

# Low-Carbon London

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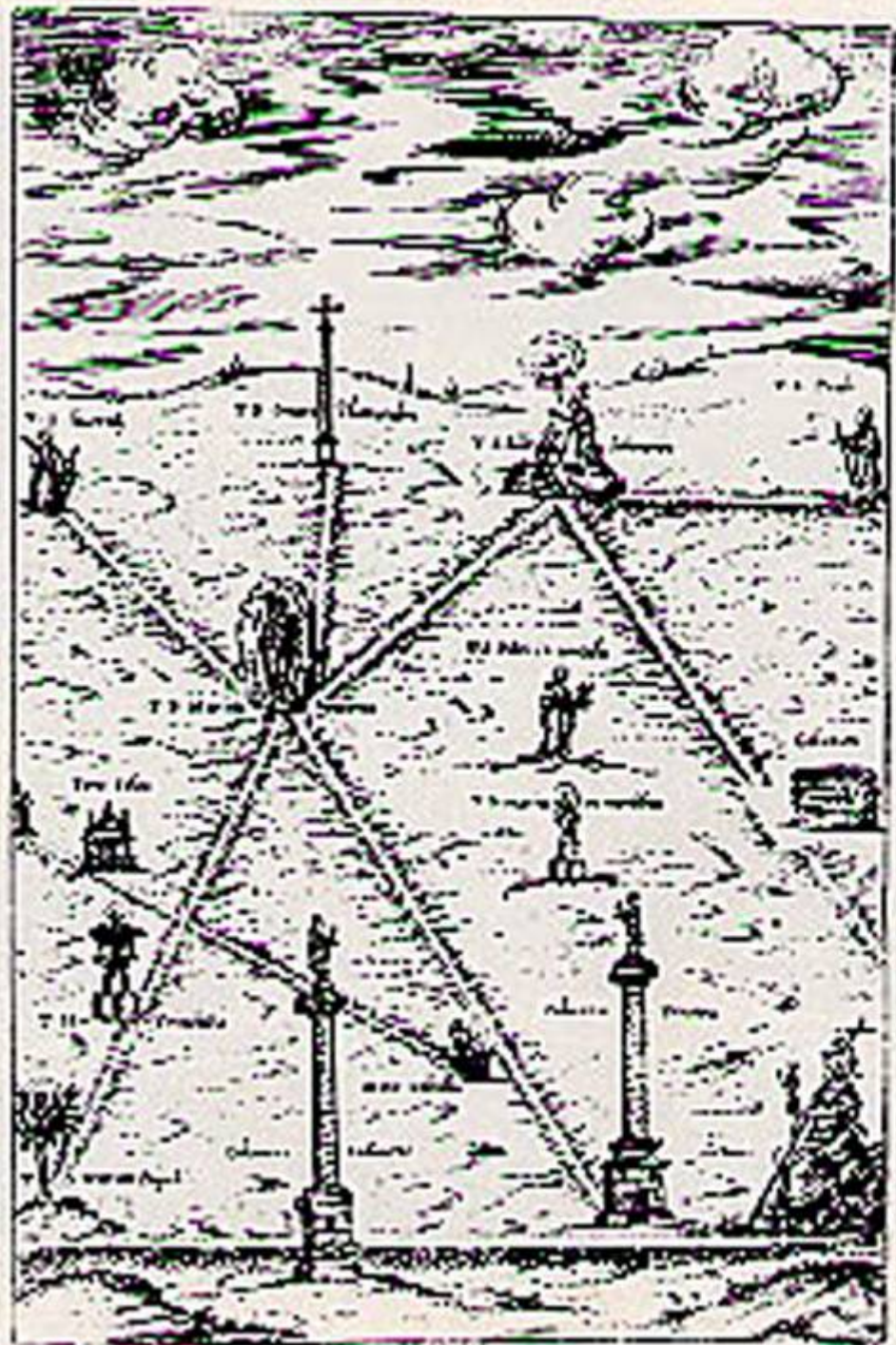
# London's Challenge

- 4267 People...
- After moderate rainfall...
- 80% of our building Stock...
- 2 Million People...
- Congestion charge is good for the City...



# 1 What kind of City









**MAYOR OF LONDON**











## 2 One Obelisk





6 July 2005

























NORTHERN OLYMPIC FRINGE

HACKNEY MARSHES + MABLEY GREEN

STRATFORD CITY

STRATFORD TOWN CENTRE

HACKNEY WICK + FISH ISLAND

STRATFORD HIGH STREET

SUGARHOUSE LANE + THREE MILLS

HIGH STREET 2012

GREENWAY

LEA RIVER PARK

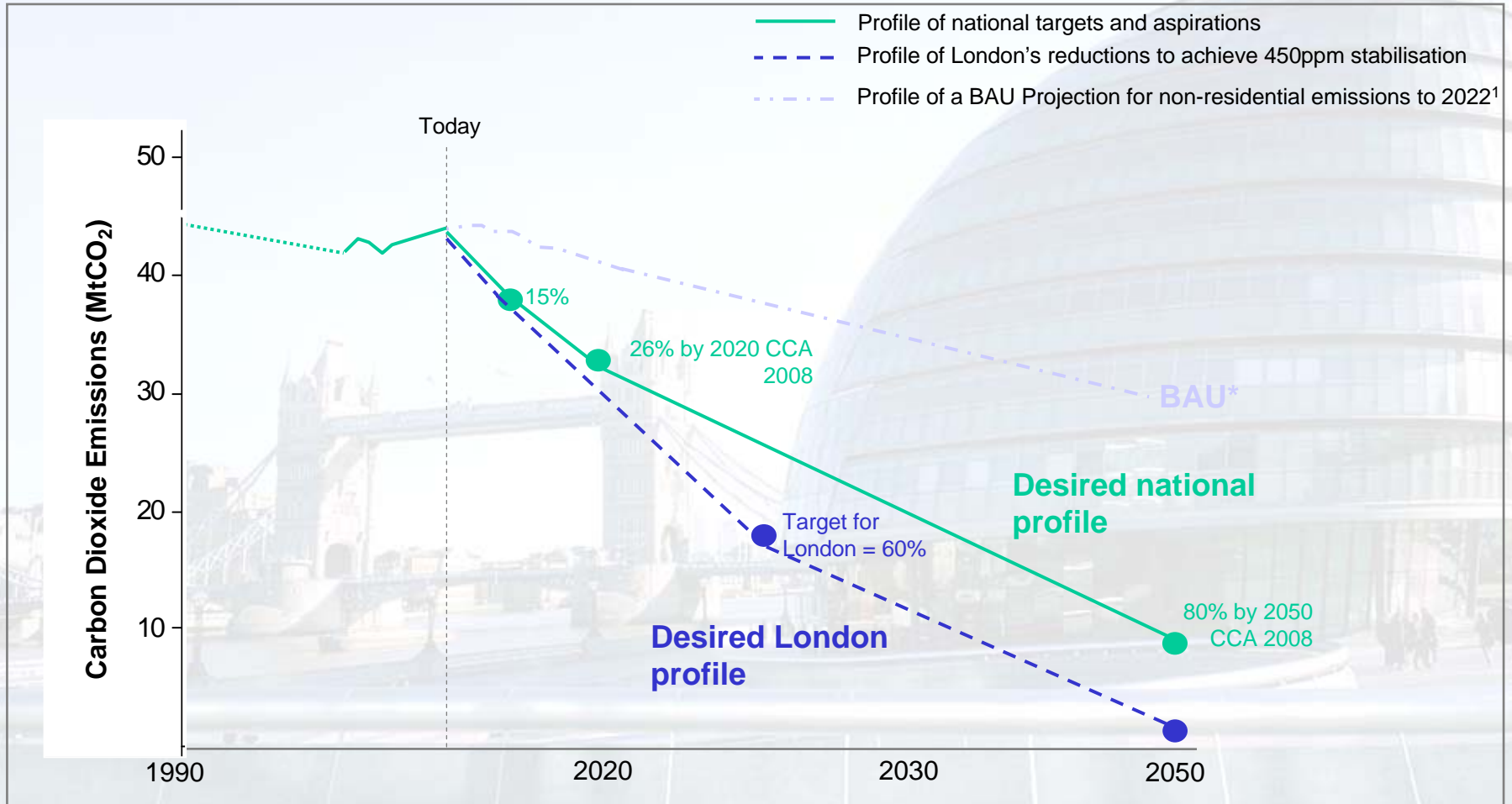




# 3 Going Green



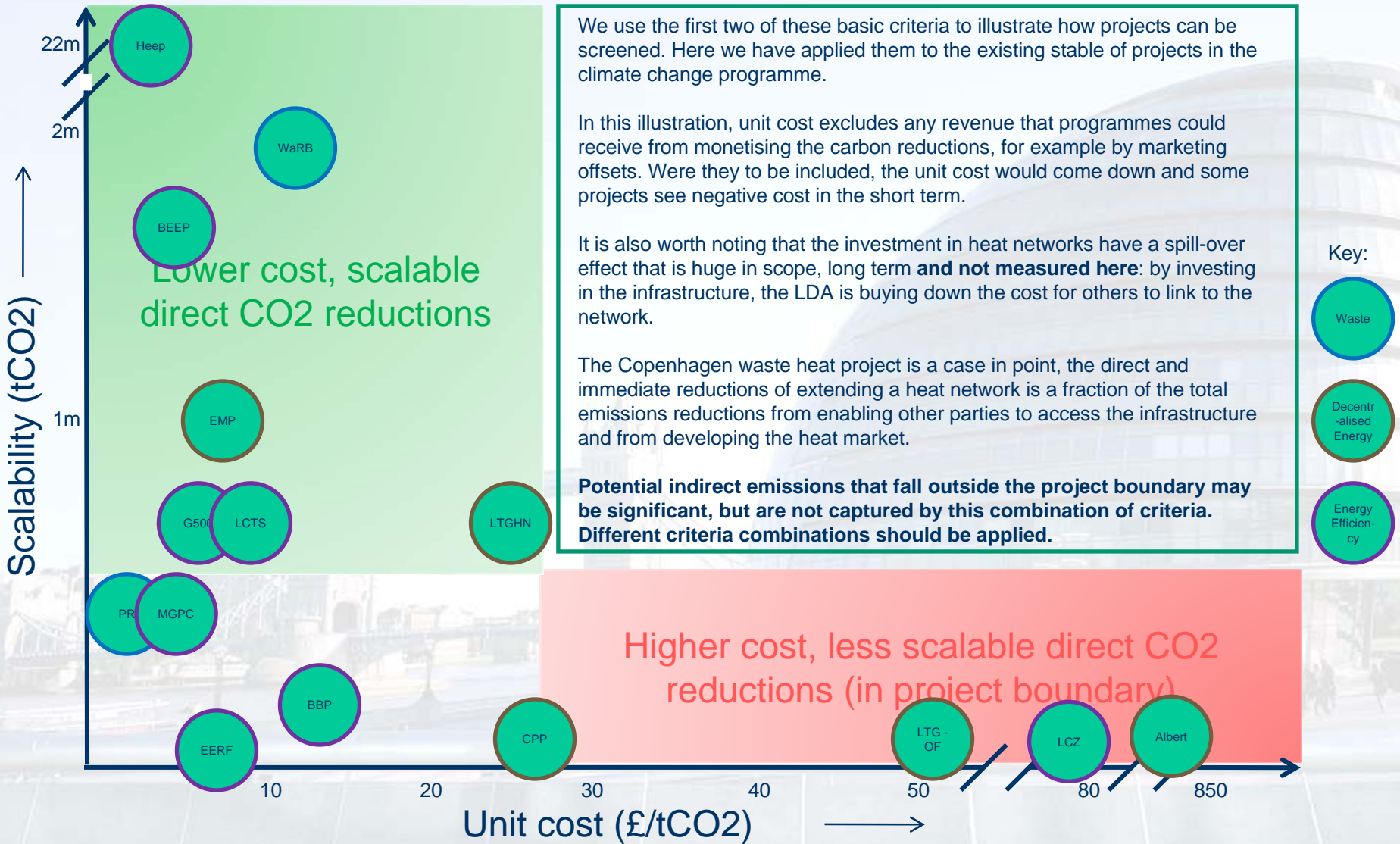
# London has committed to ambitious carbon reduction targets



<sup>1</sup>DECC modelling for CCC. Sources: CCAP (2006) CCC (2008) \* Extrapolation based on CCA trend to 2022 for non-residential buildings



# Investment criteria



We use the first two of these basic criteria to illustrate how projects can be screened. Here we have applied them to the existing stable of projects in the climate change programme.

In this illustration, unit cost excludes any revenue that programmes could receive from monetising the carbon reductions, for example by marketing offsets. Were they to be included, the unit cost would come down and some projects see negative cost in the short term.

It is also worth noting that the investment in heat networks have a spill-over effect that is huge in scope, long term **and not measured here**: by investing in the infrastructure, the LDA is buying down the cost for others to link to the network.

The Copenhagen waste heat project is a case in point, the direct and immediate reductions of extending a heat network is a fraction of the total emissions reductions from enabling other parties to access the infrastructure and from developing the heat market.

**Potential indirect emissions that fall outside the project boundary may be significant, but are not captured by this combination of criteria. Different criteria combinations should be applied.**



# The marginal cost globally

The scale of negative-cost reductions globally is significant, at over 11 GtCO<sub>2</sub>e by 2030.

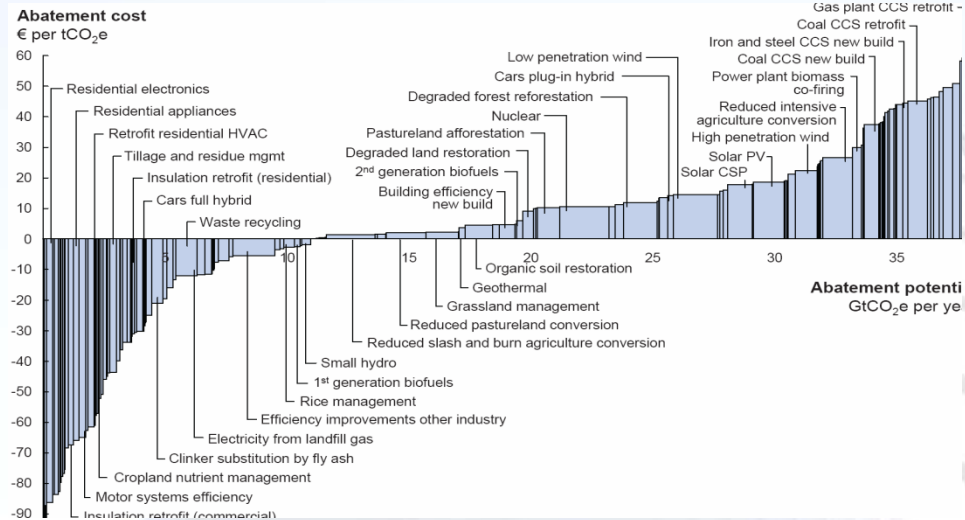
The energy efficiency measures in buildings and heating, ventilation and air-con dominate the negative-cost reductions.

Transport plays an important role in negative-to-low cost reductions, particularly in passenger cars (light-duty vehicles).

They also present all of the more costly options rated at €20/tCO<sub>2</sub>e or more, including electric vehicles.

Hypothetically, these consumer sectors are applicable in the urban context, as are some renewable energy sources for micro-generation.

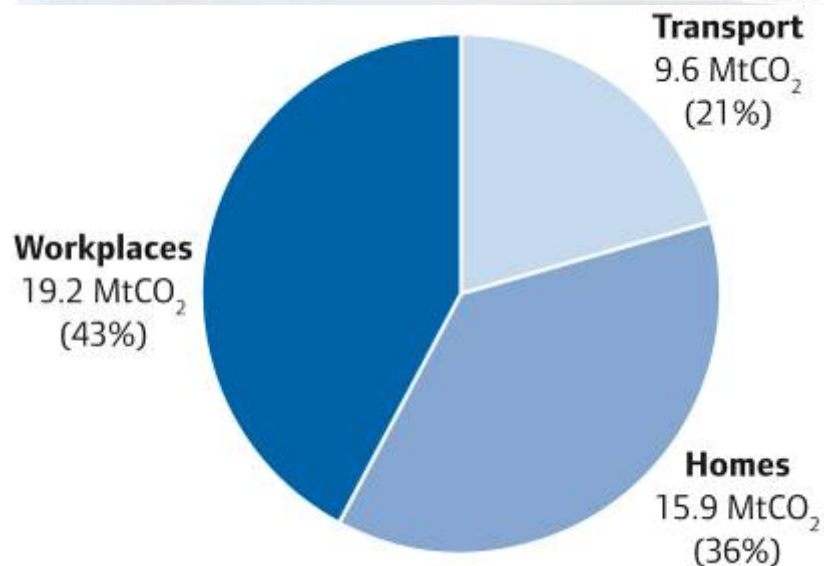
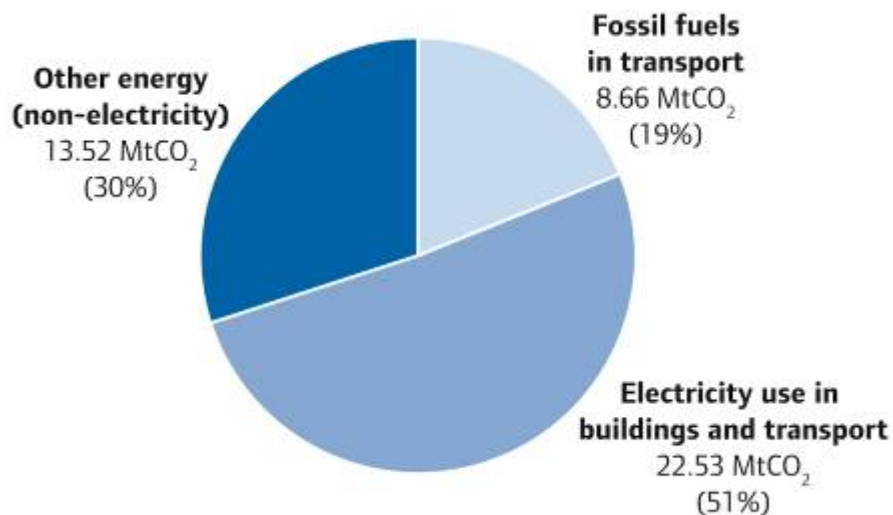
Data drawn from McKinsey: *a low-carbon economy*, v2, 2009.





# London's current CO<sub>2</sub> emissions

Total CO<sub>2</sub> emissions in London (2008) = 44.71 MtCO<sub>2</sub> per annum





# Making London one of the world's leading low carbon capitals



**Policy 1** - Combining London's existing economic strengths and institutions with its influence and capacity to drive demand and attract inward investment in the low carbon economy.

**Policy 2** - Helping Londoners to gain the skills and experience needed to participate in the low carbon economy.

## **The Mayor's main programmes**

- London Green Fund
- Green Enterprise District
- Low Carbon Skills and Employment Programme



# Securing a low carbon energy supply for London



**Aim: Supply 25% of London's energy from decentralised energy sources by 2025**

**Policy 3** - Enabling the identification and development of decentralised energy opportunities and building capacity to deliver decentralised energy projects

**Policy 4** - Delivering decentralised energy through the planning system

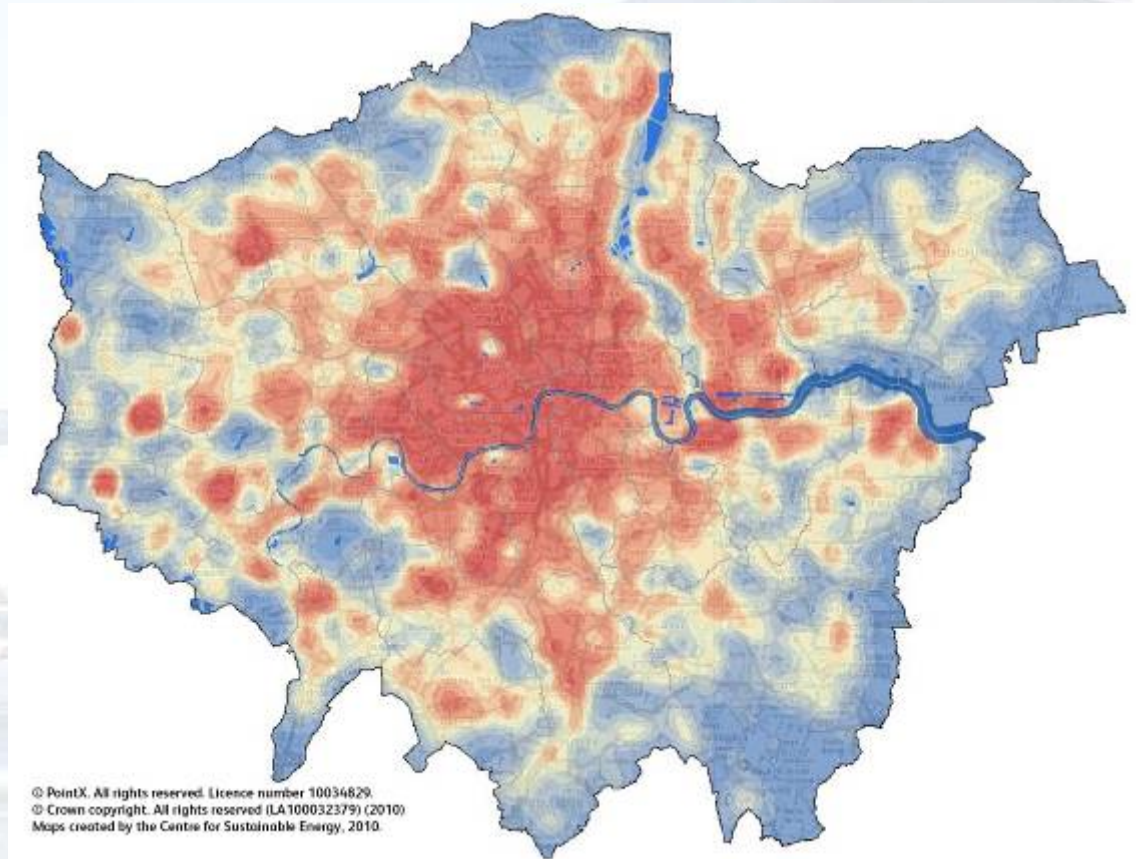
**Policy 5** - Enabling the commercialisation of the decentralised energy market to deliver decentralised energy on a wide scale in London



# Securing a low carbon energy supply for London

## The Mayor's main programmes

- London Heat Map
- Co-development of exemplar decentralised energy projects
- The Decentralised Energy Masterplanning Programme
- The London Plan





# London's homes: driving our energy future



**Policy 6** – Retrofitting existing homes with energy efficiency measures, along with low and zero carbon energy generating technologies, to reduce their CO<sub>2</sub> emissions

**Policy 7** – Tackling fuel poverty in London



# London's homes: driving our energy future

## The Mayor's main programmes:

### RE:NEW

- Retrofit 1.2 million homes with energy efficiency measures by 2015
- All cavity walls and lofts insulated where practical by 2015
- A whole-house approach – free upfront

### RE:CONNECT

Ten Low Carbon Zones  
Reducing CO2 emissions by 20.12% by 2012



**RE:NEW**  
HOME ENERGY EFFICIENCY FOR TOMORROW



**RE:CONNECT**  
LOW CARBON ZONES

**The Mayor's London Housing Strategy and Beyond Decent Homes**



# Cutting costs and carbon in London's workplaces



**Policy 8** - Minimising CO<sub>2</sub> emissions from London's existing workplaces

**The Mayor's main programmes:**

**- RE:FIT**

Retrofitting public sector buildings

**- The Green500**

Energy efficiency support and advice

**- The Better Buildings Partnership**

Landlord-tenant disconnect



# Green500

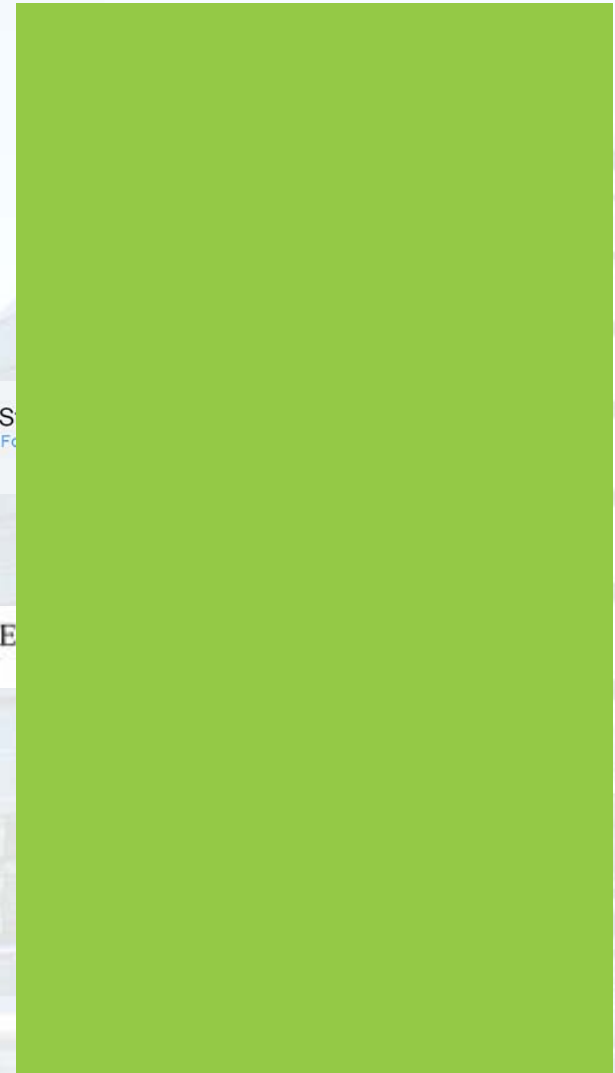


YOUR M&S

.. T .. Mobile ..

Guy's and St  
NHS F

John Lewis



# Better Buildings Partnership

**LONDON**  
LEADING TO A GREEN LONDON

BETTER  
BUILDINGS  
PARTNERSHIP



CANARY WHARF  
LONDON



GE  
Real Estate



GROSVENOR



Hammeron



LandSecurities  
capital commitment



Legal & General  
Investment Management

PRUPIM



The Blackstone Group



Transport  
for London



Workspace Group





# Building towards a low carbon London



**Policy 9** - Minimising CO<sub>2</sub> emissions and energy use from London's new buildings

**The Mayor's main Strategies:**

- The draft replacement London Plan
- The Mayor's London Housing Strategy

# Moving towards zero emissions transport in London



**Policy 10** - Minimising CO<sub>2</sub> emissions through a shift to more efficient modes of transport

**Policy 11** - Minimising CO<sub>2</sub> emissions through more efficient operation of transport

**Policy 12** - Minimising CO<sub>2</sub> emissions from transport through the use of low carbon vehicles, technologies and fuels



# Moving towards zero emissions transport in London

## **Create a cycling revolution in London**

- Central London cycle hire scheme
- Cycle Superhighways
- Additional 66,000 secure bike parking spaces



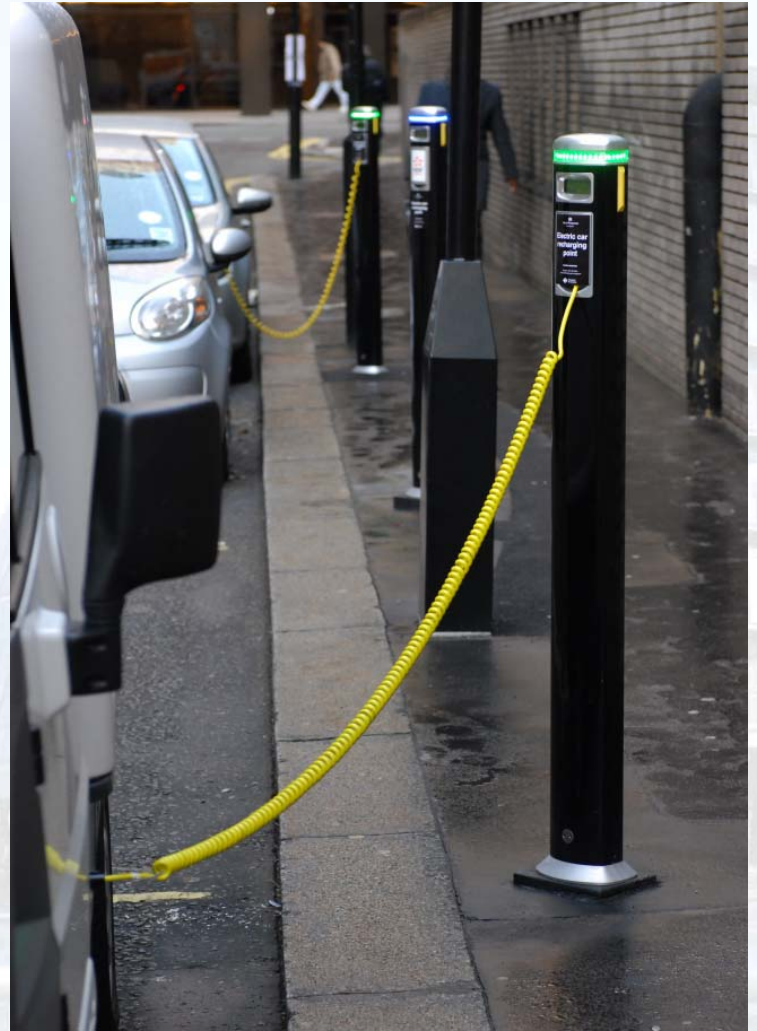
## **Make walking count**

- Improving the urban realm
- Improving on-street way-finding, and route planning facilities for pedestrians

## **Encourage the uptake of less polluting vehicles**

- Aim of 100,000 electric vehicles on London's roads by 2020
- All new buses introduced to the London bus fleet low carbon by 2012

## **Investing in public transport**





# A smart phone user would download a green travel application and redeem vouchers online

Real time tracking of journeys. Software could recognise mode of travel automatically

Walking and cycling miles are converted into points, later to be redeemed as vouchers

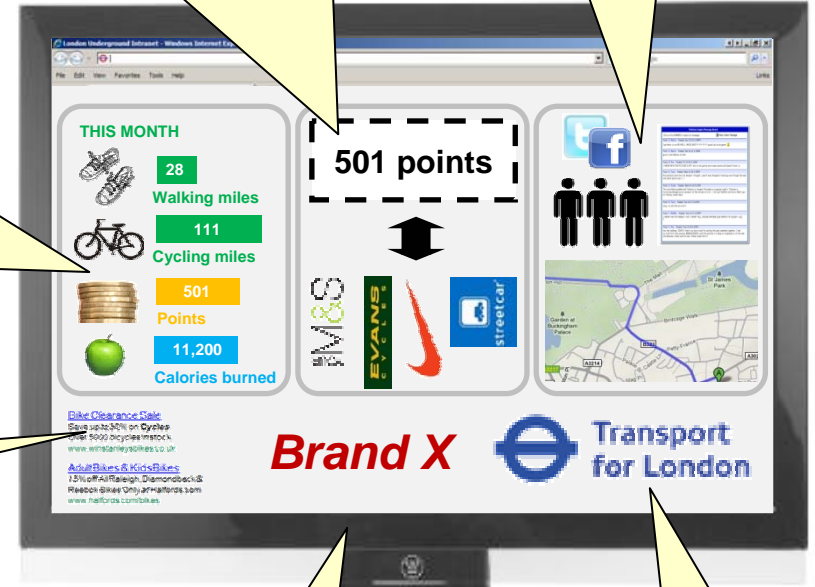
GPS tracks user journeys



Points are exchanged for vouchers. Voucher providers could be organisations in support of walking/cycling (e.g. Evans Cycles), or that provide environmentally friendly services (e.g. Streetcar). Alternatively, there could be an open market for voucher provision, to maximise choice

A user could view a travel diary online, including a record of travel, points accrued, calories burned, etc.

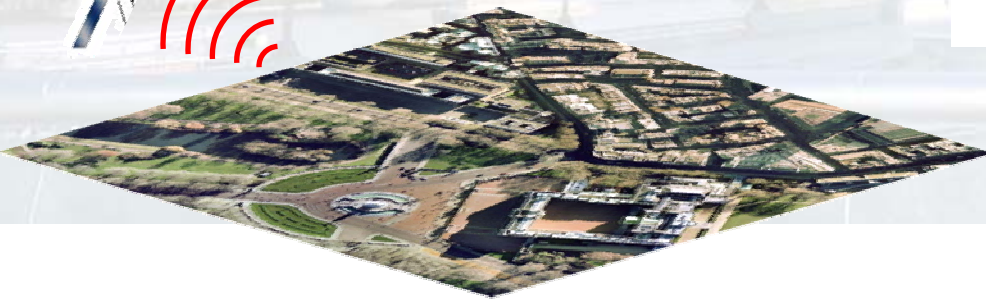
Advertisements



An online community could enable route sharing, comparing travel data, promoting events, etc.

A commercial organisation could fund, develop, host and brand the scheme, in return for brand promotion and advertising revenue

TfL could endorse and promote the scheme, and provide embedded services like Journey Planner. In return, TfL could receive travel data and have some control over scheme design



# Setting an example through the GLA group



**Policy 13** - Setting challenging targets and measuring and publicly reporting CO<sub>2</sub> emissions

**Policy 14** - Reducing energy use and CO<sub>2</sub> emissions from GLA group buildings

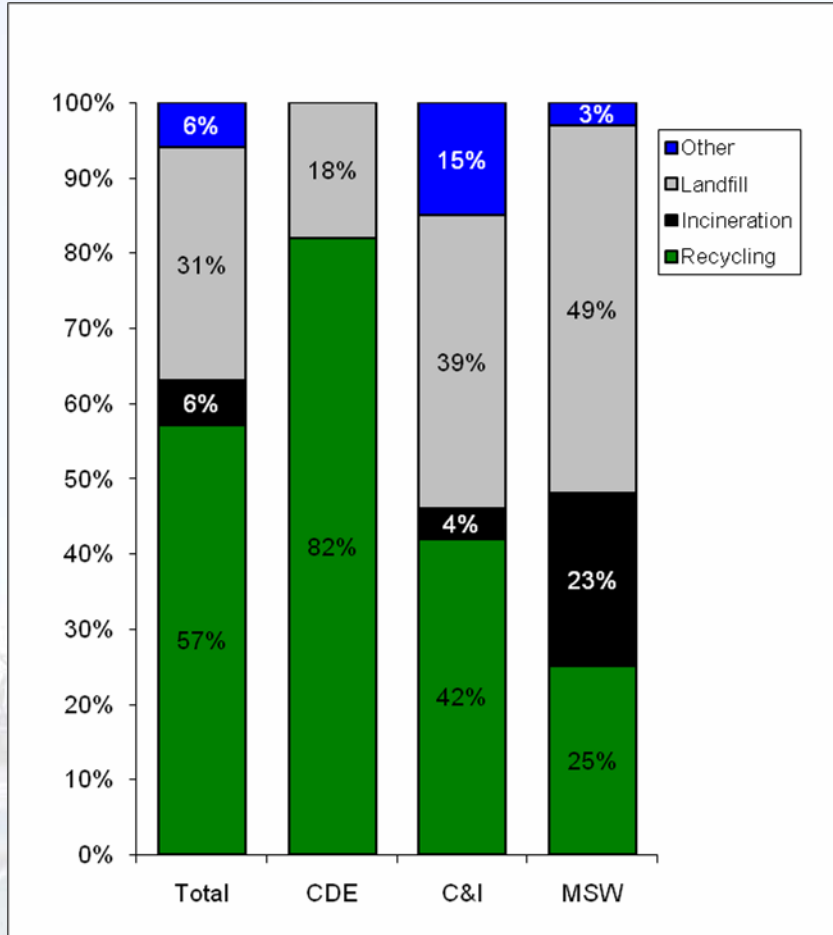
**Policy 15** - Driving down CO<sub>2</sub> emissions from transport in the GLA group

**Policy 16** - Demonstrating what can be achieved through demanding low carbon goods and services

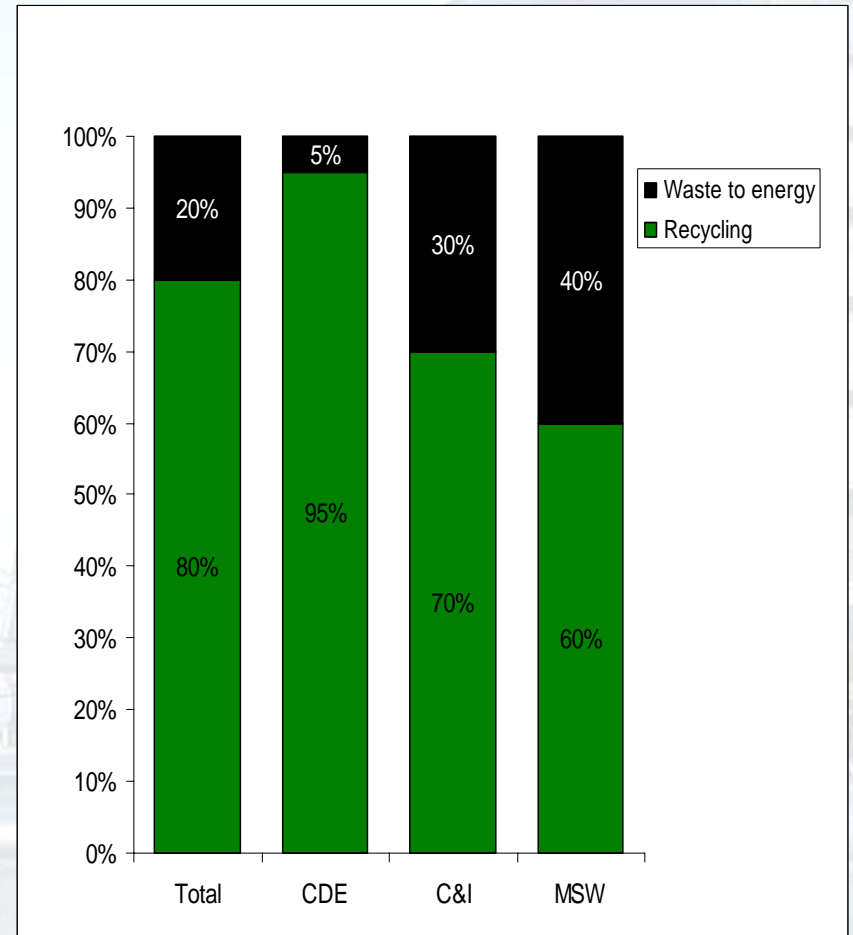


# London's waste position

## Now (2008)



## Where we want to be (2031)



# Turning London's waste into an opportunity

- The Mayor's municipal and business waste strategies – out for public consultation
  - Cutting costs and carbon
  - Developing a low carbon economy
  - Creating over 1000 green collared jobs



# Local environment







# London's Strengths

## Carbon trading

- London the dominant player in a small but iconic market. Highly mobile; others are targeting it

39% of Clean Development Mechanism Market

80% of EU ETS futures and Options Contracts traded in London

## Finance

- Big opportunity for finance sector to create new structures and financing mechanisms for Retrofit, Waste, DE, Transport...
- Securing the UK's Energy Future (£199bn required to 2025 to meet energy goals for 2050)

## Business services

- Law, design, engineering, etc. with significant export potential

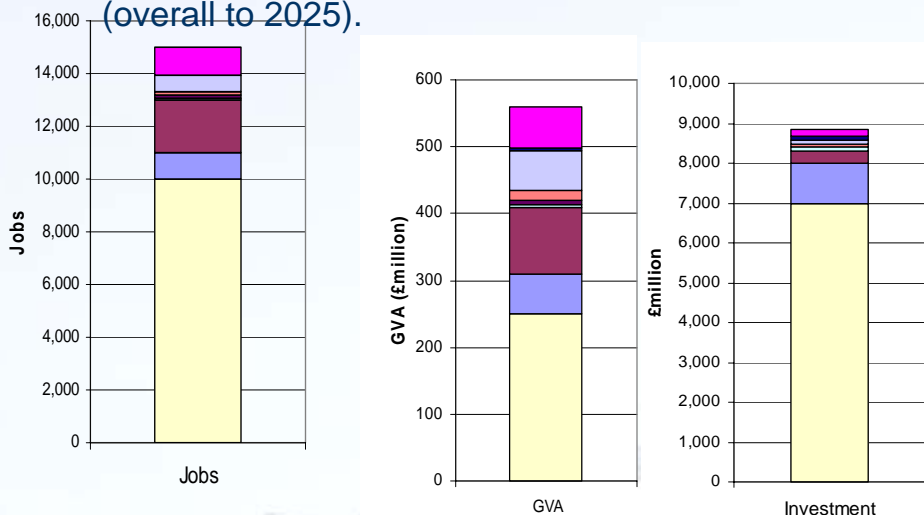
## R&D/ academia

- London as academic hub, R&D less competitive than perhaps should be

# The benefits of these initiatives will combine with those of the existing Mayoral initiatives, growth in London

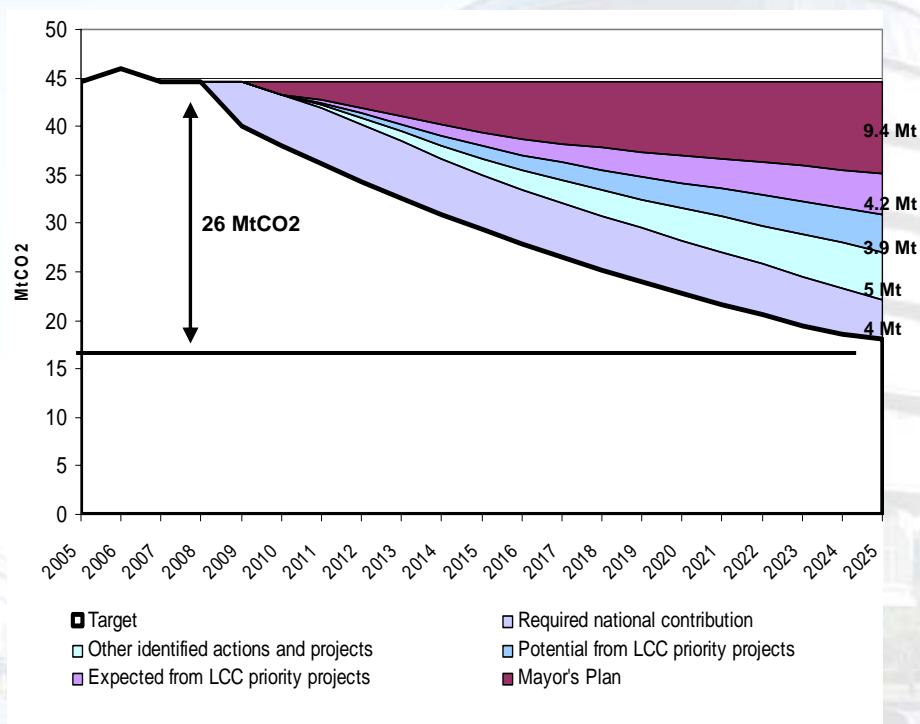
- Estimated impact of recommended projects on the economy

Impact of recommended projects on London's GVA (annual), jobs (annual) and level of investment (overall to 2025).



- Retrofit financing mechanism
- Data centre clusters
- Early stage project underwrite
- Emissions Management tool
- Low carbon innovation clusters
- Low carbon index on FTSE/AIM
- Procurement options for London
- National Centre for Carbon Measurement
- Carbon management for infrastructure project

- Estimated impact of recommended projects on Mayor's carbon reduction target



'national contribution' is a balancing figure to reach the Mayor's target.

Source: Ernst & Young



# [www.london.gov.uk](http://www.london.gov.uk)

- Energy & Climate Change
- Air Quality
- Municipal Waste
- Business Waste
- Adaptation
- Water
- Biodiversity



**MAYOR OF LONDON**



# 4 The Next Big Obelisk

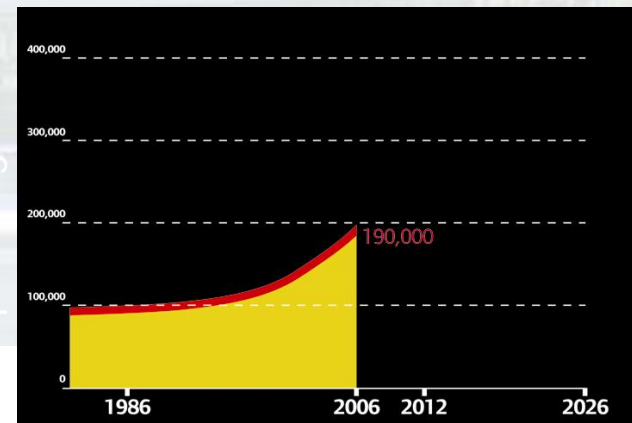




1986 2006 2012 2026

1986 2006 2012 2026



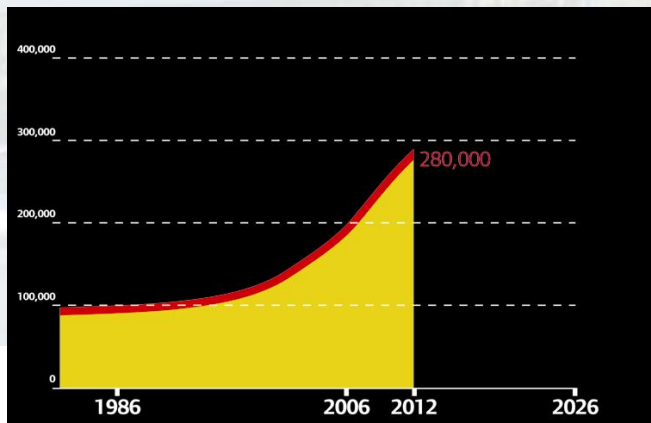


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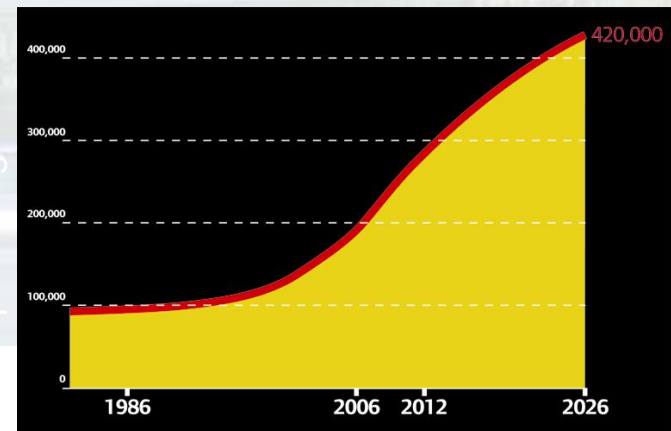


population growth



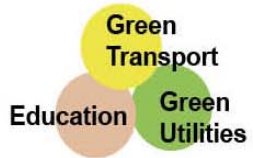
1986    2006    2012    2026





1986    2006    2012    2026

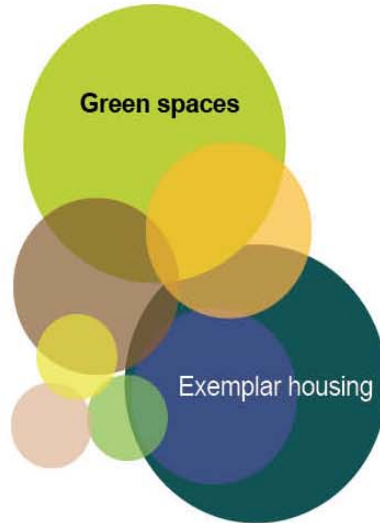




**2010**



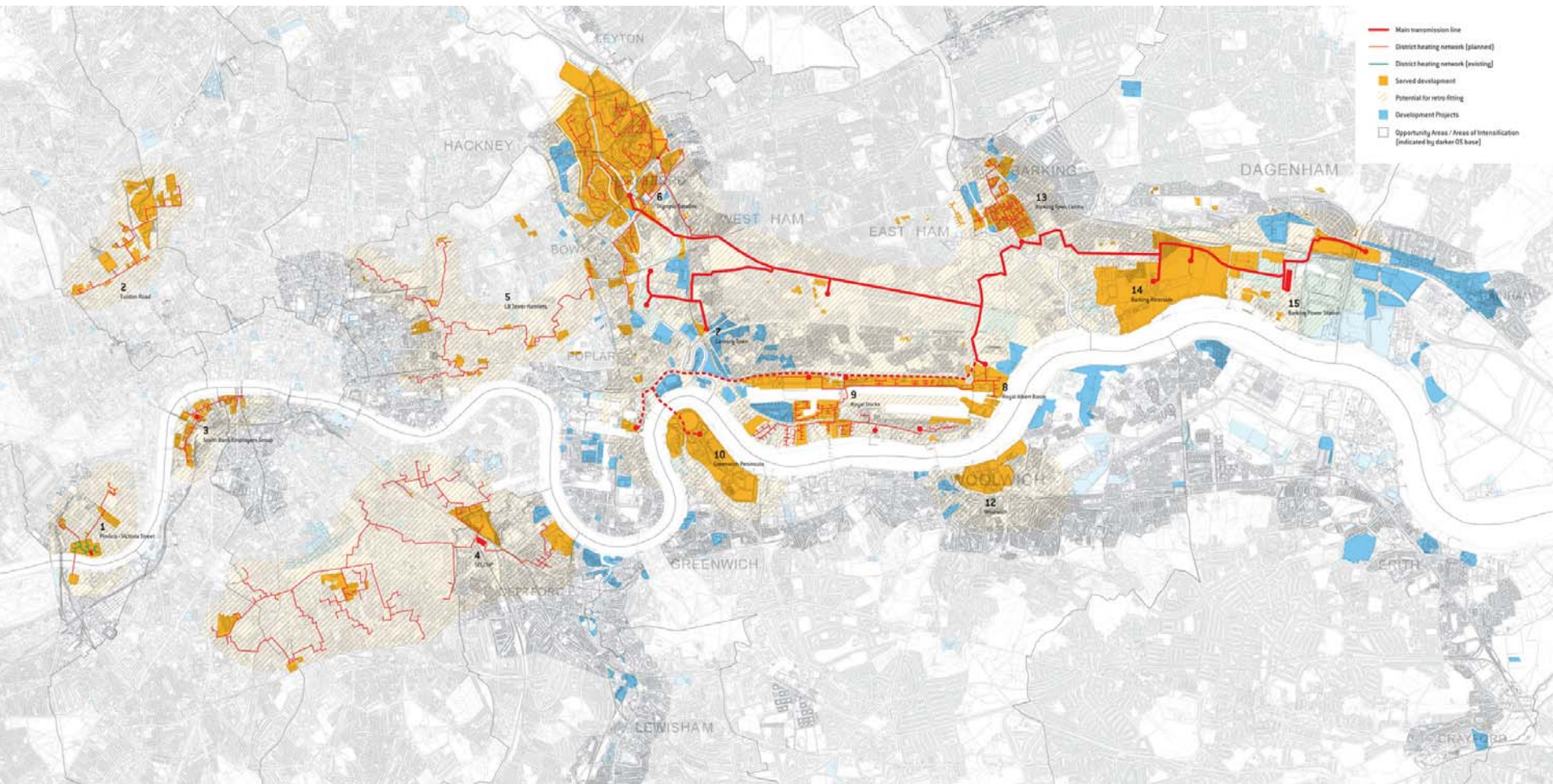
**2015**



**2020**

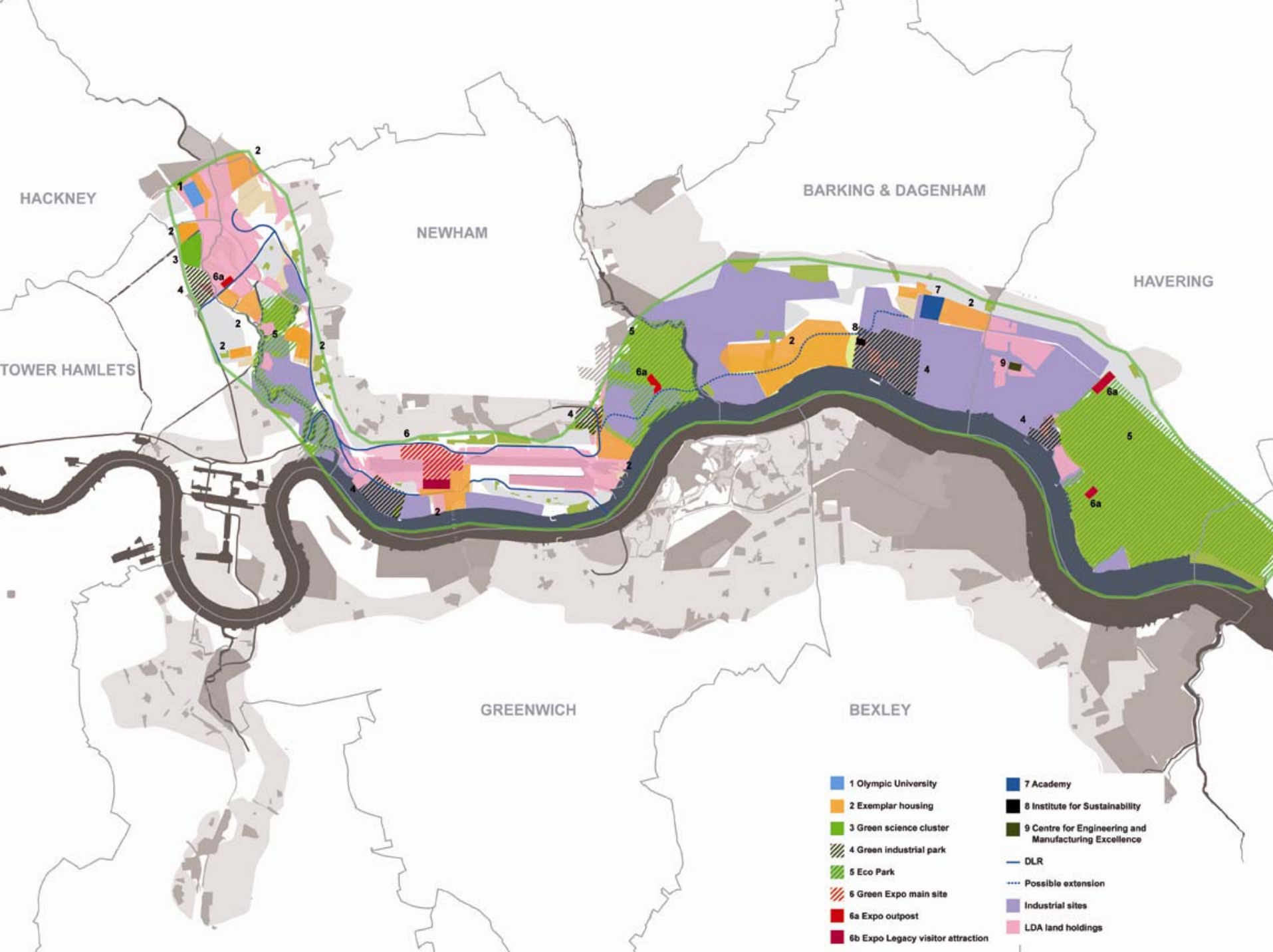


**2025**

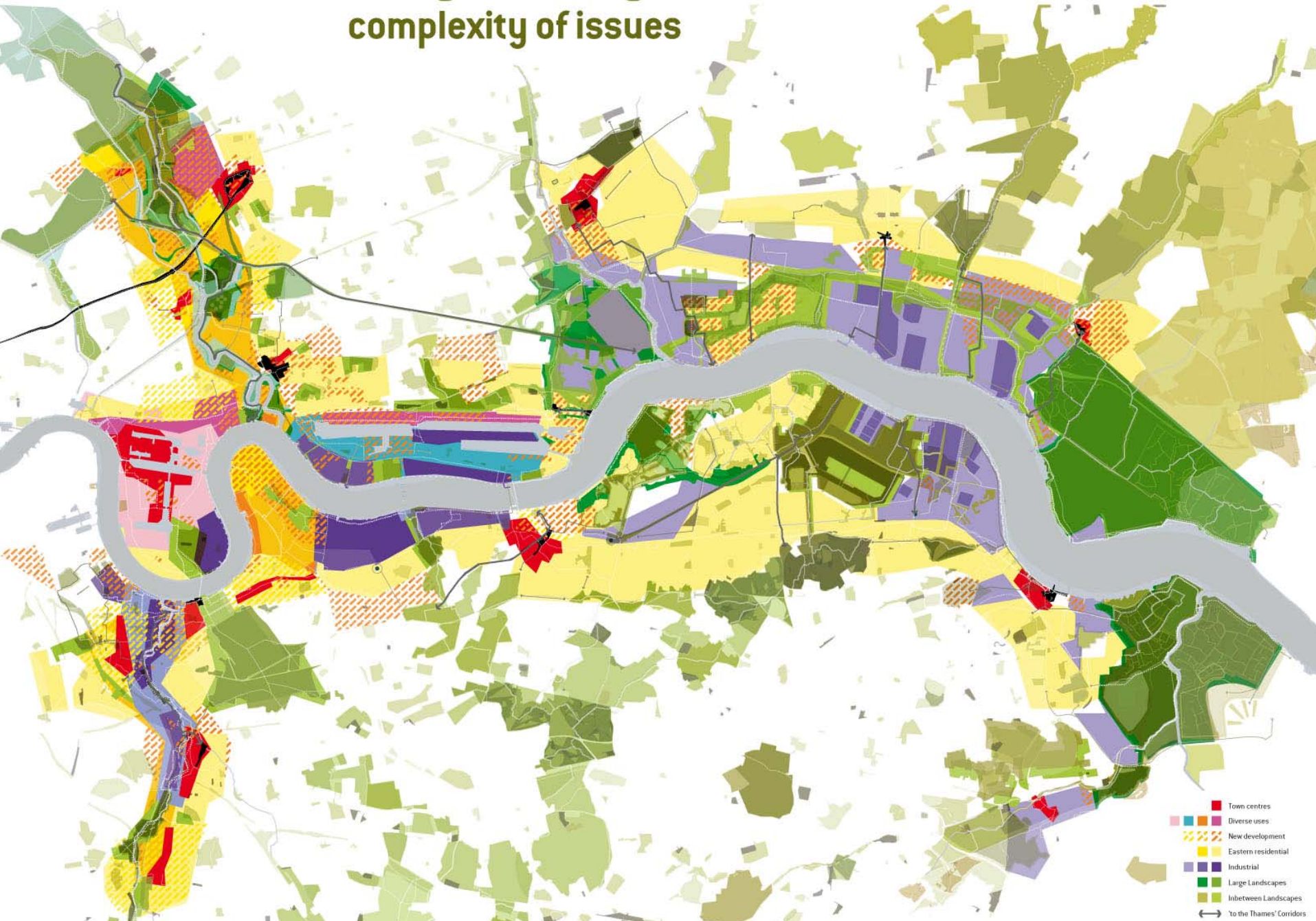


- Main transmission line
- District heating network (planned)
- District heating network (existing)
- Served development
- Potential for retro fitting
- Development Projects
- Opportunity Areas / Areas of Intensification [indicated by darker OS base]

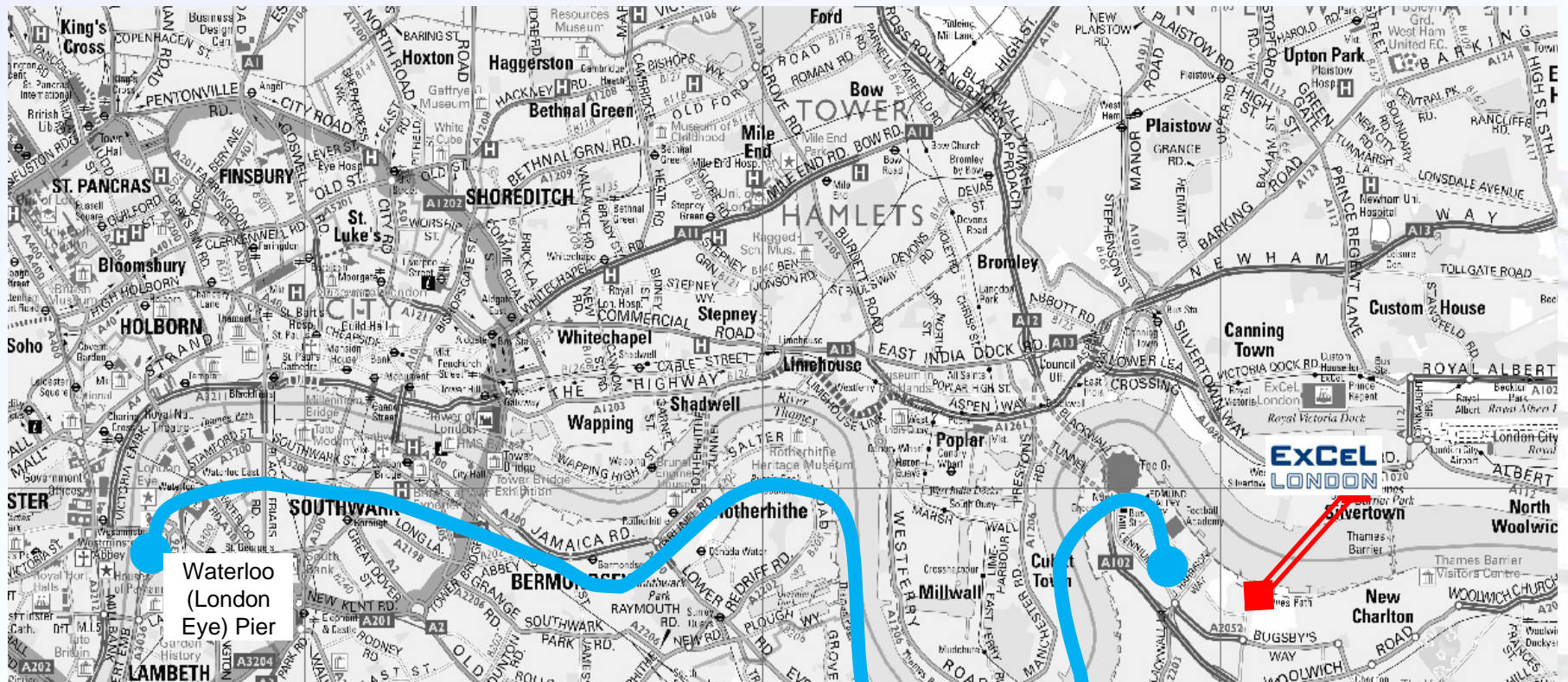




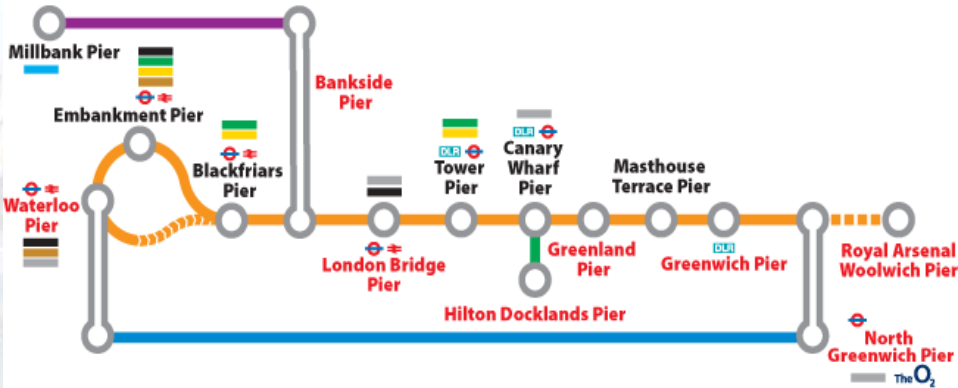
# Strong structuring vision to deal with complexity of issues





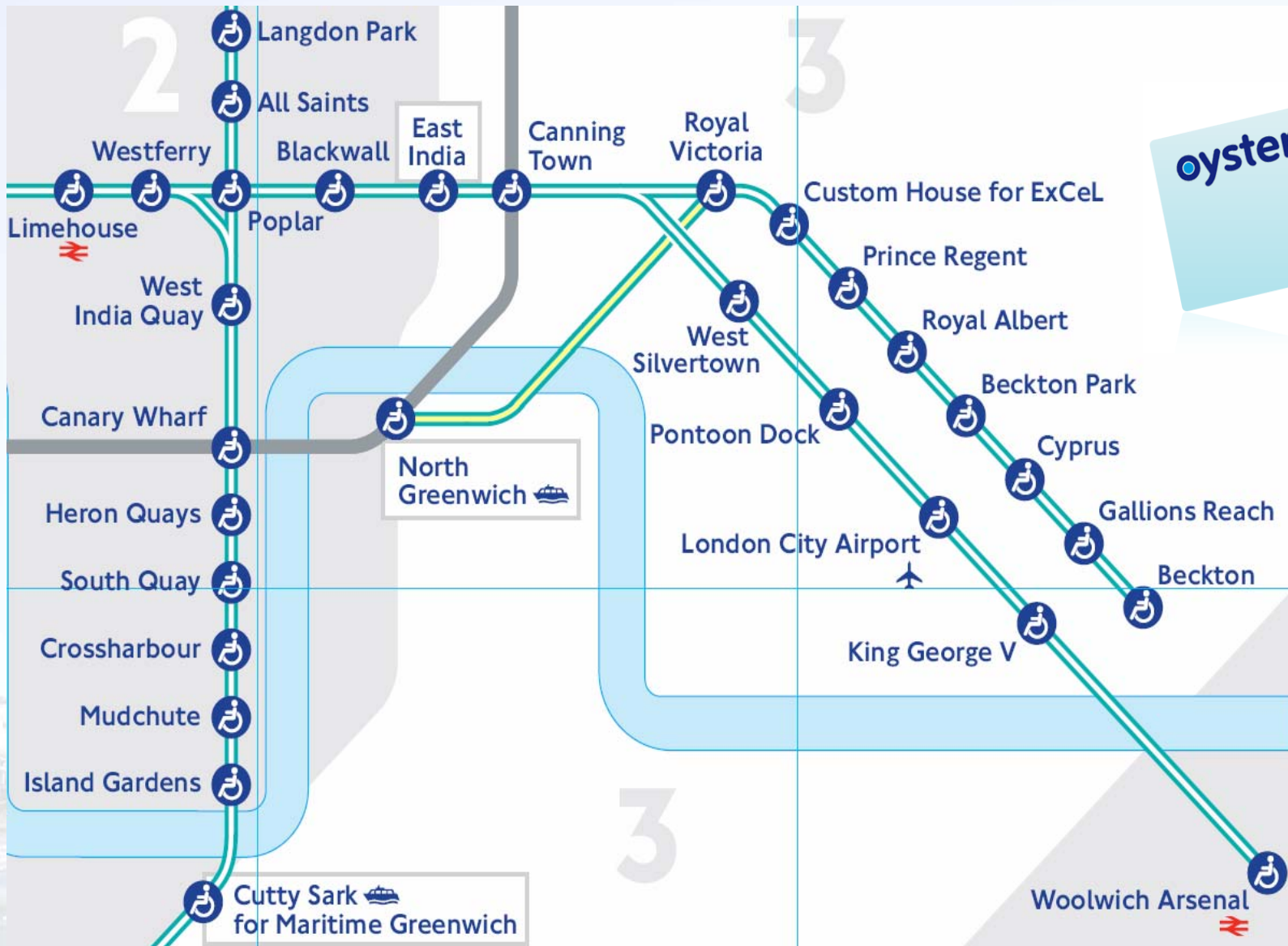


Waterloo  
(London  
Eye) Pier



- Key**
- Existing O<sub>2</sub> Express boat service, London Eye to North Greenwich
  - ↔ Potential cable car

— Commuter Service   
 — Tate to Tate Service   
 Indicates the pier is North of the river  
— The Hilton Ferry Service   
— The O<sub>2</sub> Express   
 Indicates the pier is South of the river





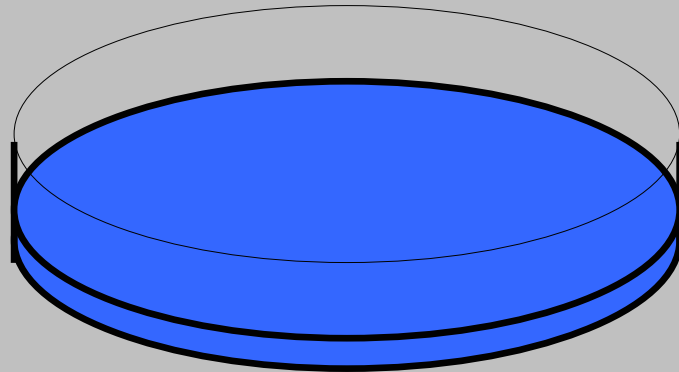




# 5 The Final Challenge







**80 Litres**



# Thank You!

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