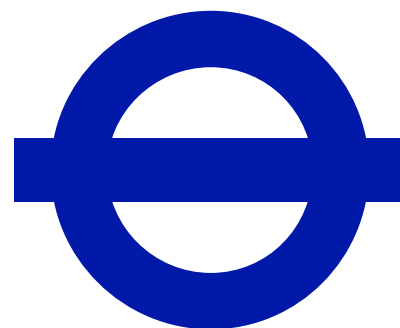
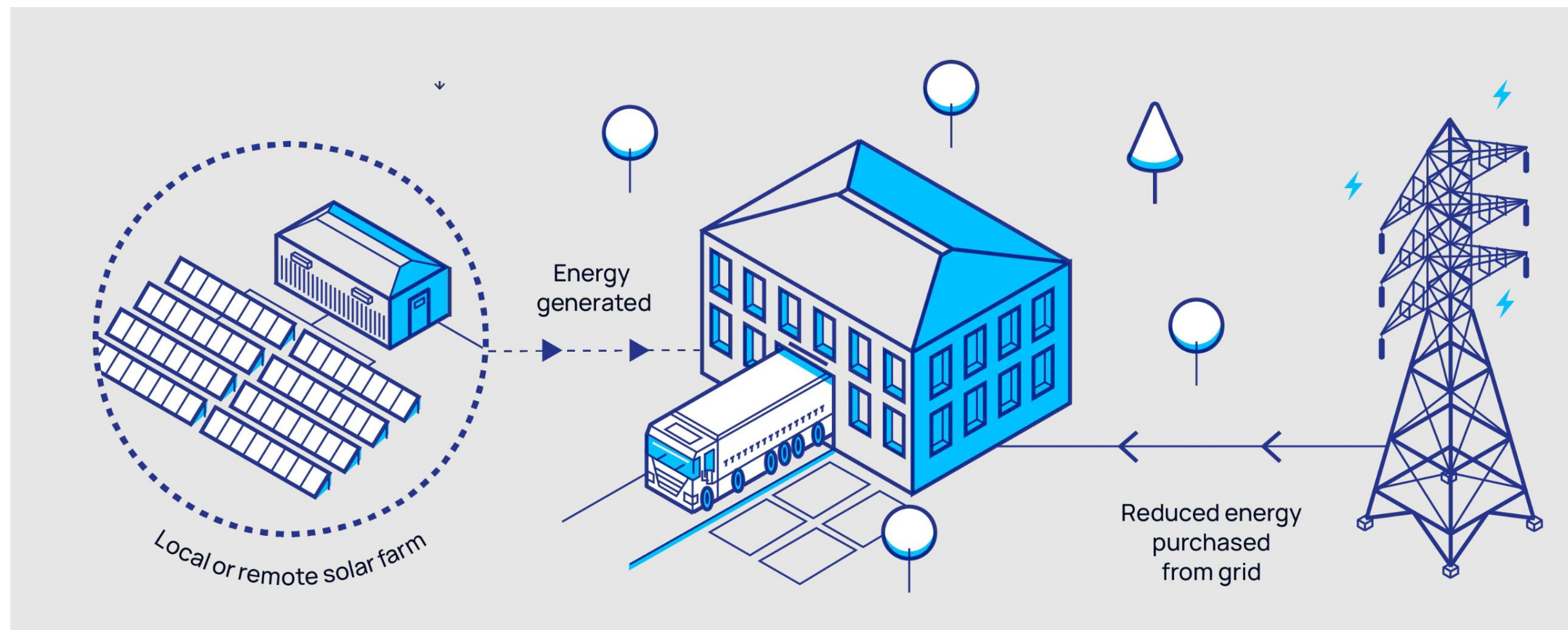






## Solar Private Wire

- TfL is looking to purchase renewable energy (solar), from renewable developers and feed this directly into the London Underground distribution network, bypassing the grid.
- Not only does this guarantee renewable energy and carbon savings, it also offers potential financial savings as grid costs are bypassed. It's expected that TfL will capture part of this saving.



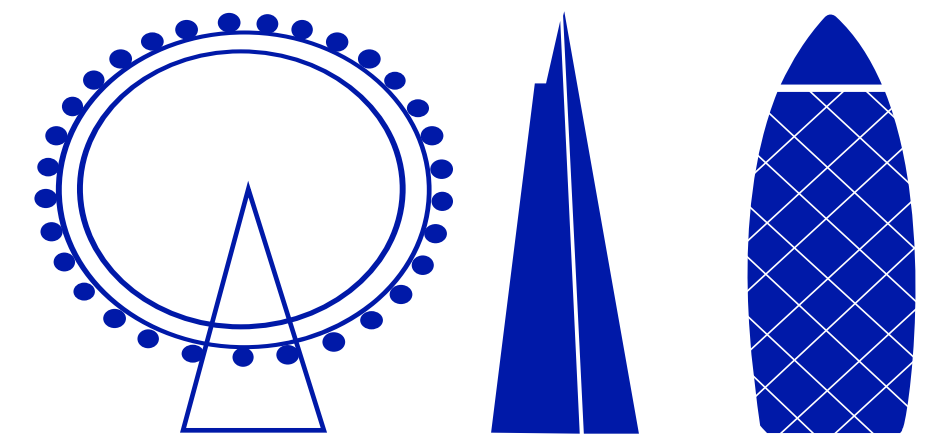
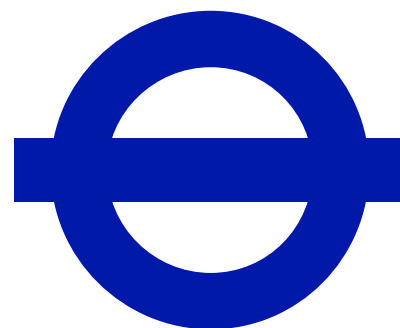


# Private Wire Overview

- The project will look for generators to supply solar power; they'll identify land, then fund, design, build, operate and maintain solar farms near the LU network.

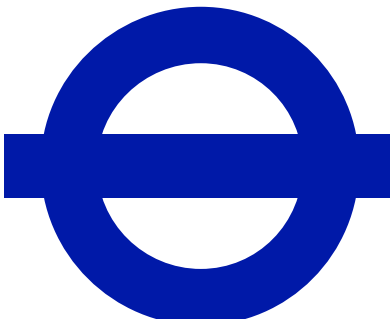
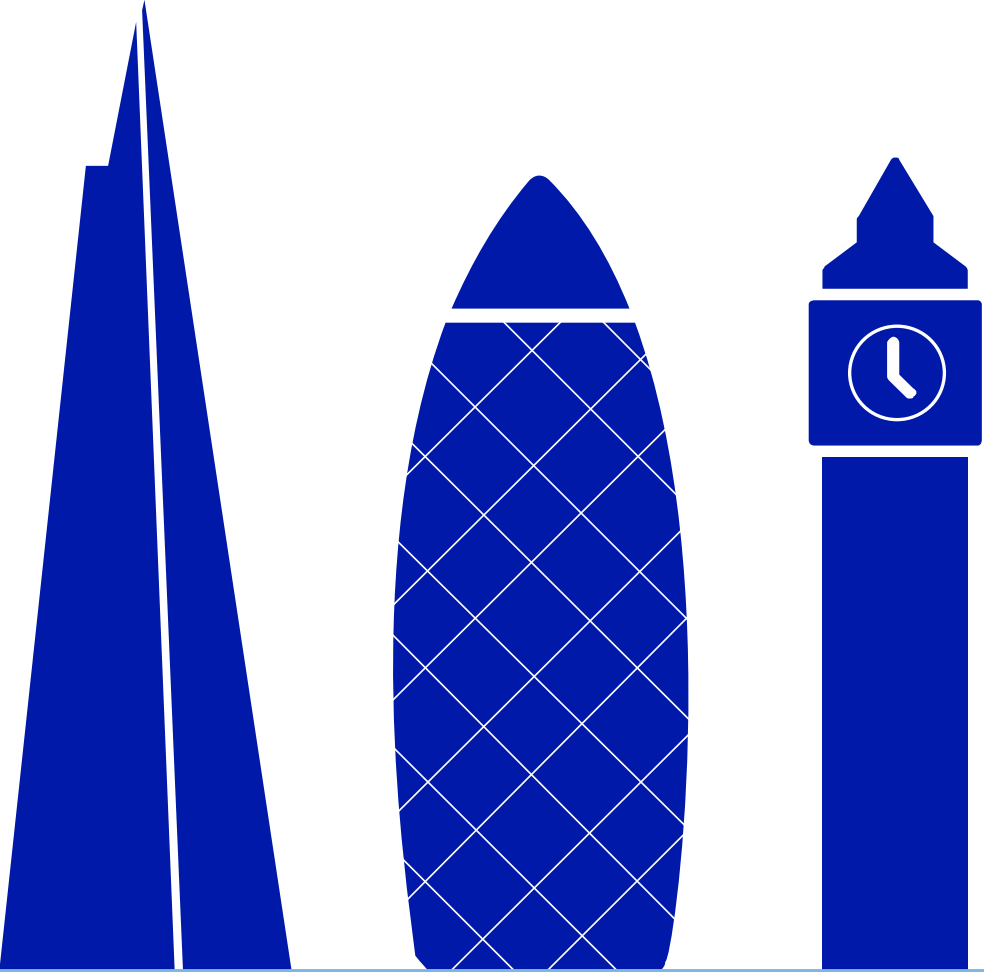
TfL will pay a unit rate for power from specified assets developed in/around London, directly connected to the LU power network, over a long term contract

- Could provide up to 5% of our annual electricity requirement
- Early Market Engagement ultimately led us to a **single supplier framework** approach, which will allow us to collaborate more freely with a single developer.
- This most closely mirrors private sector practices.
- Targeting tender release for Spring 2024.





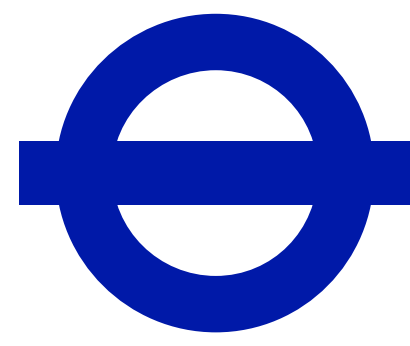
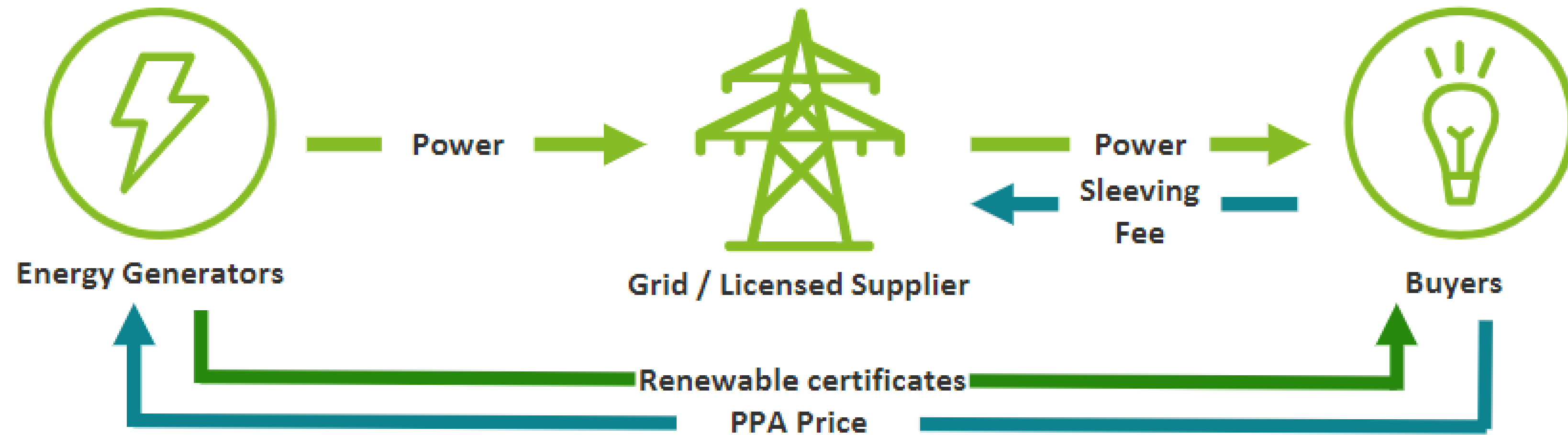
# Corporate PPAs





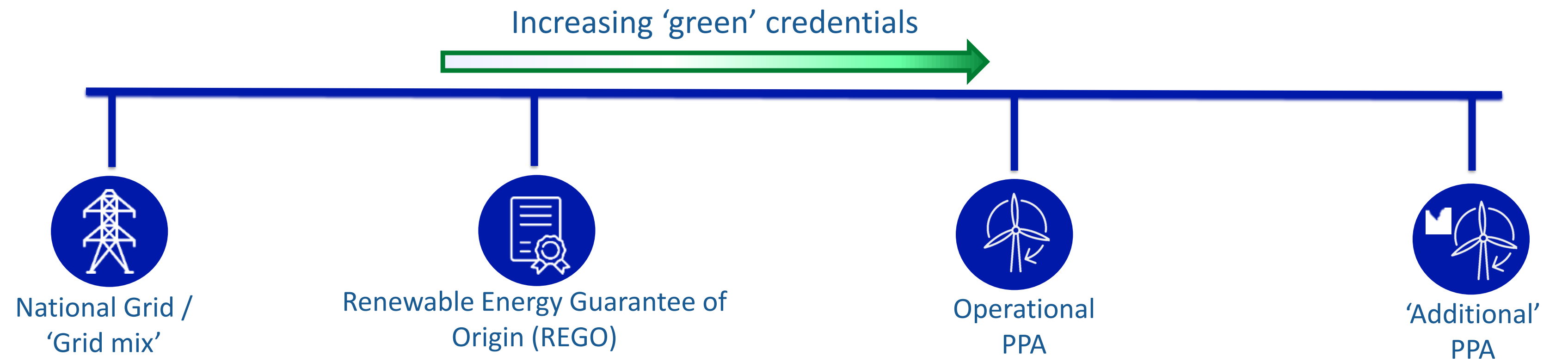
# What is a Corporate Purchase Power Agreement?

- A Corporate PPA is a contractual agreement directly between a buyer and a renewables generator, who agree to buy and sell an amount of energy based on an agreed payment structure.
- The suite of contracts involves 3 parties:





# Why PPAs?



## Drivers for buyers signing PPAs



**Renewable Traceability-** Procurement of renewable energy through a transparent mechanism



**Cost certainty-** Offers a long term hedge, with prices fixed for ~15 years, removes exposure to volatility and supports budgeting \*Note: ability to hedge in traditional markets limited to 3-5 years



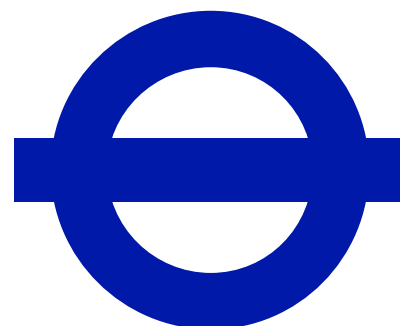
**Increase renewables-** Supports national security of supply by supporting GB electricity generation

## Why an Additional PPA?

PPAs provide developers with guaranteed income, creating the revenue certainty required to construct a project.

- Additional renewable generating capacity in the UK
- Supporting green jobs & the green economy
- Less sensitive to wholesale prices than operational PPAs

New build PPAs are currently TfL's preferred way to fulfil our green objectives.



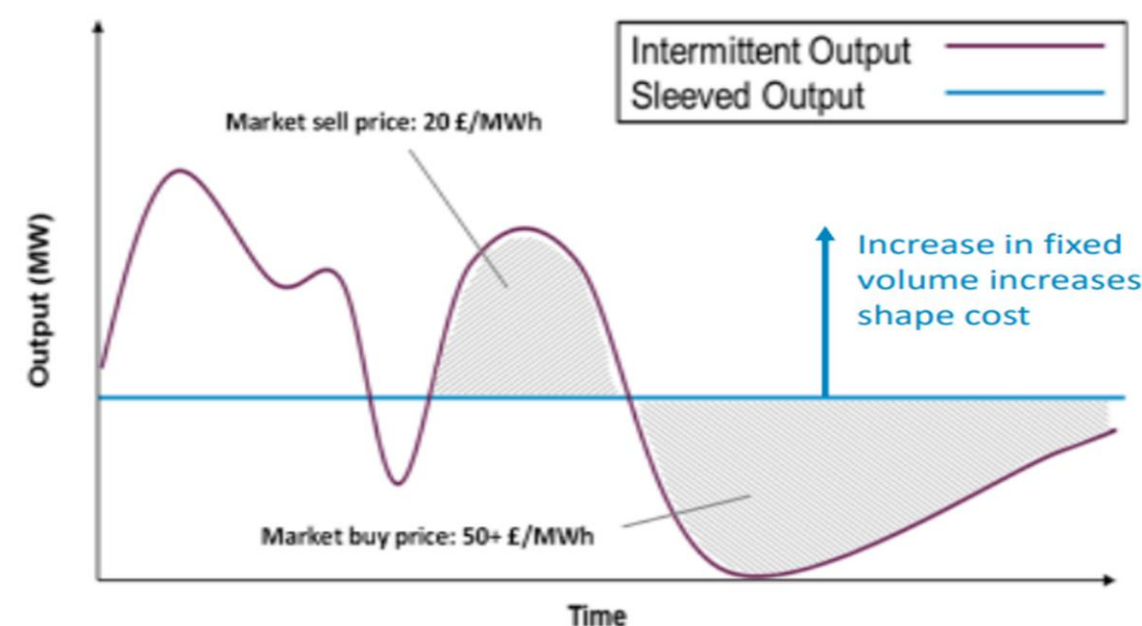


# Pricing of Corporate PPAs?

## Sleeving of a PPA

Transfer of energy + shaping and imbalance costs.

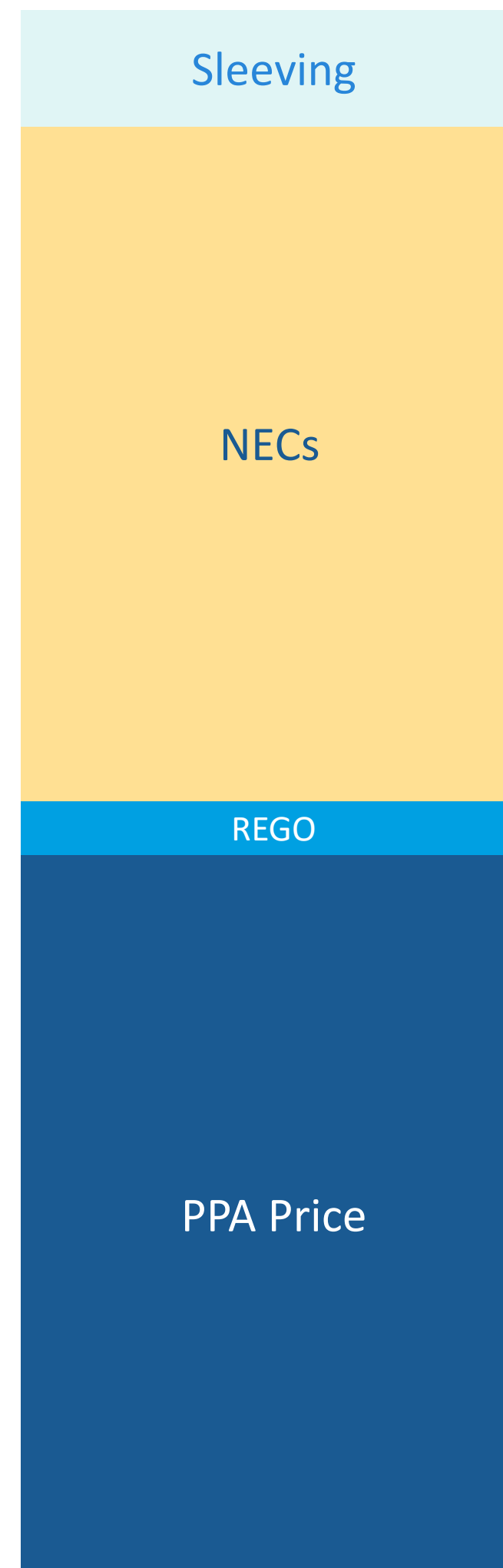
Can only be fixed for up to 3 years.



## Non-Energy Costs

Charges apply to all grid-purchased electricity, whether purchased via the supply contract, or via a PPA

€/MWh



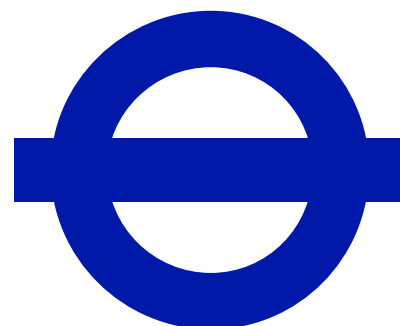
## PPA Price

Price negotiated during the tender. Includes REGOs

Primarily influenced by:

1. Wholesale markets – short and long-term
2. Levelised Cost of Electricity

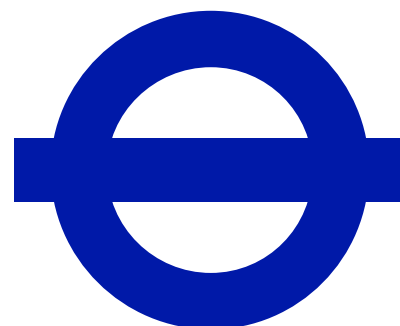
Objective: that PPAs secure “**off-balance-sheet**” status so that total future payments under the PPA do not count as a long-term liability.





## Key PPA Risks

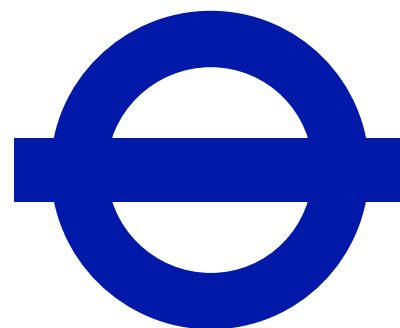
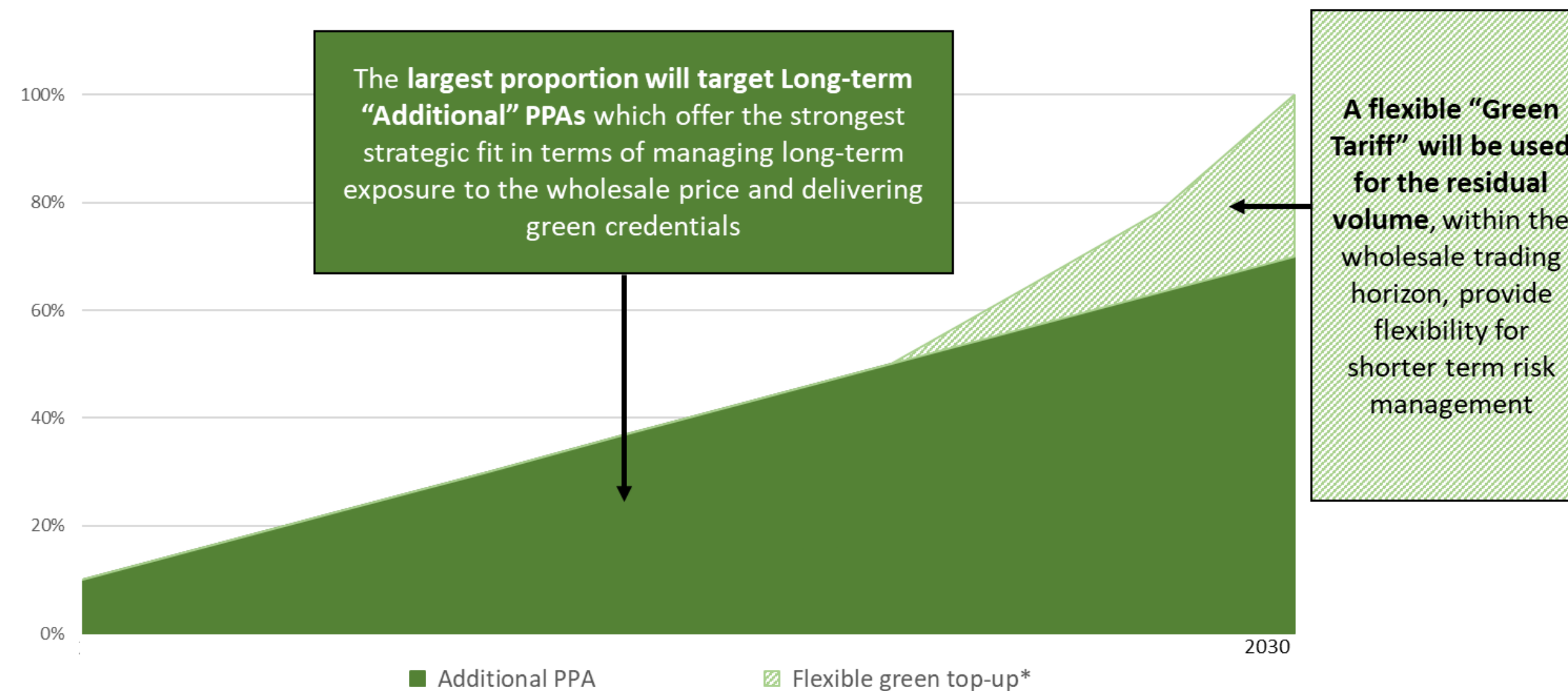
- **Price Risk**- Risk of drop in power prices over the contract tenor.
- **Shape and Imbalance Risks** - intermittent generation profiles requiring missing volumes in times of low generation. Pay-as-Produced puts this risk on the buyer (who typically transfers this to their supplier / sleeving agent) but the price cannot be fixed for more than three years).
- **Change in Law Risk**- Risk of bearing costs (or benefits) as a result of changes to regulatory structures. Generally costs and benefits fall on the buyer.





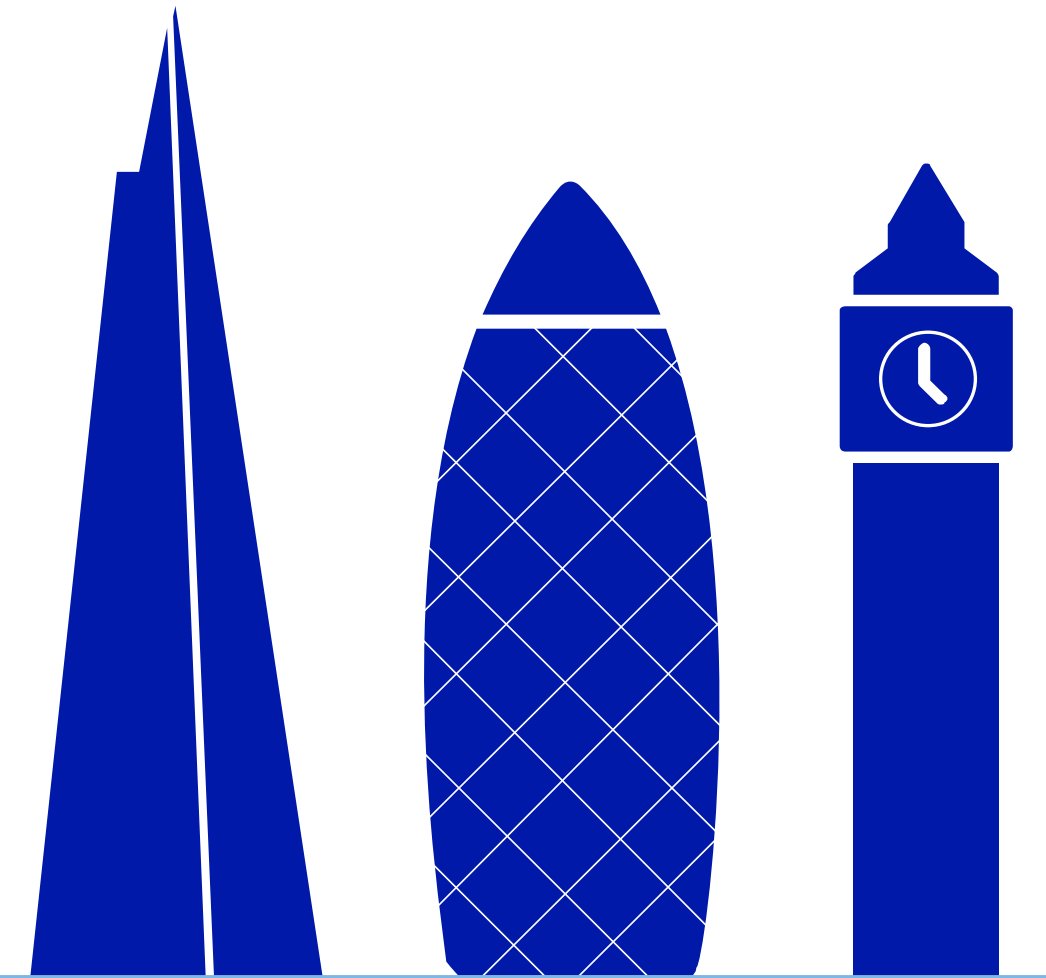
# Renewable energy: where are we now?

- Private Wire procurement due to go out Spring 2024
- First PPA procurement ('Comet') went live last year; due to conclude in the next couple of months.
- Currently setting the strategy for the next...





# Delivery: TfL's Net Zero Matrix Team





# Delivery

TfL formed a Net-Zero Matrix Team in Autumn 2023 to address a number of challenges that we are currently facing with making progress against our decarbonisation targets.

## Why

- Not moving quick enough on our net-zero challenge
- Competing priorities for insufficient resources and specialist expertise
- Novel projects of high uncertainty and low definition

## What

- Net increase in resources
- 100% of their time working on net-zero projects
- People working as co-located team within hybrid working policies

## End Benefits

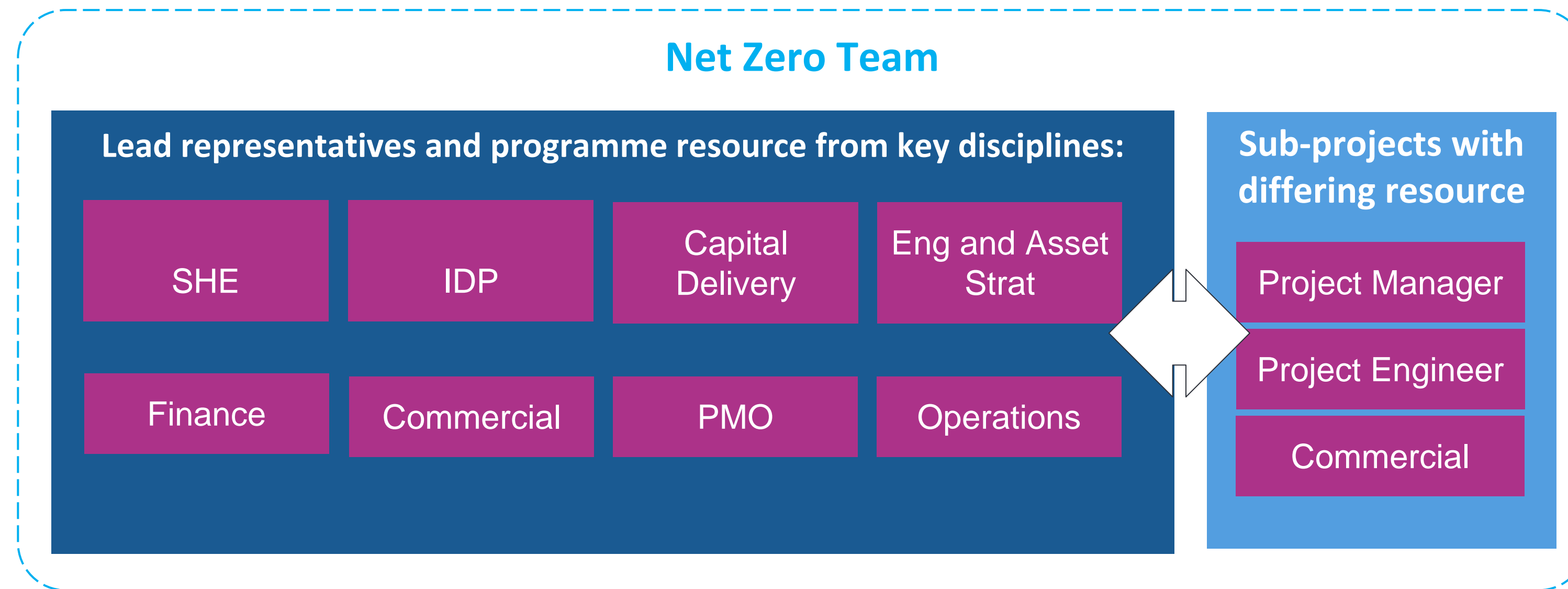
- Significantly improved deliverability of projects and initiatives
- Increased pipeline of delivery ready future projects
- Increased external funding through new partnerships, green financing and grants.





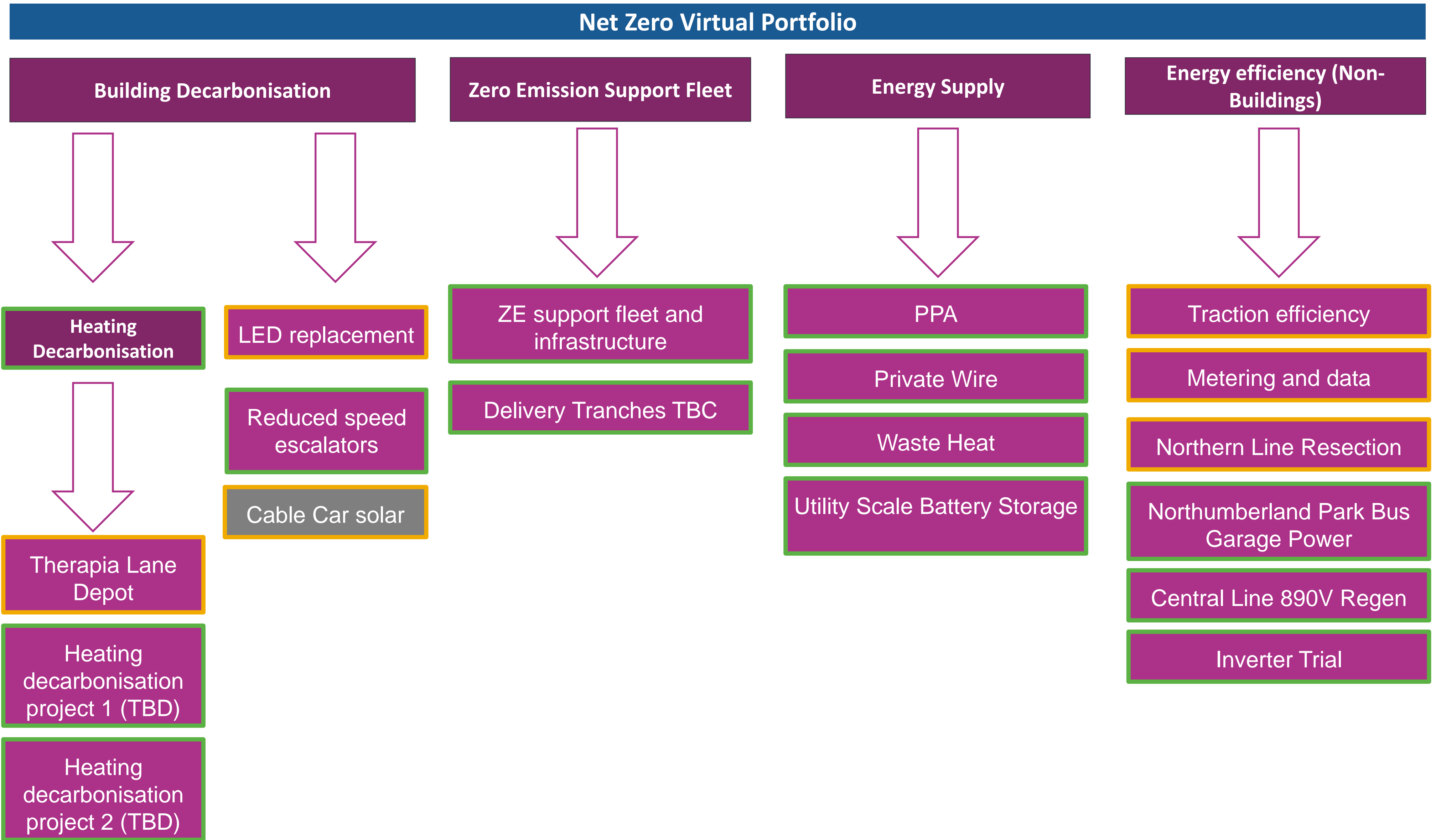
# NZMT Structure

- **Our net zero 2030 target is at risk** as we do not have sufficient resources to deliver in flight projects and spend the current funding we have available.
- **We need to start bringing additional resources now** and delay will make it hard as competition for the skills we need is getting more intense.





# Net Zero Portfolio



Key:

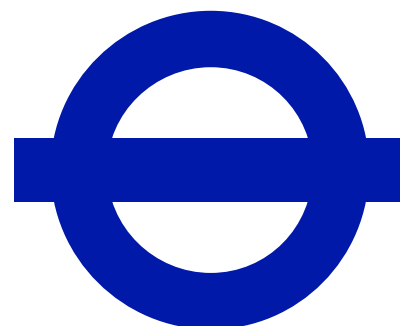
Programme

Project

Complete

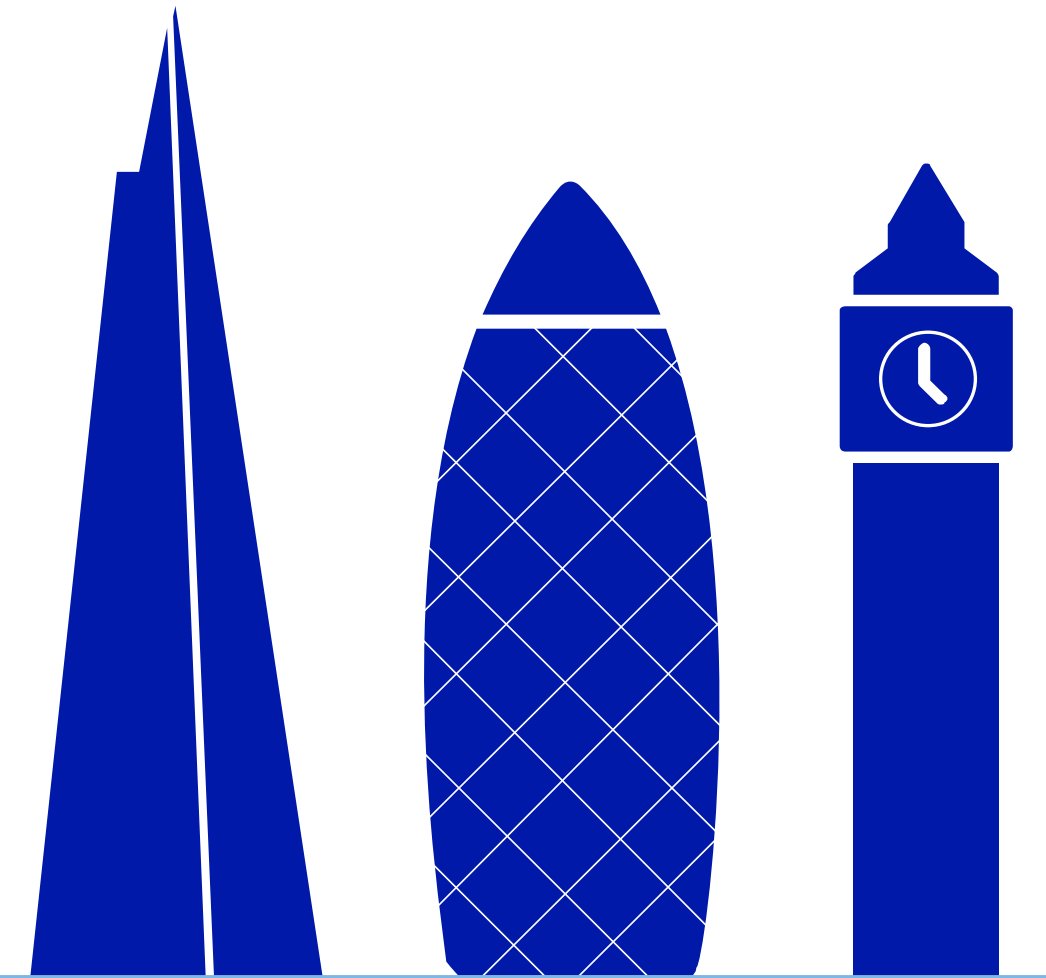
Managed by NZMT

Managed by other teams (NZMT informed)





Thank you for listening!







## *Learnings from the* **Mayor of London's Programmes** - Mark Williams, CIPFA

### **Role and introduction to the Mayor of London's office**

- Work for CIPFA across CIPFA Solutions / CIPFA Thinks / and CIPFA Develops
- Historically Big4, Consultancy, HMT/Cabinet Office including as p/t funding and finance advisor on MoL / GLA Retrofit Acceleration – Workplaces and Homes
- Now, CIPFA consulting, thought leadership and training, including micro-modules / Green Finance Day, ICAEW/CIPFA Sustainability Certificate and Better Business Cases





## *Learnings from the* **Mayor of London's Programmes** - Mark Williams, CIPFA

### **Why is Net Zero important to the Mayor of London's office?**

- London Environmental Strategy – air quality, green spaces, environmental challenges
- Includes a coordinated, pan public services approach to public building / social housing retrofit and micro generation





## *Learnings from the* **Mayor of London's Programmes** - Mark Williams, CIPFA

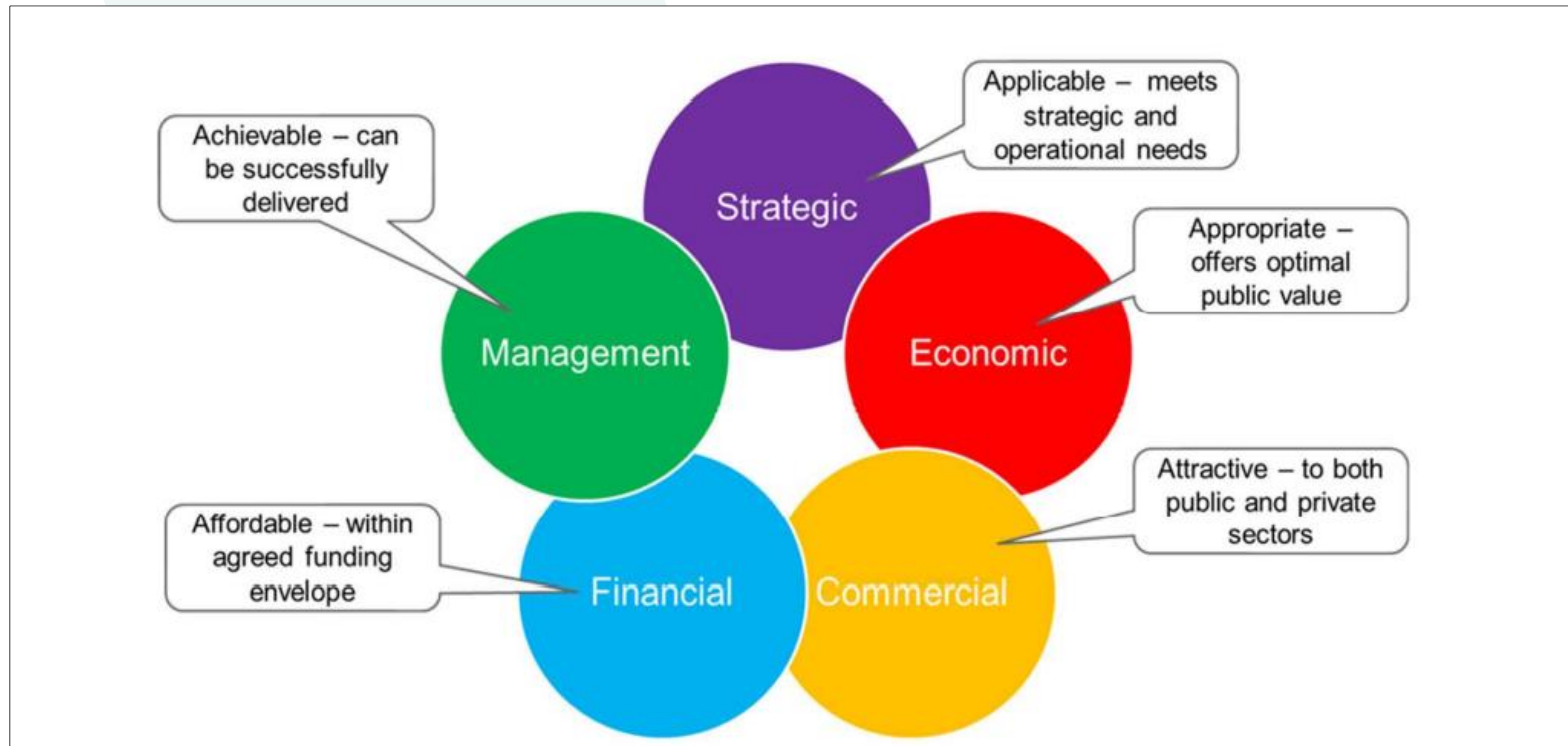
### **Journey to Sustainability goals**

- Ambitious targets to cut carbon emissions in London by 60 per cent by 2025. The Mayor also aims for London to be a zero-carbon city by 2030, with energy efficient buildings, clean transport and clean energy
- HMT Better Business Case / five case model – strategic case is very clear, so focus on other cases – benefits, costs and risks / options, commercial delivery, funding and finance, programme of projects and sequencing



## Making the Net Zero Business Case

Using HMT's Better Business Case approach to bring structure to the decision making and to programme and project delivery







## *Learnings from the* **Mayor of London's Programmes** - Mark Williams, CIPFA

### **Outcomes/Delivery**

- Retrofit Accelerator – Workplaces - 10+ years, 1,000+ public buildings, 300 projects, 10 week turn around. How?



## Publicly available case studies

- Mayor of London's Retrofit Accelerator – Workplaces
- Mayor of London's Retrofit Accelerator – Homes
- Energiesprong – deep retrofit solution for homes
- Glasgow City Region – programme business case to retrofit one million homes
- National Highways – net zero and corporate carbon KPI
- Sheffield Street Trees – public inquiry
- City Council – distress solar project turn around
- Dept for Energy Security and Net Zero / Salix – Public Sector Decarbonisation Scheme grants
- Santander and GE Lighting – “energy as a service model”



*Complex and often risky programmes, projects, commercial and financing arrangements mean that Finance Professionals have a key role to play across measurement and delivery*



## Reflections (1 of 2)

- Net Zero / Tackling the climate emergency / ESG isn't starting from zero – horizon scanning / learning the lessons
- Disconnect between strategic and operational – importance of stakeholders and comms
- Offset / Green Tariffs
- Programmes of projects – not all will go well. Consider sequencing
- Historically considered paybacks / commercial returns – now wider socio-economic benefits including – job creation, health and well-being, addressing fuel poverty, energy savings, resilience, mitigation, addressing backlog maintenance, property values, etc
- Benefit, cost, risk ratios are compelling (especially post energy price hikes and with concerns around security of supply)
- ESG / Sustainability Public Sector Reporting work



## Reflections (2 of 2)

- Linked to UN 17 SDGs
- New Procurement Regs and Social Value
- Captive supply chain and inflation
- New technology / data / MoD example – and elsewhere kit not being used
- Funding vs financing
- Corporate vs project finance
- Is ESG investment – but for right / right size projects
- Start, and if you are going to fail, fail fast



# CIPFA Journey to Net Zero



**SABER**  
RENEWABLE ENERGY

Finance meets Innovation in  
Renewable Technology and  
Sustainable Strategy

Ashley Bullock

Commercial Director

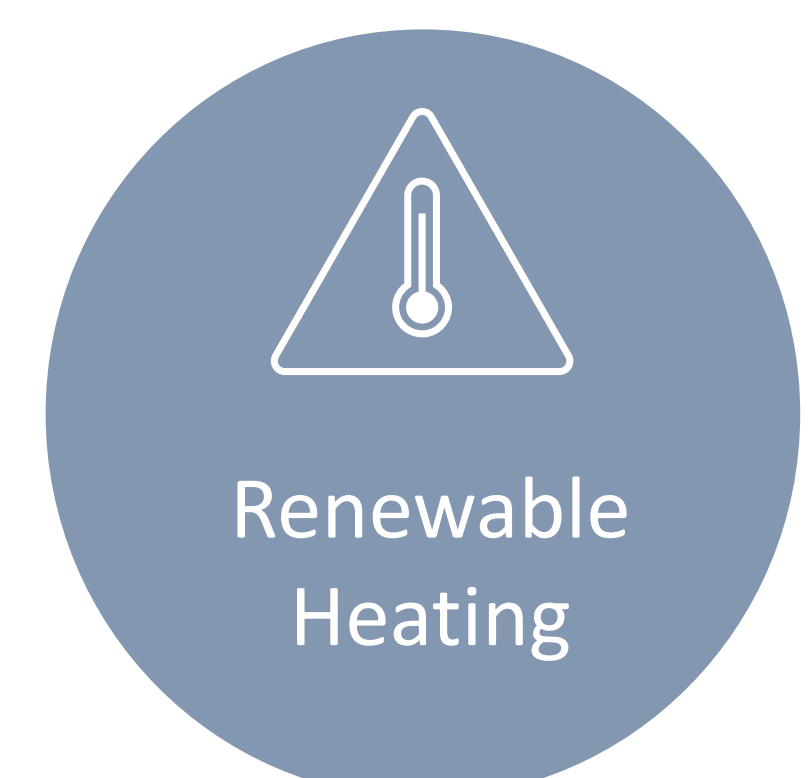
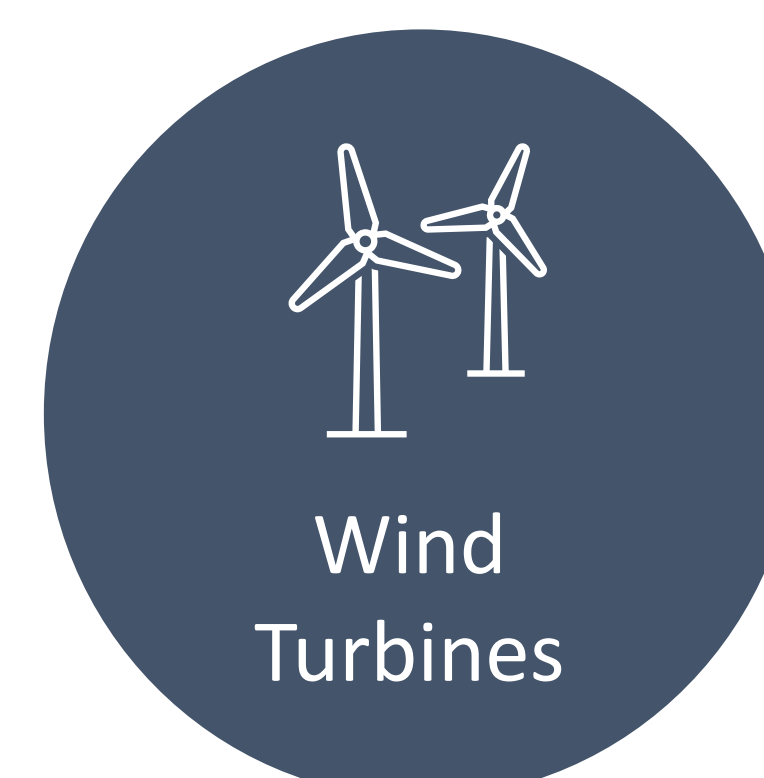
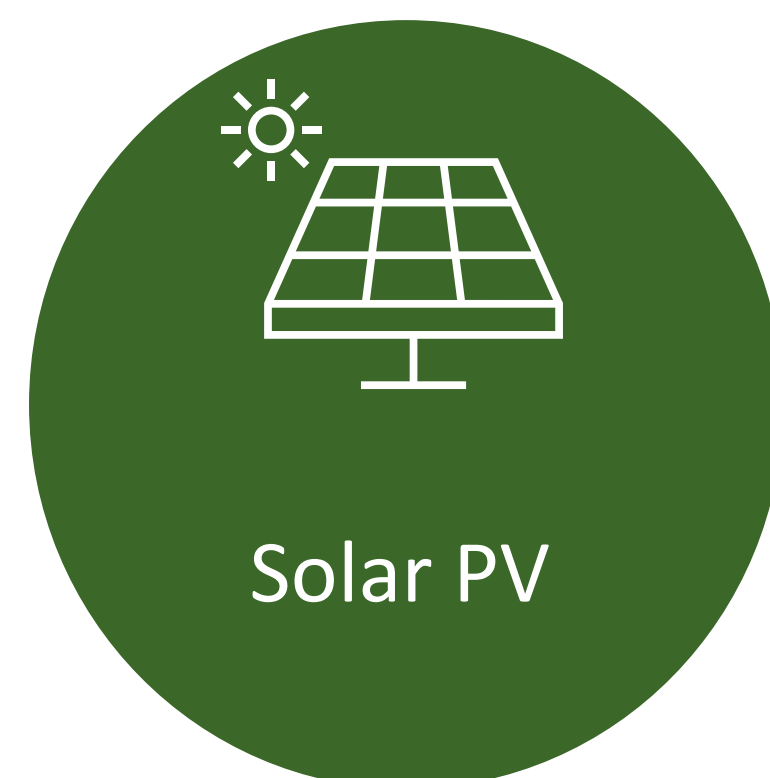
[saberrenewables.com](http://saberrenewables.com)



**Welcome to Saber Renewables, where Finance meets innovation in Renewable Technology and Sustainable Strategy.**

With a **data-driven approach** and a legacy of thought leadership, our team brings **decades of collective experience** to the forefront of your Net Zero journey.

At the heart of our business is a passion for **driving positive change**, making us your **trusted partner** in navigating the evolving landscape of **sustainable energy solutions** and the **journey to Net Zero**.





# Introduction

- Why is Net Zero important to Saber Renewables?

Embracing Net Zero is crucial for our company, **aligning Financial strength** with **Environmental Responsibility**.

By **reducing our carbon footprint, optimising resource use, and investing with sustainability** in mind at all times, we contribute to a **healthier planet** and a **healthier business**.

This strategic focus fosters **long-term financial stability and competitiveness**, and **contributes towards a sustainable future for our business** and **the world we operate in**.



What does Net Zero mean to you?

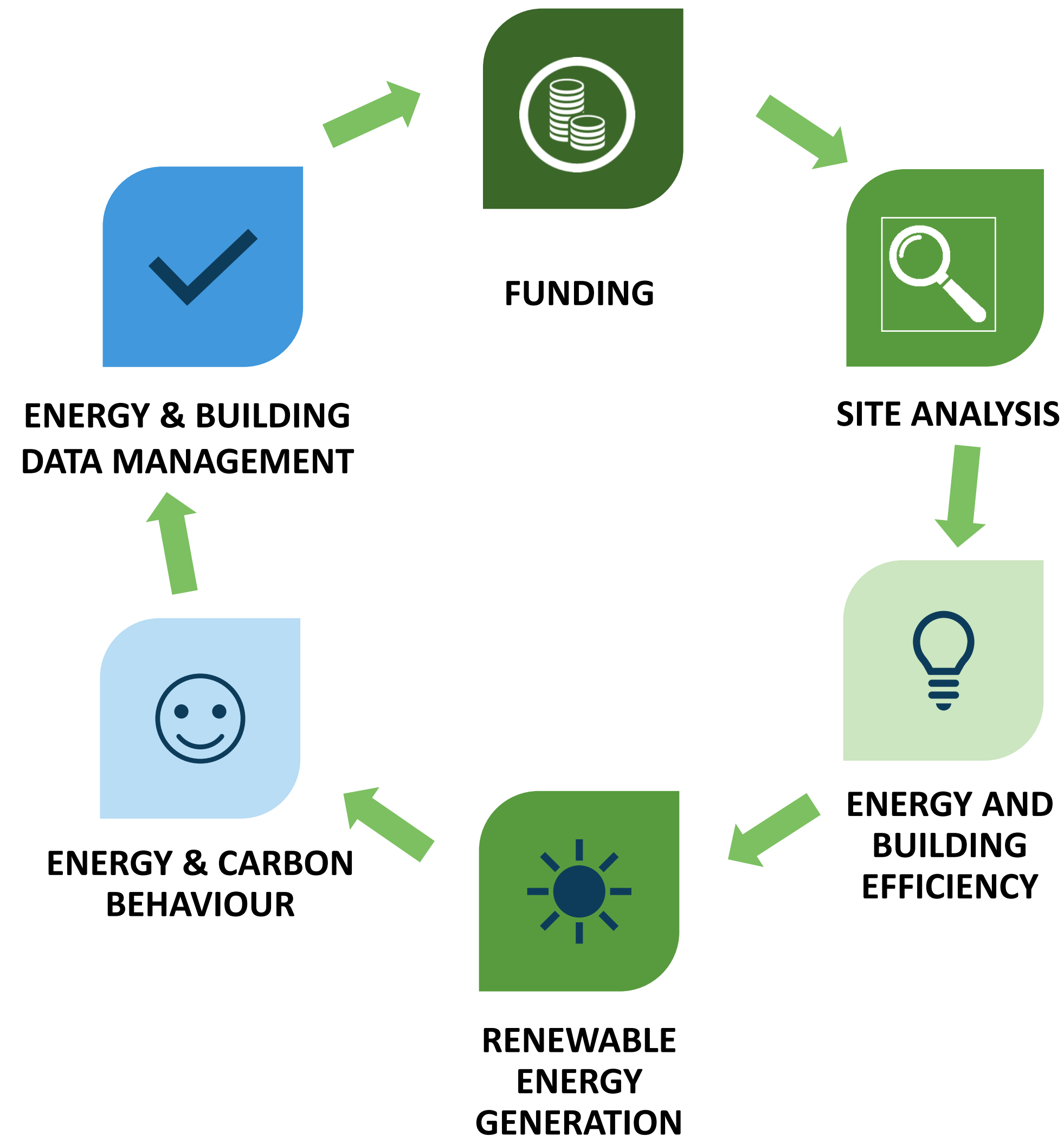
Join at  
**slido.com**  
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LIVE POLL



# Achieving Net Zero: A Financial Perspective



## Balancing Environmental and Financial Sustainability

Achieving net zero for an organisation is like carefully managing a budget, where the company aims to spend only as much as it saves.

Create a balanced and sustainable Energy & Carbon plan for your organisation.



# 1. Funding & Finance

We provide clients with Five core Funding routes to deliver Net Zero Projects.





## 2. Site & Energy Analysis



SITE ANALYSIS

### Analysis of Existing Buildings & Systems

- Is the building leaking heat?
- Are the mechanical and electrical systems old and inefficient?
- Are systems being left on and wasting energy?





### 3. Energy Efficiency Investments



ENERGY AND  
BUILDING  
EFFICIENCY

The goal here is to improve the Energy Efficiency of your Buildings and Systems by using the least amount of resource (energy) whilst producing the most effective output Eg Light and heat.

#### Examples

- **Fluorescent Lighting > LED 2-3 times more efficient**
- **Gas boilers > Heat Pumps – 3.6 times more efficient**
- **Single Glazed > Double Glazed.**





# 3. Energy Efficiency Investments



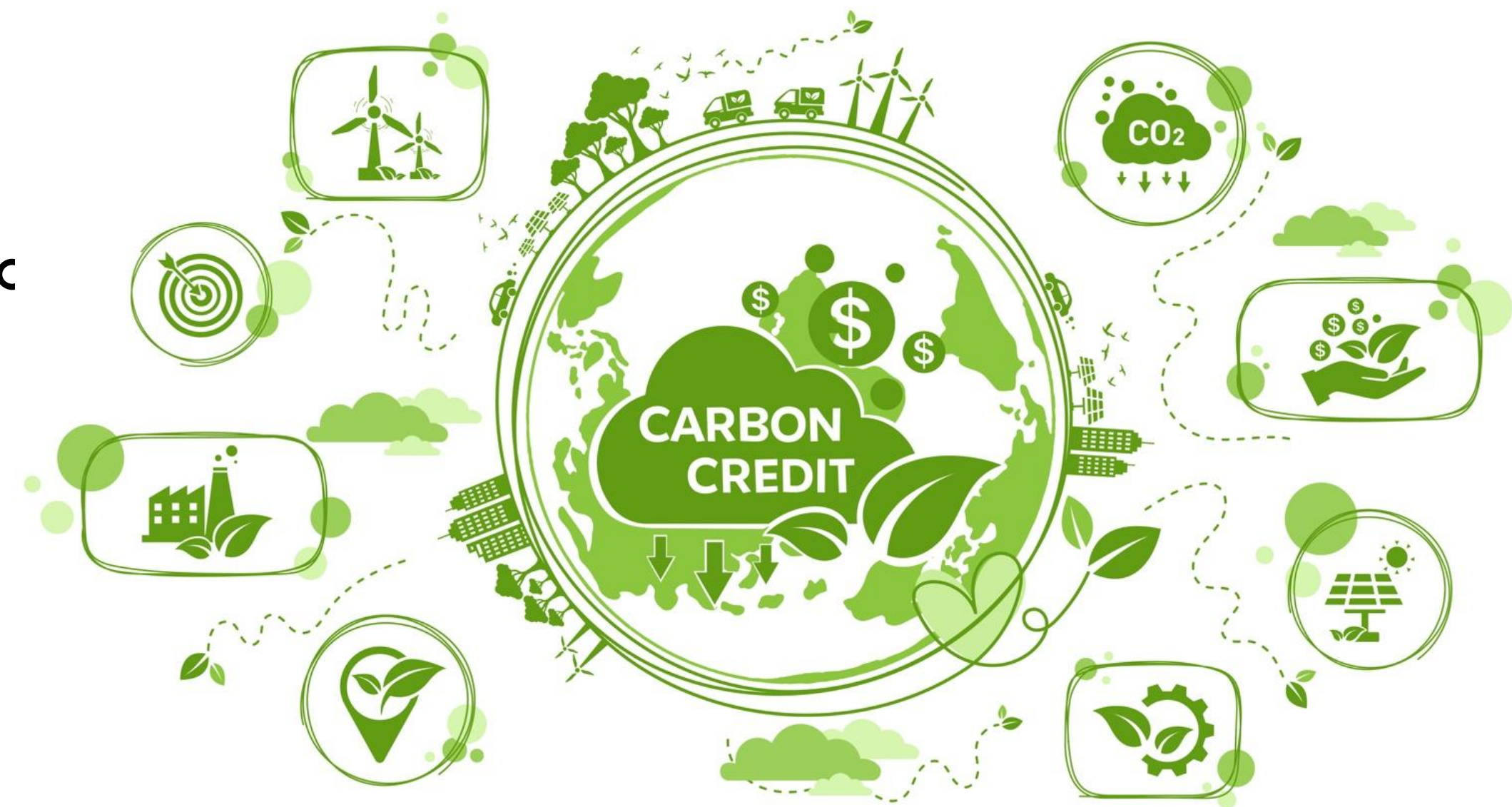
**ENERGY AND  
BUILDING  
EFFICIENCY**

## Supply Chain Optimisation

Collaborating with eco-friendly suppliers and streamlining processes are our sustainable spending strategies, contributing to a healthier planet. This is how we manage our environmental budget efficiently.

## Waste Reduction

Implementing waste reduction strategies.  
Promoting recycling and circular economy practices.  
Cutting unnecessary expenses in financial management.

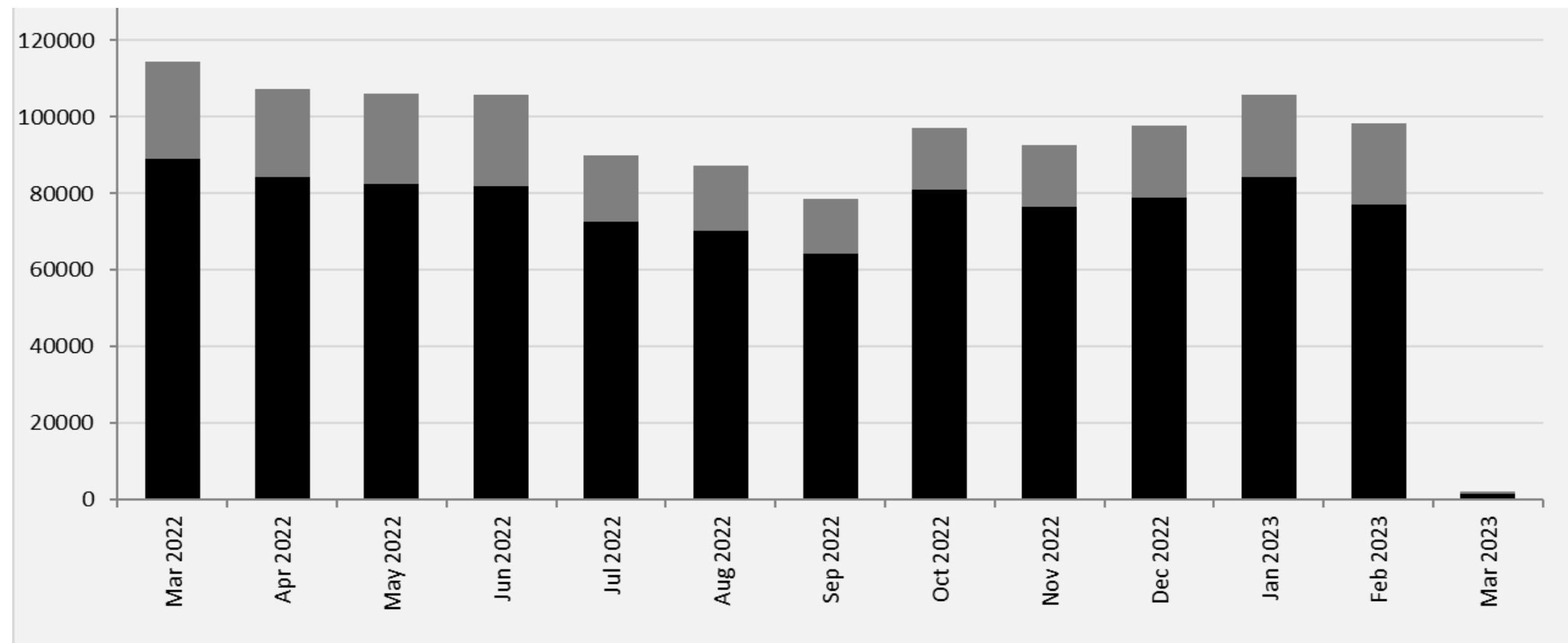




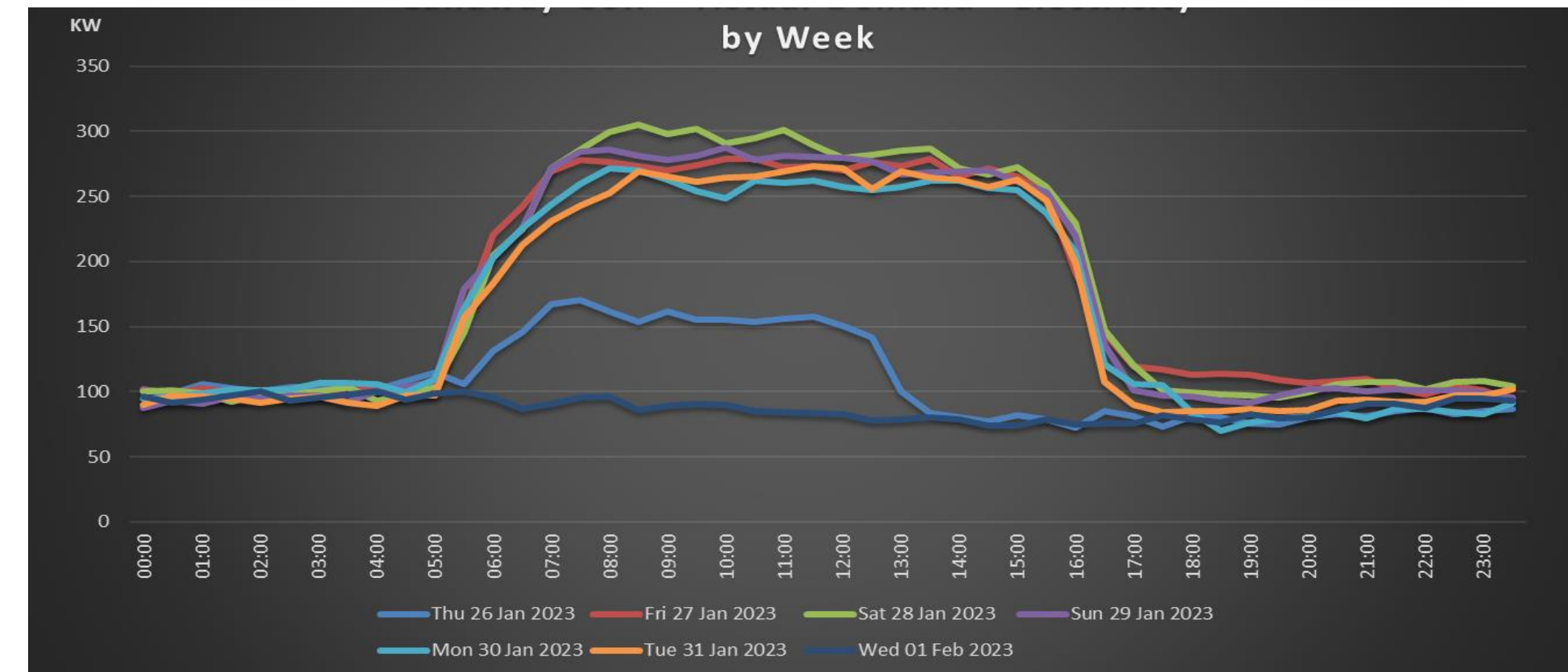
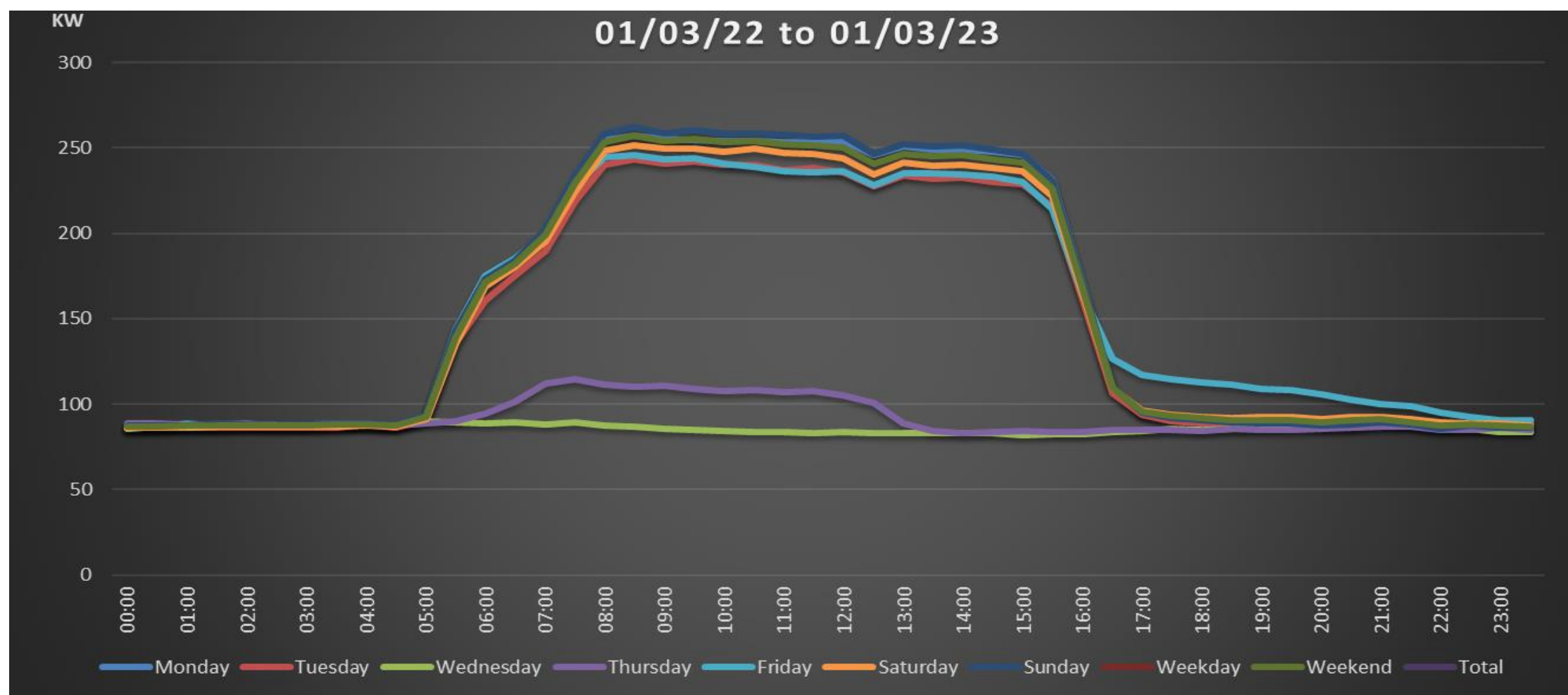
# 4. Generating Clean, Renewable Energy



**RENEWABLE  
ENERGY  
GENERATION**



**How much electricity does our building need to function efficiently and effectively?**



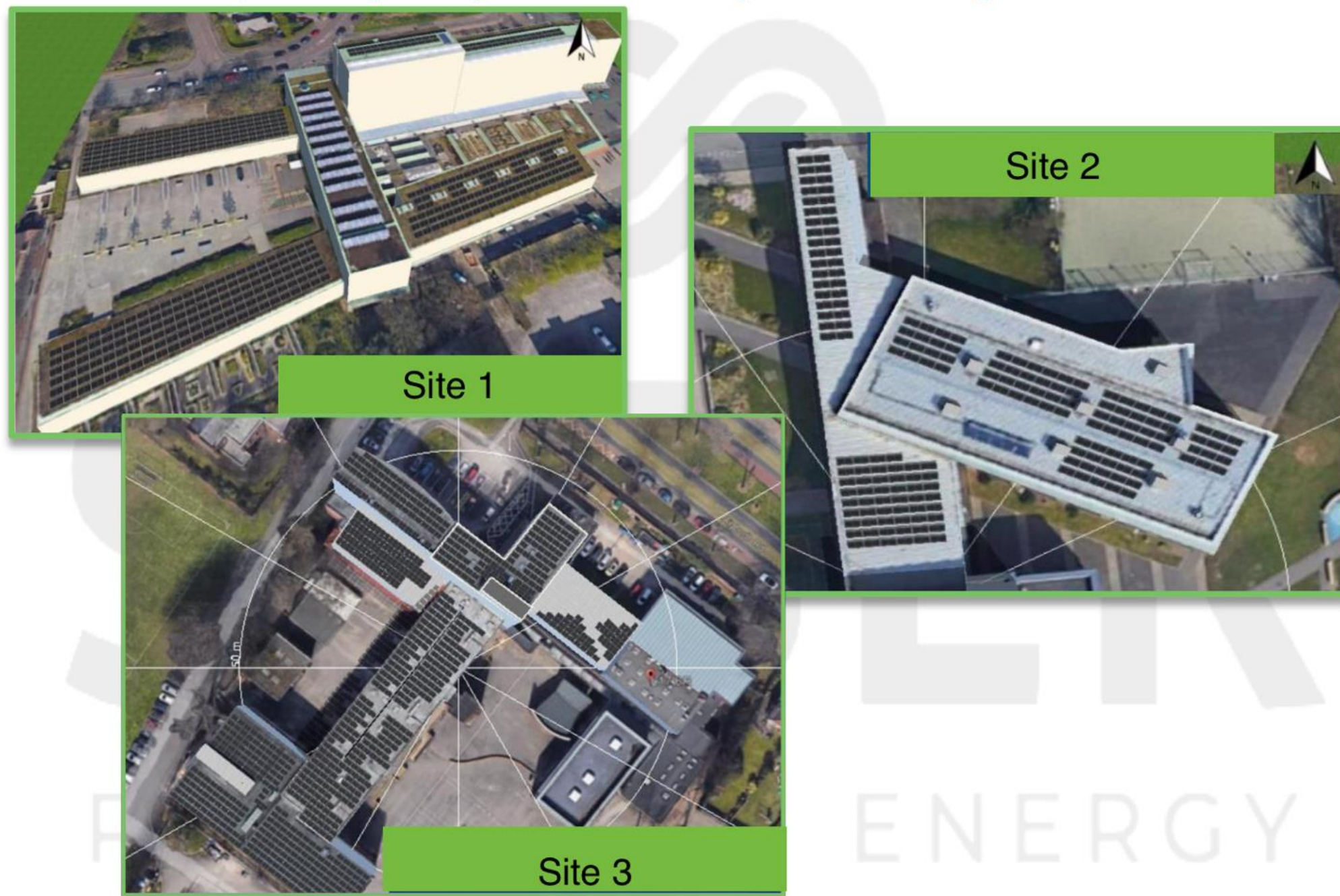


# 4. Generating Clean, Renewable Energy



## RENEWABLE ENERGY

How can we meet our Energy demand through Solar PV, Wind Turbines & Renewable technology?



PV System	
PV Generator Output	306.00 kWp
Spec. Annual Yield	1,016.62 kWh/kWp
Performance Ratio (PR)	93.20 %
Yield Reduction due to Shading	0.6 %
PV Generator Energy (AC grid)	
Own Consumption	278,649 kWh/Year
Down-regulation at Feed-in Point	0 kWh/Year
Grid Export	32,486 kWh/Year
Own Power Consumption	89.6 %
CO <sub>2</sub> Emissions avoided	64,395 kg / year

PV Generator Energy (AC grid)



Own Consumption  
Down-regulation at Feed-in Point  
Grid Export

Appliances	
Appliances	1,181,233 kWh/Year
Standby Consumption (Inverter)	48 kWh/Year
Total Consumption	1,181,281 kWh/Year
covered by PV power	278,649 kWh/Year
covered by grid	902,632 kWh/Year
Solar Fraction	23.6 %

Total Consumption



covered by PV power covered by grid

**Swindon 306kWp**

Level of Self-sufficiency	
Total Consumption	1,181,281 kWh/Year
covered by grid	902,632 kWh/Year
Level of Self-sufficiency	23.6 %



## 4. Generating Clean, Renewable Energy



RENEWABLE  
ENERGY  
GENERATION

**Could we produce a profit from the surplus electricity we generate?**





# 5. Energy & Carbon Behaviour Change



## ENERGY & CARBON BEHAVIOUR

### Employee Engagement

Educating and engaging employees in sustainable practices.

Fostering a culture of environmental responsibility.

Correlation to building a financial plan with employee involvement.

### Carbon Offset Initiatives

Investing in projects like reforestation or renewable energy.

Compensating for unavoidable emissions.

Balance the 'Sustainability Budget'



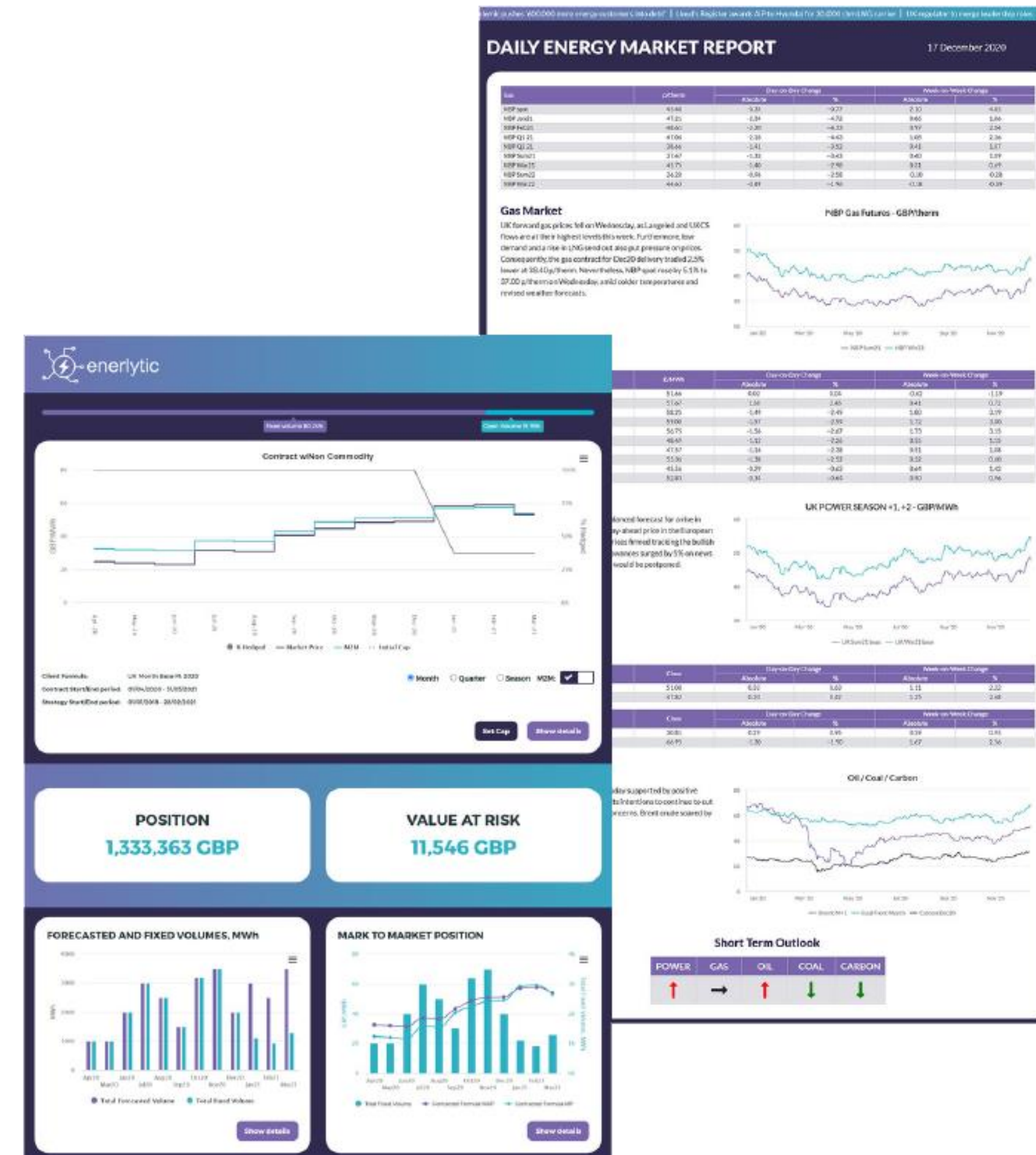


# 6. Energy Data Monitoring and Reporting



**ENERGY DATA  
MONITORING &  
MANAGEMENT**

- ✓ **Data Driven Outcomes**
- ✓ **Establishing robust monitoring systems.**
- ✓ **Regular assessment and reporting of progress.**
- ✓ **Similarities to regular financial plan reviews.**





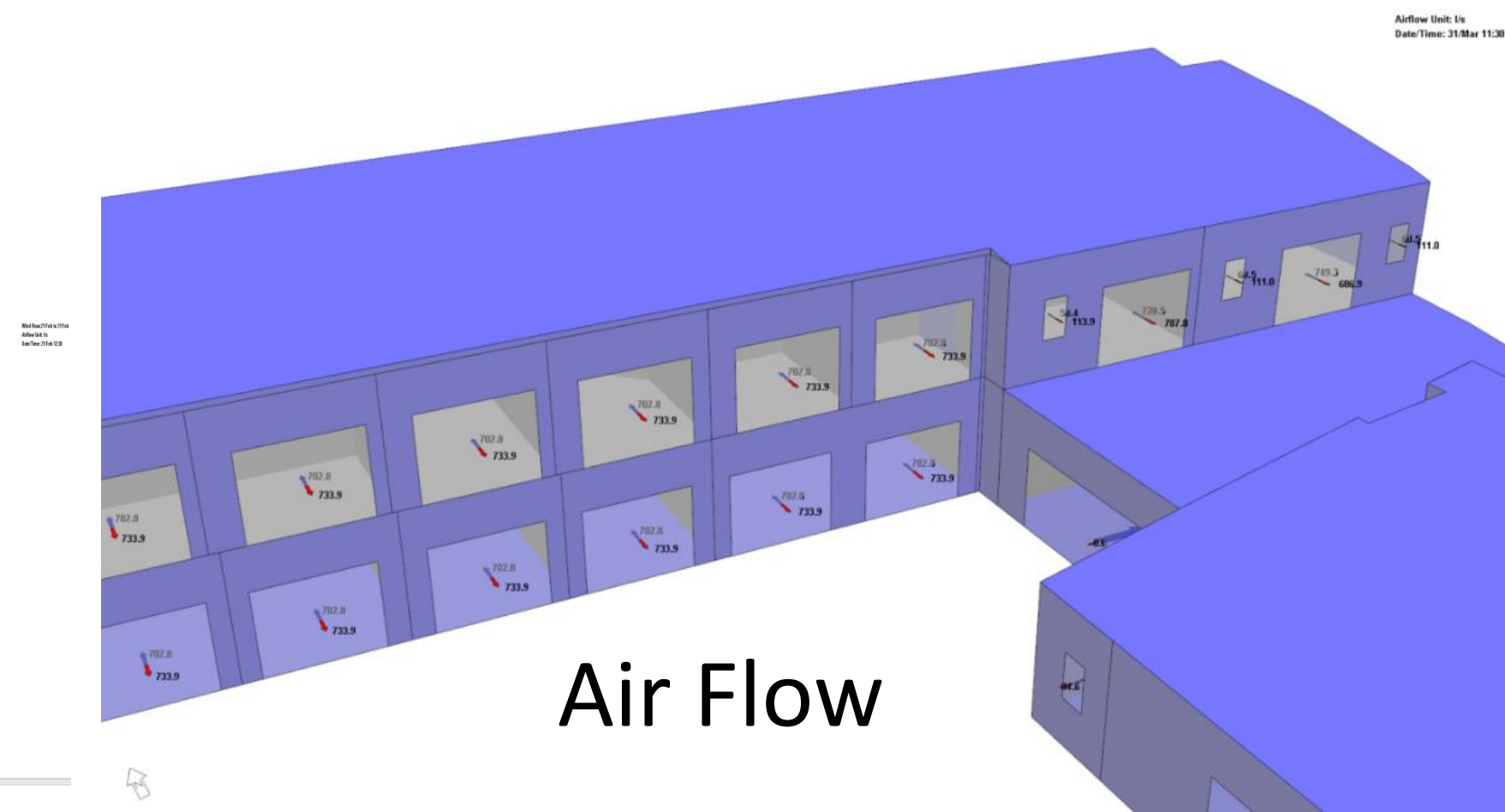
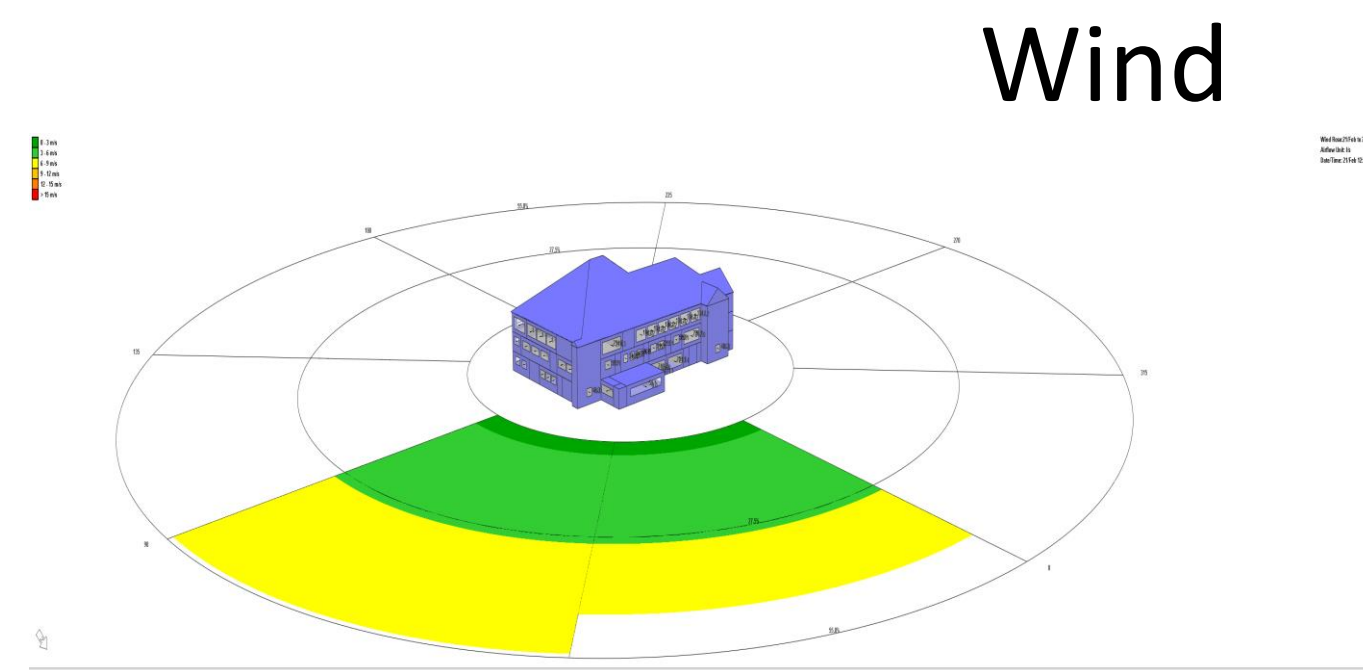
## 6. Digital Twin – Building Information Modelling

- ✔ **Digital twins offer a fantastic opportunity to optimise sites** (heat loss, fabric improvements, forecasting energy costs scenarios etc.) and increase energy savings thereby yielding much shorter payback period
- ✔ **Digital twins significantly reduce risk over a long-term period**

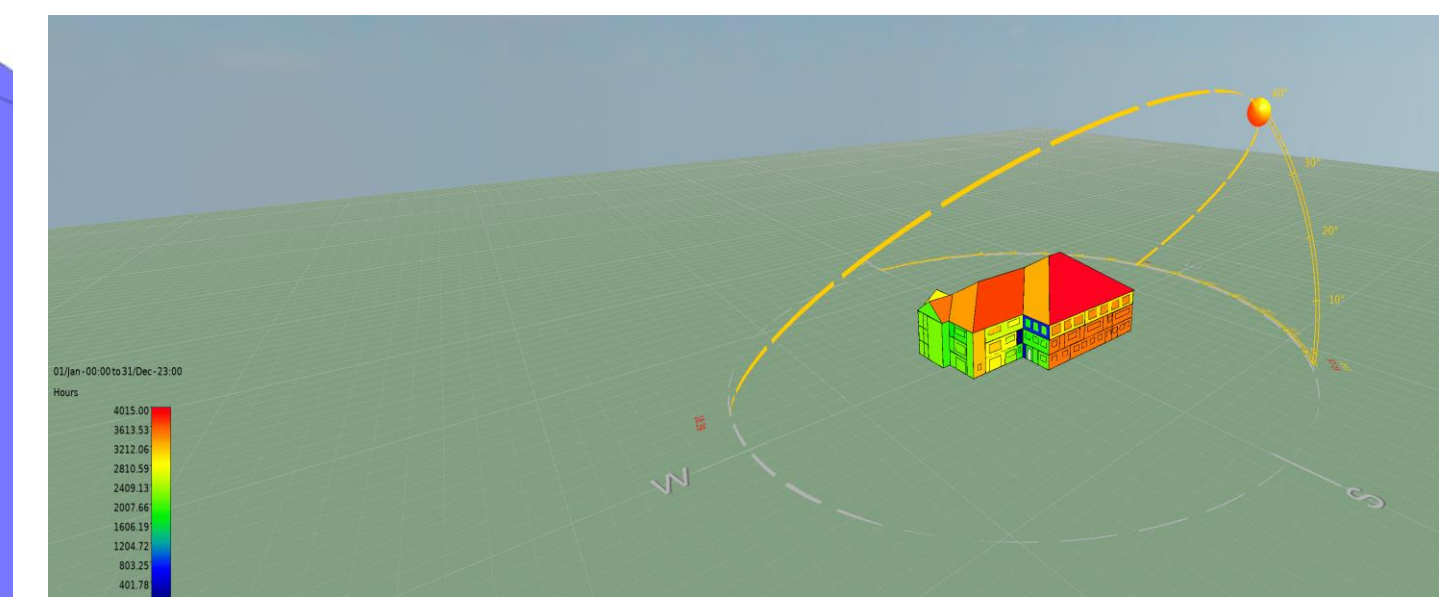


ENERGY DATA  
MONITORING &  
MANAGEMENT

BACB  
RENEWABLES



Solar Gains

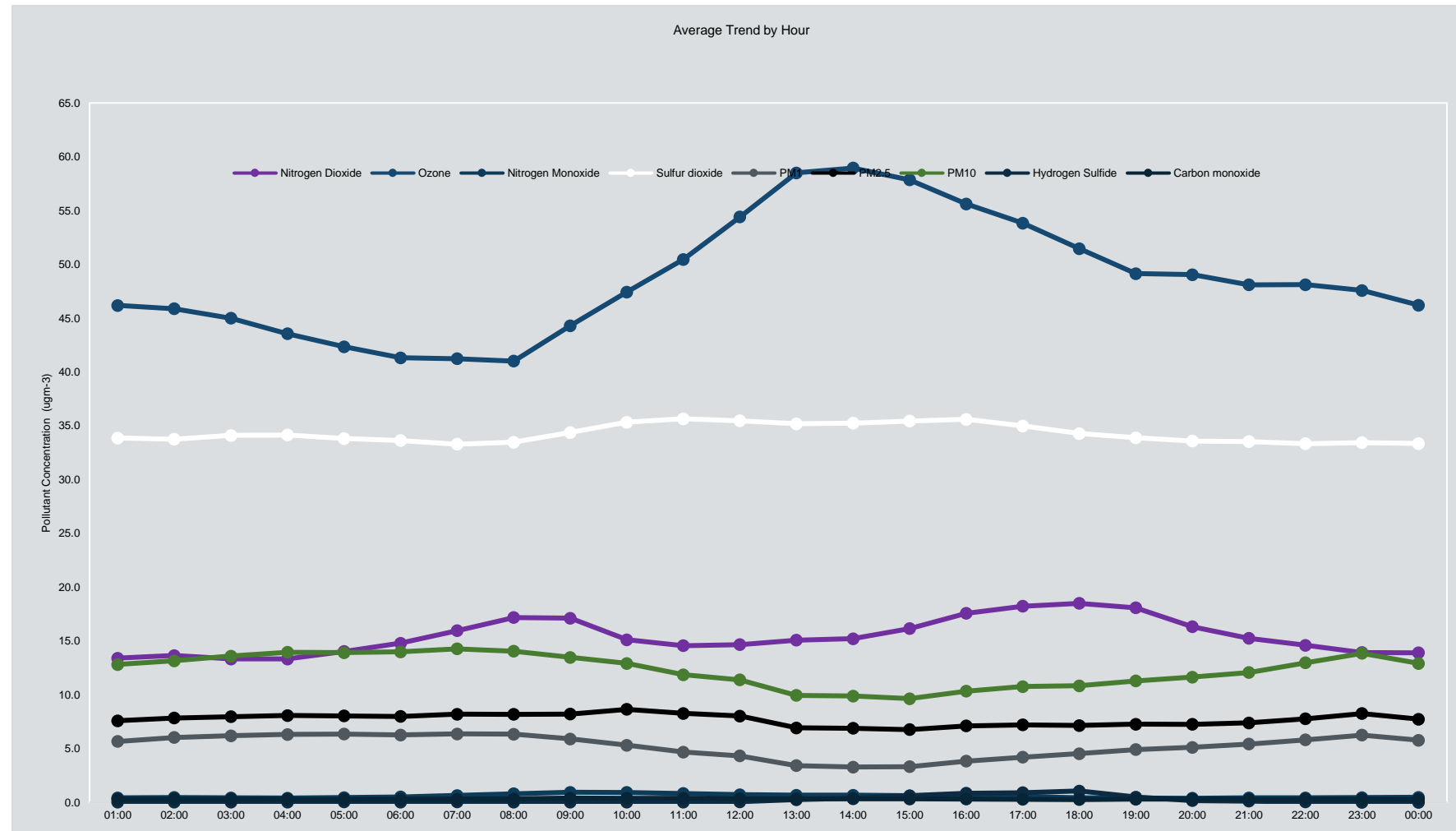




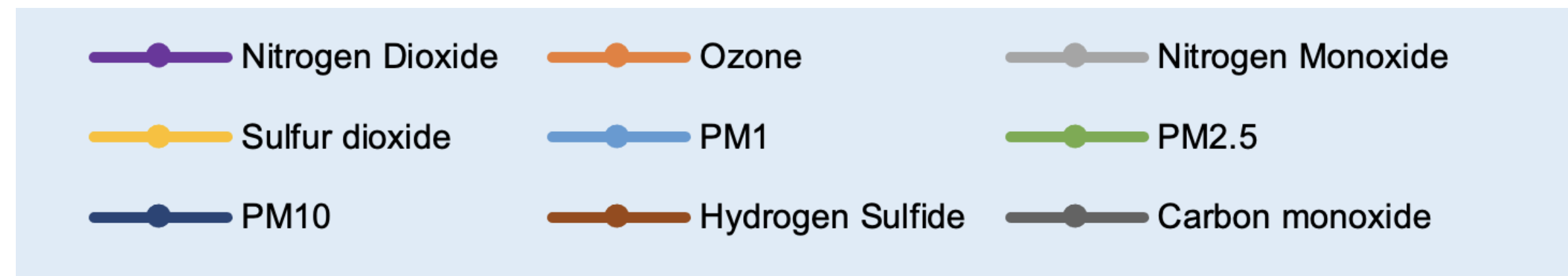
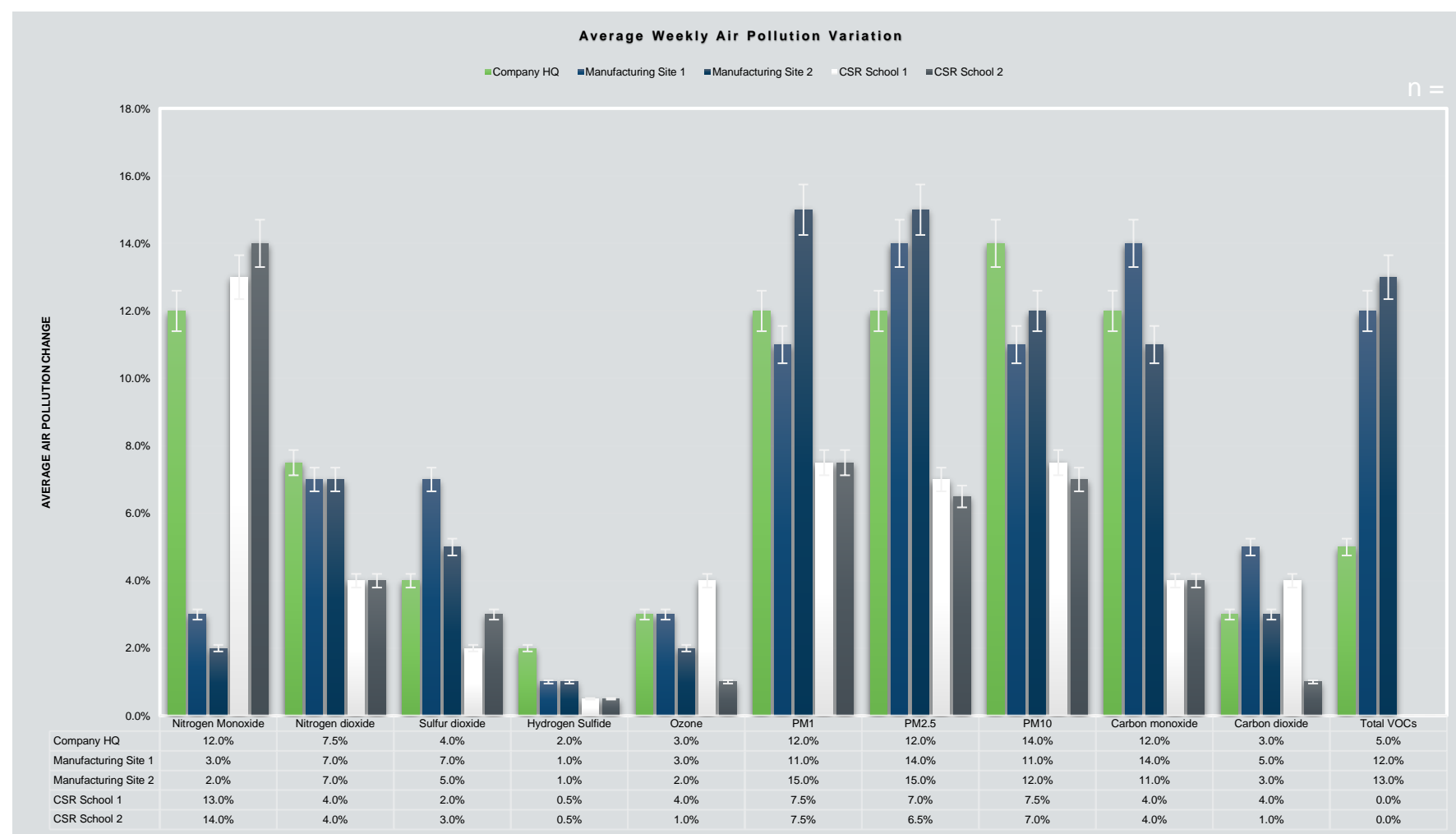
# 2024 + Continuous Air Quality Monitoring



ENERGY DATA  
MONITORING &  
MANAGEMENT

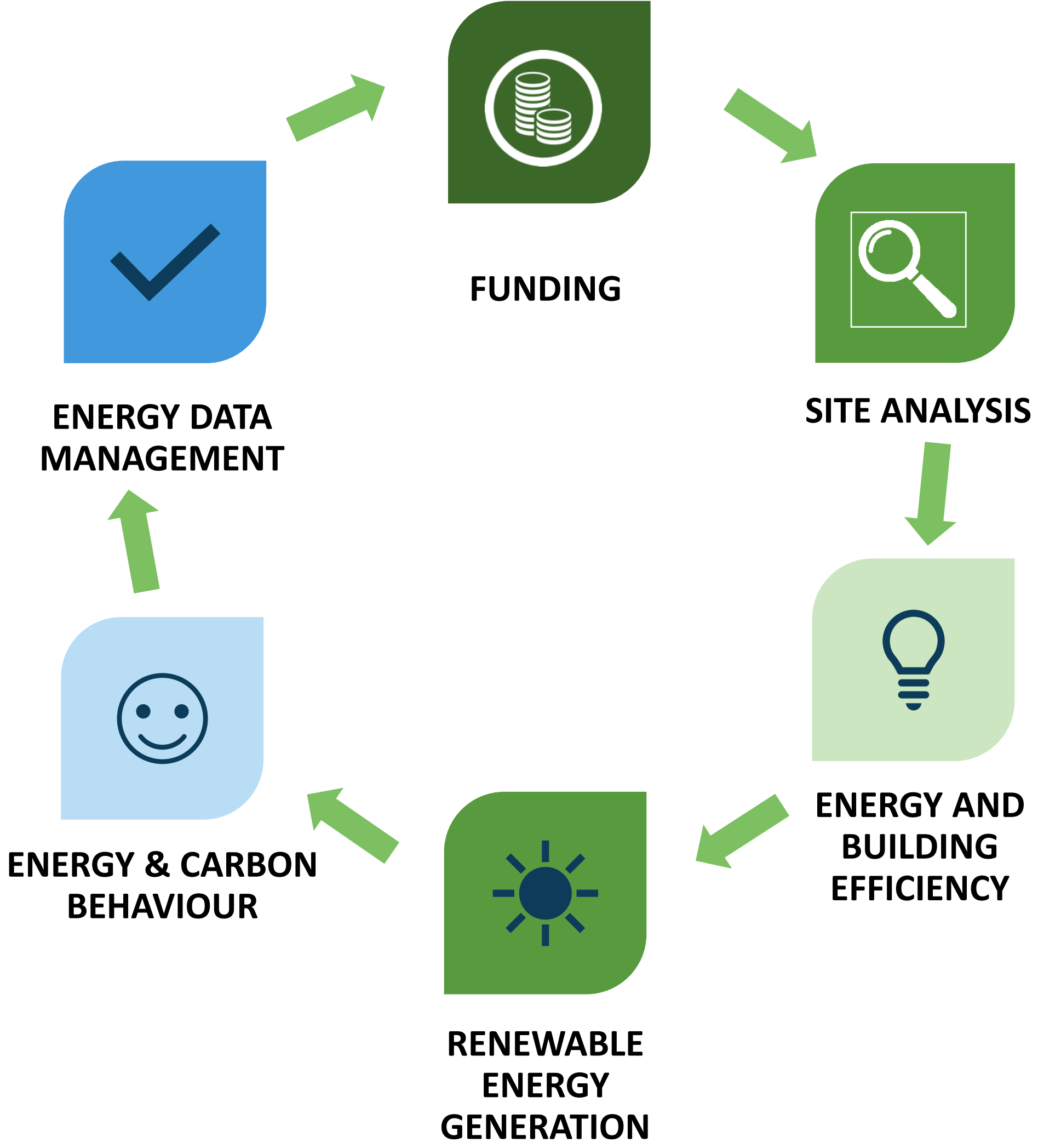


- Provides continuous Air Quality monitoring of 10 keystone fossil fuel economy pollutants
- Instrumental to validate parking restrictions near schools
- Data informs air pollution hotspots when combined into a regional network.





# Leading your organisation to Net Zero



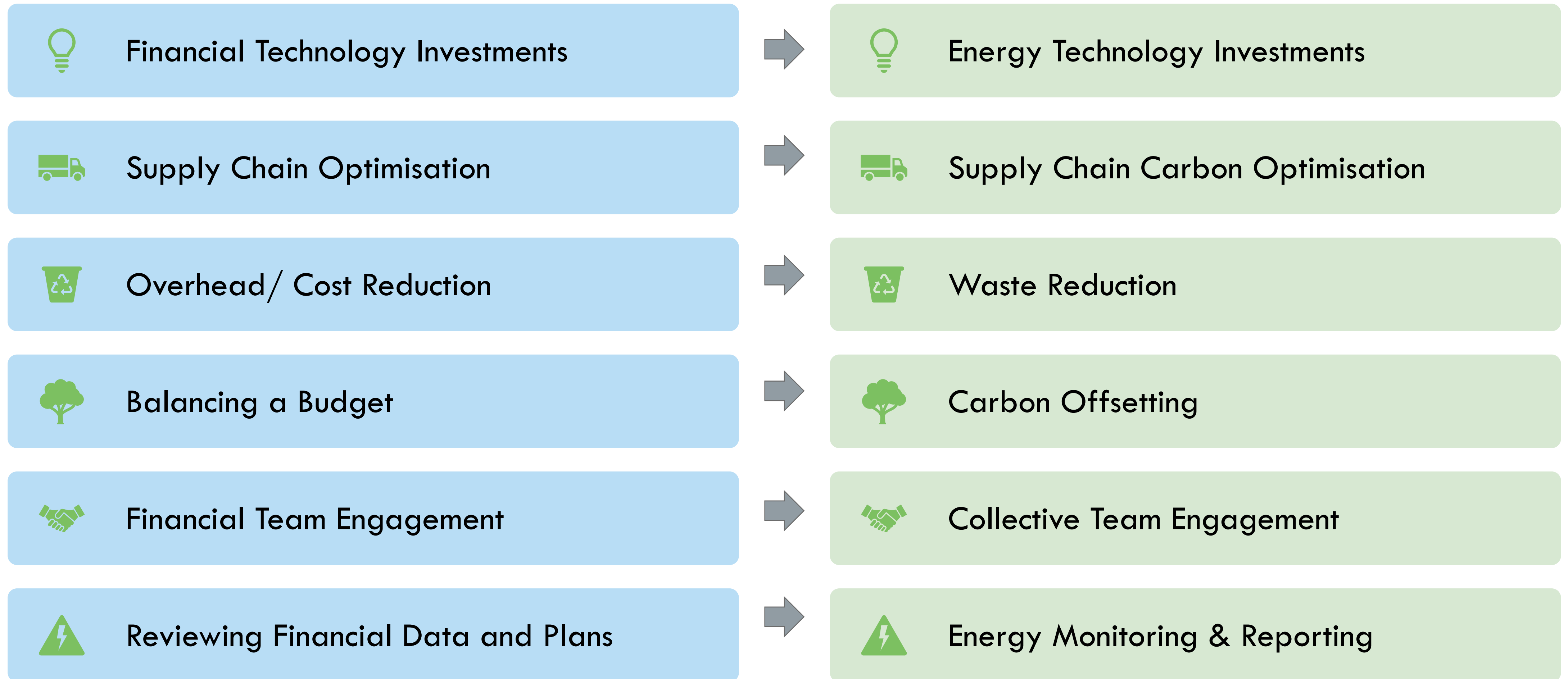
 Positive impact on both financial and environmental sustainability.

 Improved efficiency, reduced costs, and enhanced brand reputation.

 Illustration of the interconnectedness of financial and environmental success.



# Achieving Net Zero: A Financial Perspective – Recap!





# Funding your Journey to Net Zero

Finance meets Innovation in  
Renewable Technology and Sustainable Strategy.



Realise your Sustainable Energy Goals with Saber





@ashleyjamesbullock  
@saberrenewables



**SABER**  
RENEWABLE ENERGY

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What does Net Zero mean to you?

Join at  
**slido.com**  
**#1447 657**



LIVE POLL





**E.ON**

Phil McDermott

**Role and introduction to EON**

**Why is Net Zero important to E/ON?**

**Journey to Sustainability goals**

**Outcomes/Delivery**





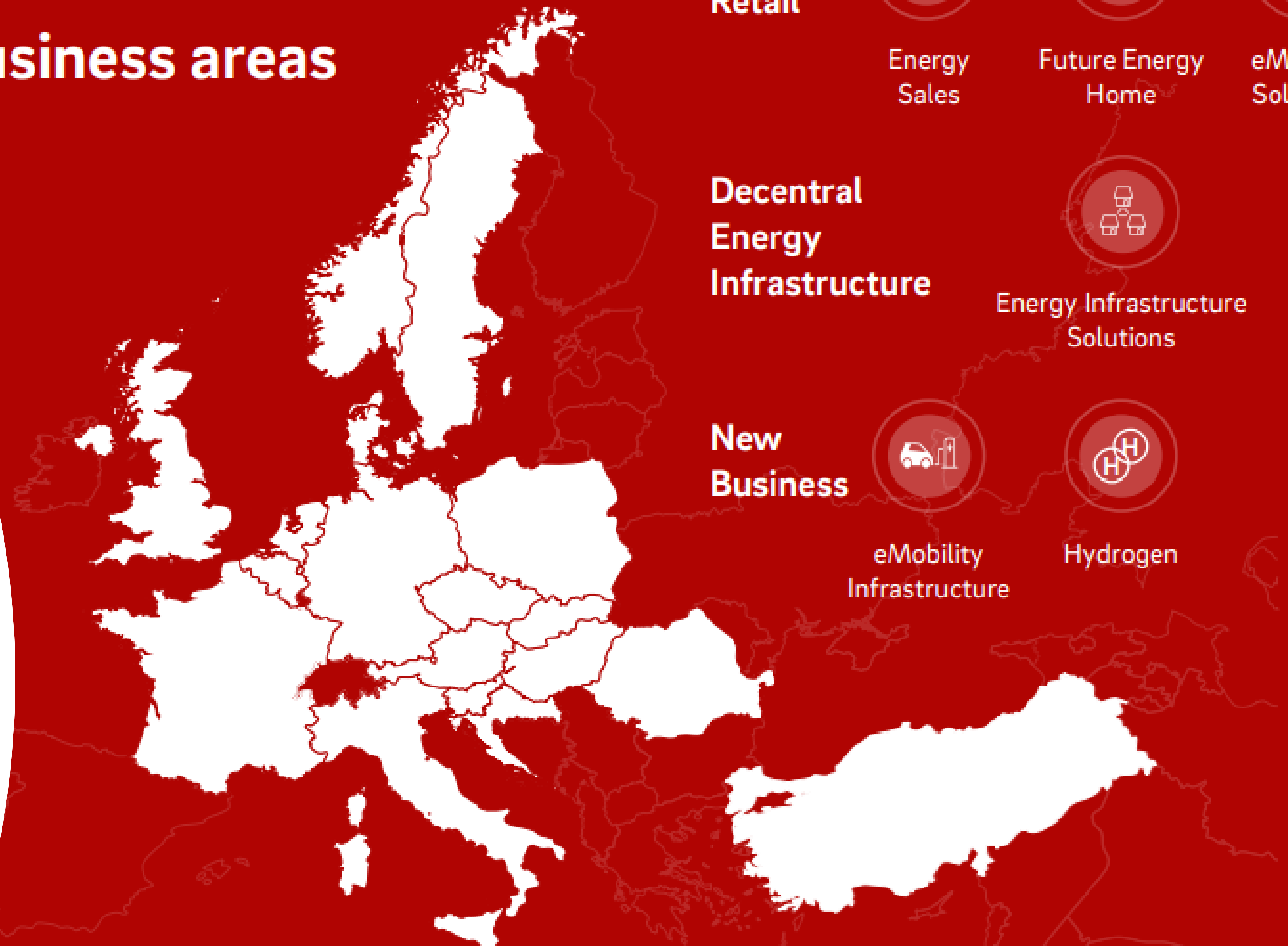
# E.ON's main markets and business areas

Our decarbonisation promise

CO<sub>2</sub> Scope 3

-50% by 2030

-100% by 2050

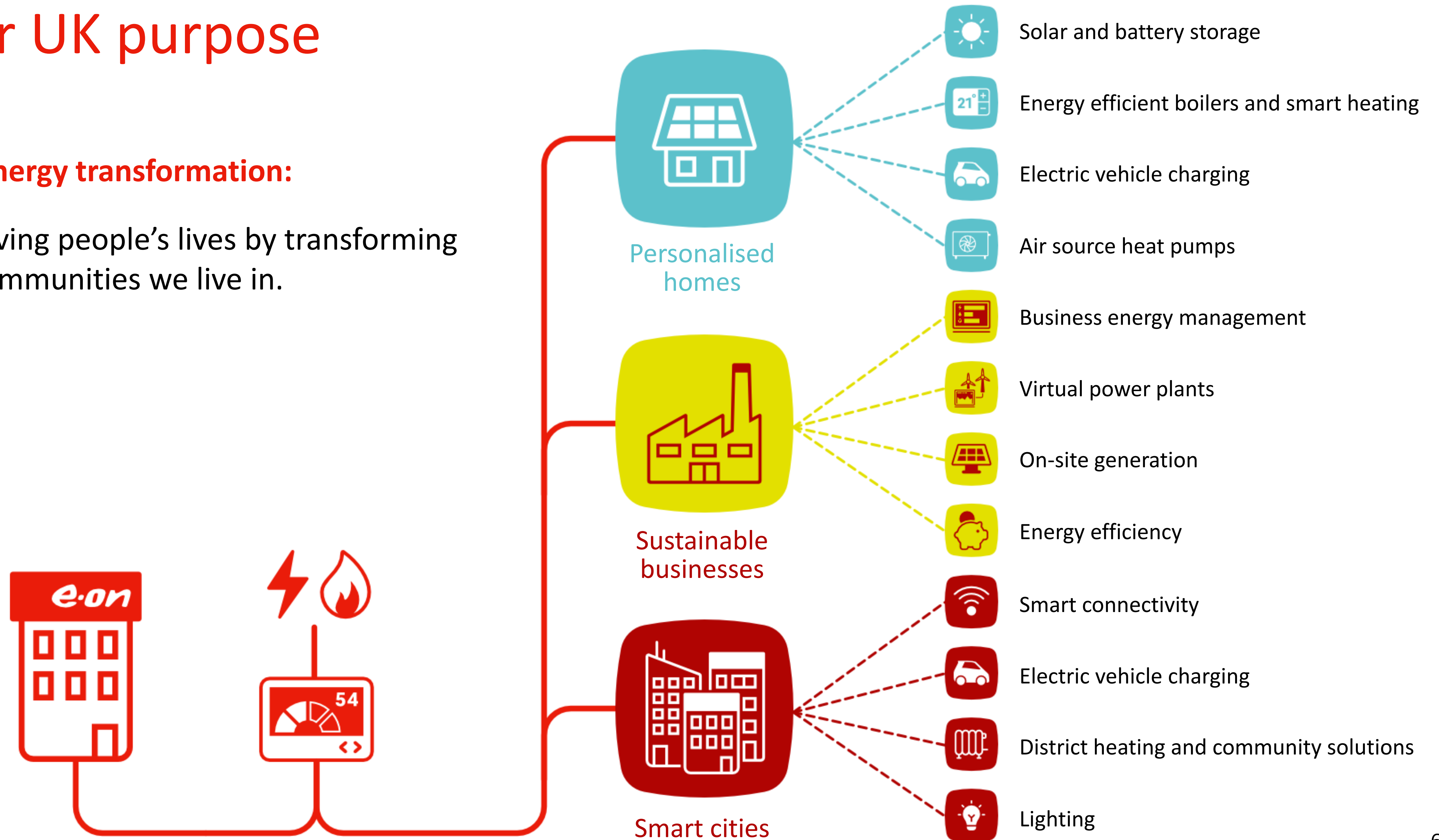




# Our UK purpose

## City energy transformation:

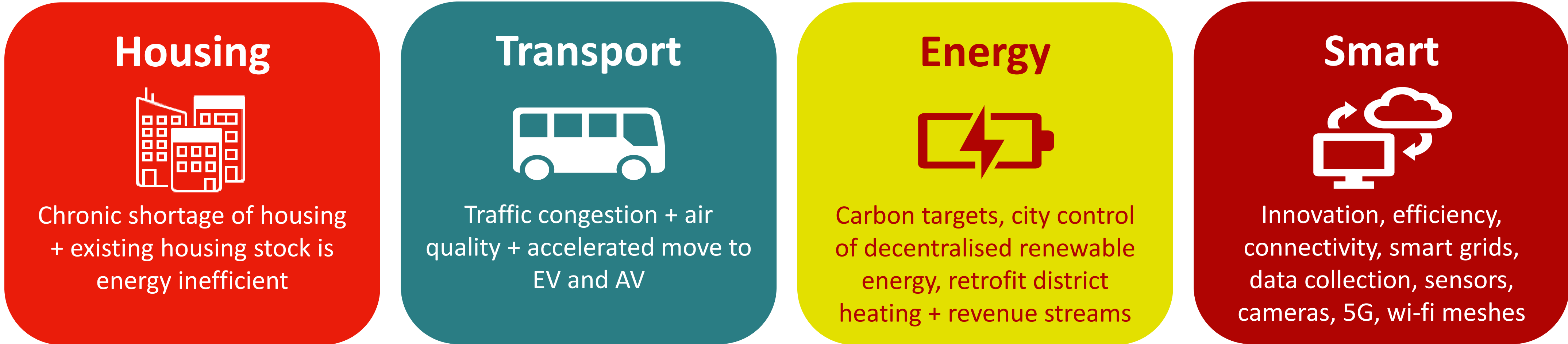
Improving people's lives by transforming the communities we live in.





# Transformational change in UK cities

Modern UK cities face a multitude of complex socio-economic and environmental challenges underpinned by the urgent need to act on 'climate emergency' declarations, which is driving an shift towards a more integrated approach.



Being 'smart' would be to join up all of the above and deliver a holistic, major step change in low carbon infrastructure



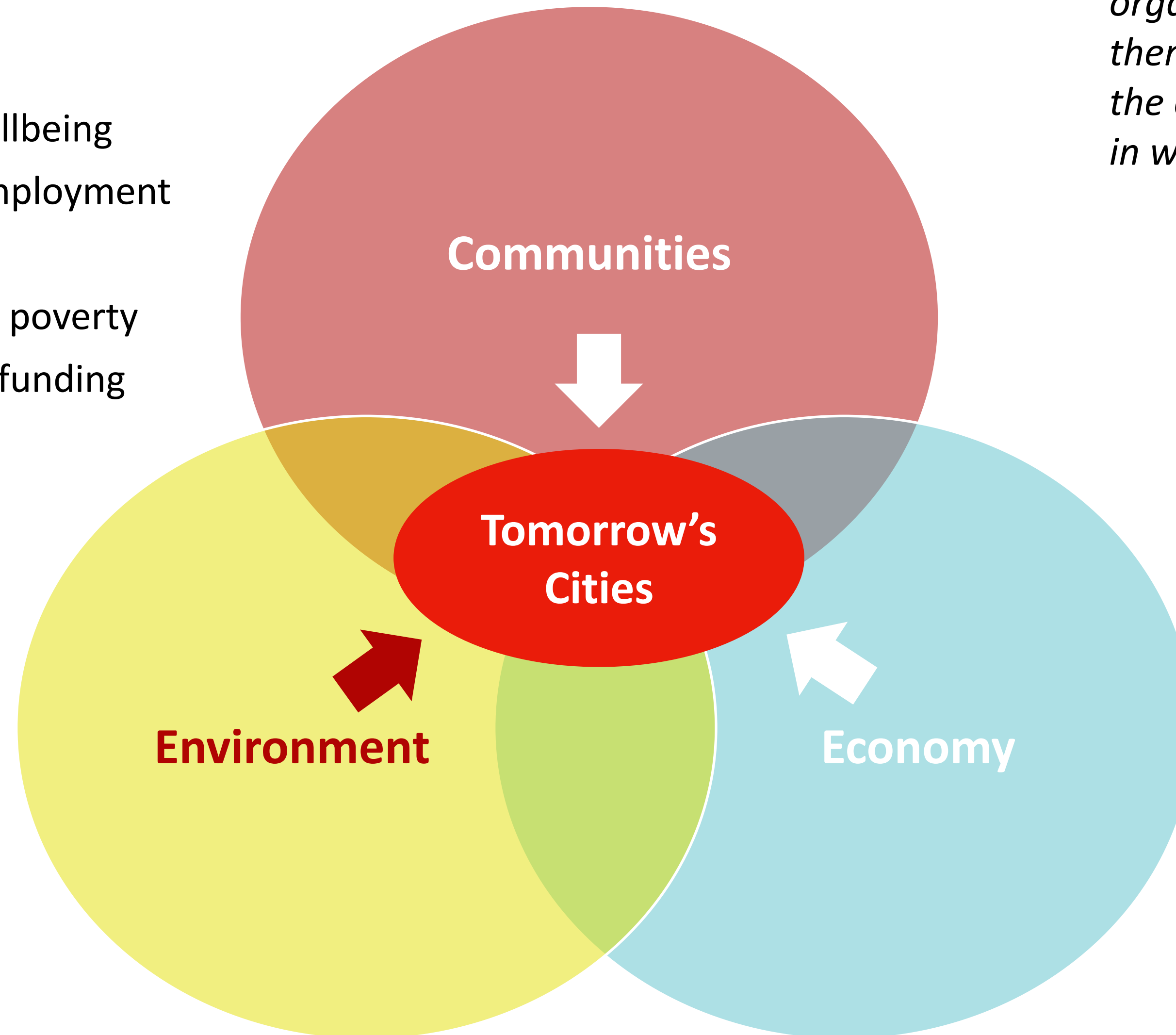
# Creating social value

## Social Value

*The additional benefit organisations provide to not only themselves, but also to society, the economy and the community in which it is operating*

- Health & wellbeing
- Skills and employment
- Education
- Tackling fuel poverty
- Community funding

- Reducing emissions
- Air quality
- Protecting natural ecosystems



- Organic growth & local supply chain
- Innovation
- Business start ups
- Inward investment
- Circular economy



# Coventry

[We're helping give Coventry even more to be proud of \(youtube.com\)](#)



# Coventry City Council and E.ON agree UK-first strategic energy partnership

*'This is really exciting and completely innovative. No other city in the country is doing this. It will help Coventry move ahead with a range of projects that the Council would not have been able to achieve on its own.'*

**Jim O'Boyle, Cabinet Member for Jobs, Regeneration and Climate Change**

*'The energy transition is a way to regenerate the local economy and we're convinced we can make a difference in and with our home city.'*

**Chris Norbury, CEO, E.ON UK**

*'Our 33 billion euro investment programme across Europe underpins our ambitions to play a leading role in shaping the energy transition in Europe.'*

**Patrick Lammers, E.ON Global Board**





# E.ON's journey to net zero

## Our net zero ambition

- As a leader in the new energy world, we have a key role to play in tackling climate change and both enabling and accelerating the decarbonisation of heat, power and transport across the UK and Europe.
- We also take responsibility for our emissions and as part of our own net zero journey have committed to [achieving carbon neutrality by 2040](#). This includes:
  - Reducing our Scope 1 and 2 emissions by 100% by 2040; and
  - Reducing our Scope 3 emissions by 50% by 2030 and 100% by 2050.

## A green economic recovery

- Whilst the COVID-19 pandemic has driven unprecedented changes to global society, effectively tackling climate change is a challenge of similar magnitude and scale.
- We see an opportunity for governments to build back better and reset economies based on sustainable principles simultaneously accelerating the transition to net zero carbon.
- We are member of the [European Green Recovery Alliance](#), an initiative of 180 politicians, business leaders, NGOs and think tanks calling for post-COVID-19 green investment packages that make tackling climate change and biodiversity loss a key pillar of recovery.



“To create the energy system of the future, we must use the momentum created by renewable generation to move forward and decarbonise heat and transport. Only then can we get closer towards reaching the net-zero carbon target and protecting our planet for future generations.”

**Michael Lewis, Chief Executive  
E.ON UK**



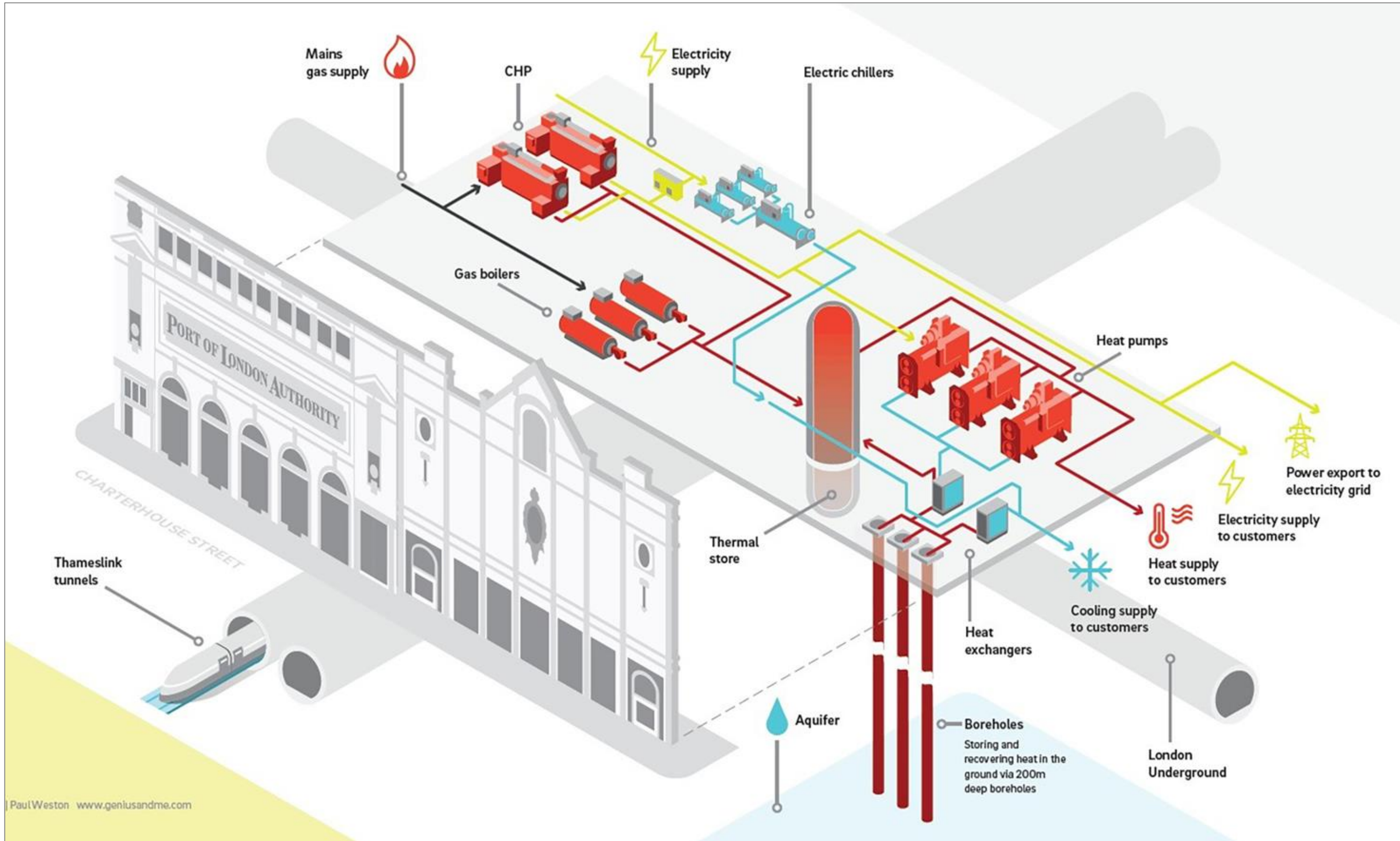


# Ectogrid

[The energy solution for sustainable cities \(youtube.com\)](#)

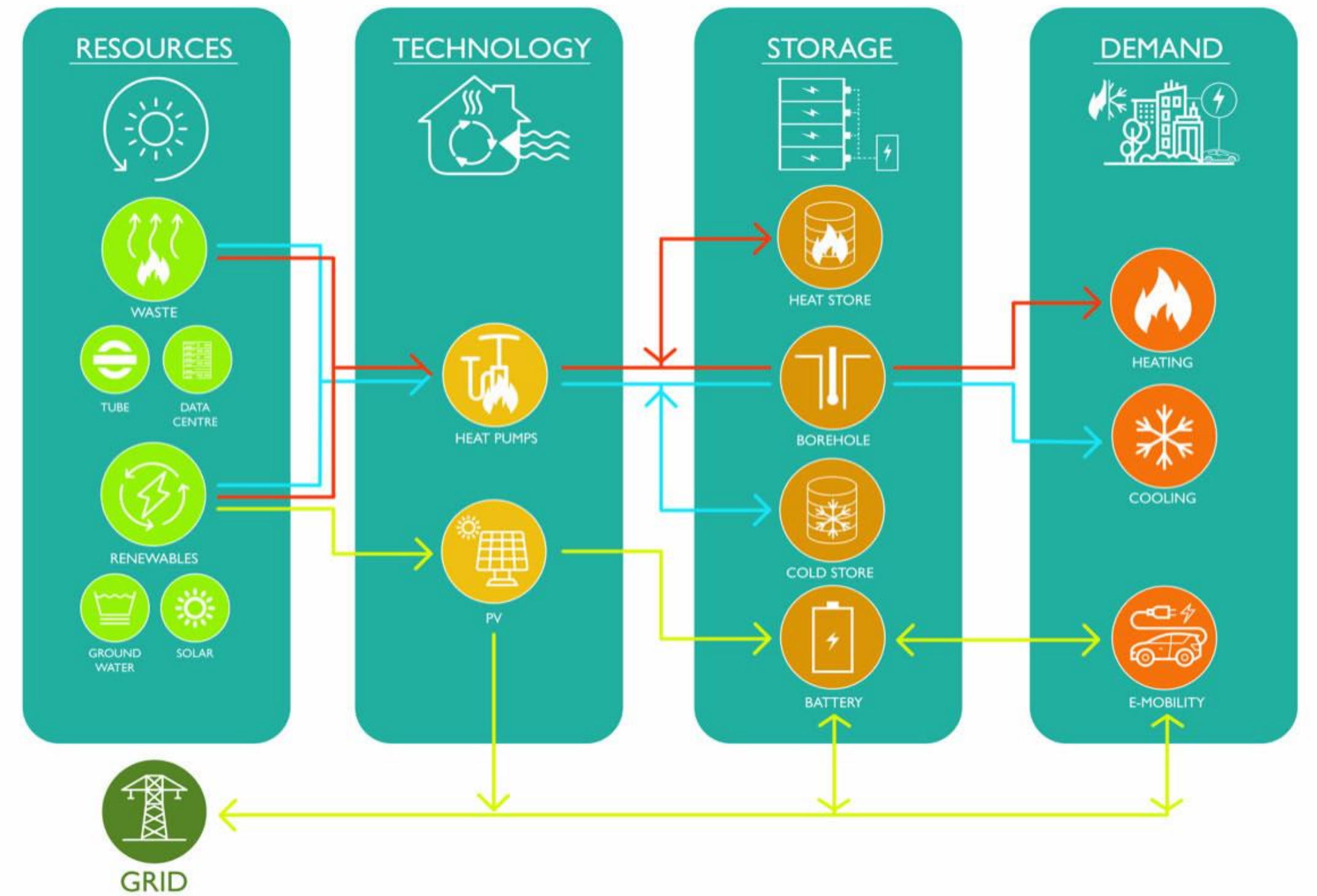
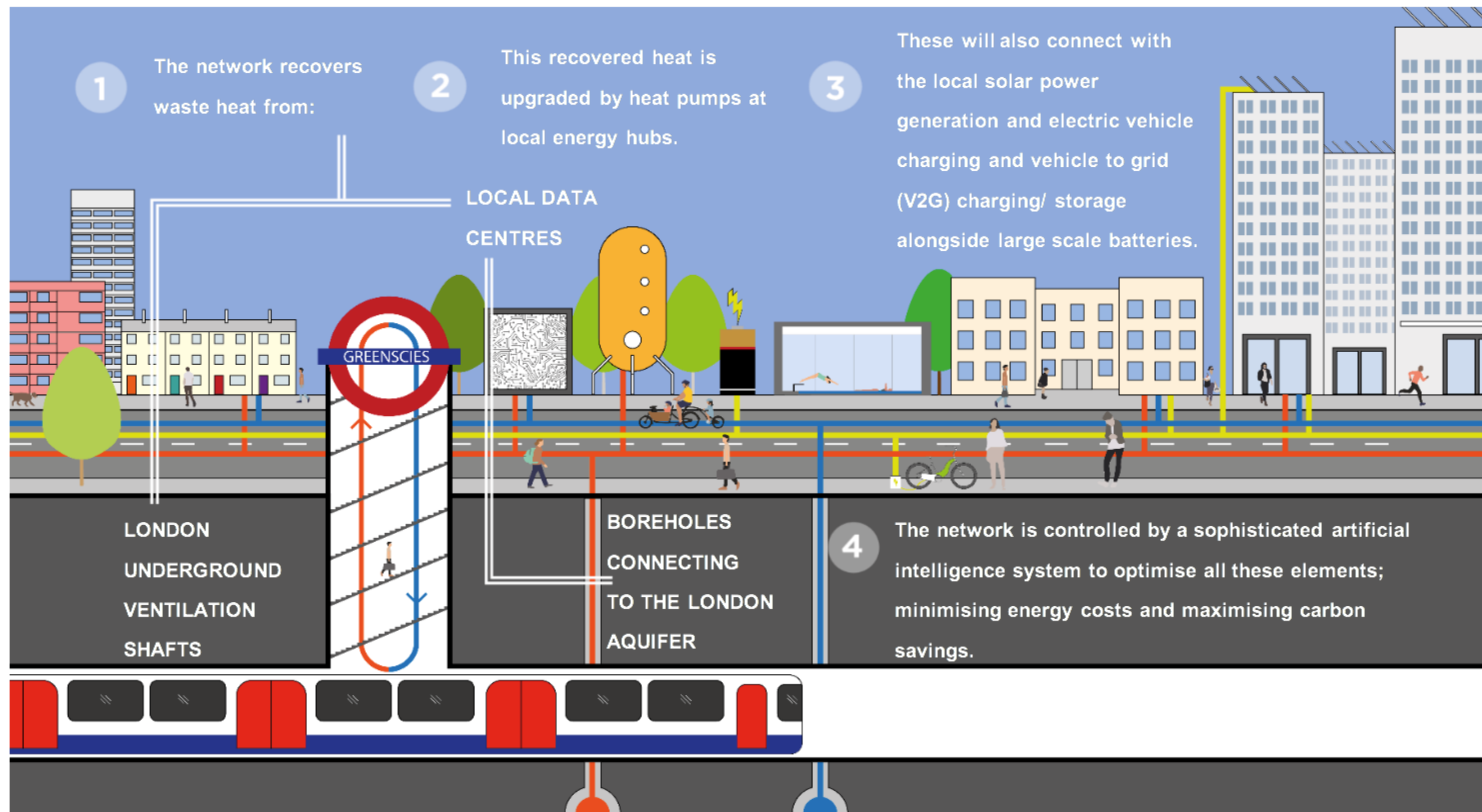


# Citigen – clean heat in the heart of London





# GreenSCIES, London - smart local energy system





# Blackburn Meadows – heat, power and sustainable solutions





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03  
Q&A





# Panel Q&A



**Mick Krupa**  
Q&A moderator



**Jasmine Moss**  
Senior sourcing manager  
*Transport for London*



**Ashley Bullock**  
Commercial Director  
*Saber Renewables*



**Mark Williams**  
CIPFA  
Learnings from the *Mayor of London's office*



**Phil McDermott**  
Cities Transformation Lead  
*E.ON*



Thank you for attending  
**The Journey to Net  
Zero  
Pathways to  
Sustainability** seminar

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30<sup>th</sup> January 2023





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