

**MAYOR OF LONDON**

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# **What role for local governance in a flexible, distributed energy system?**



**Rachel Cary GLA 8<sup>th</sup> March 2018**  
**Innovation and Governance for Future Energy Systems**

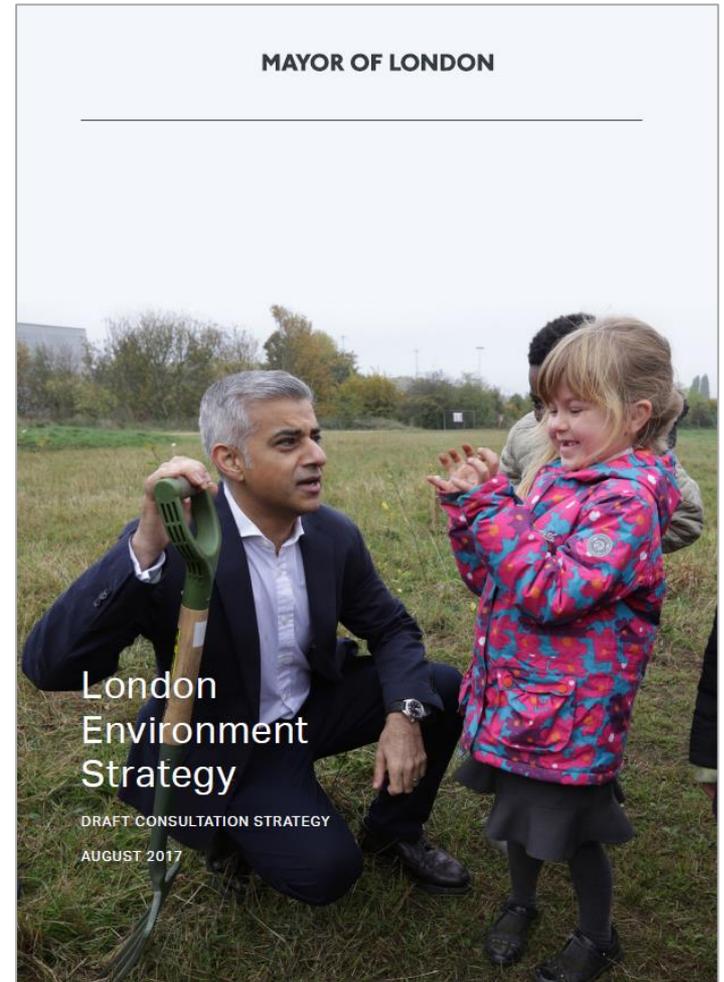
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## LONDON – THE GREENEST GLOBAL CITY



## Our new integrated environment strategy

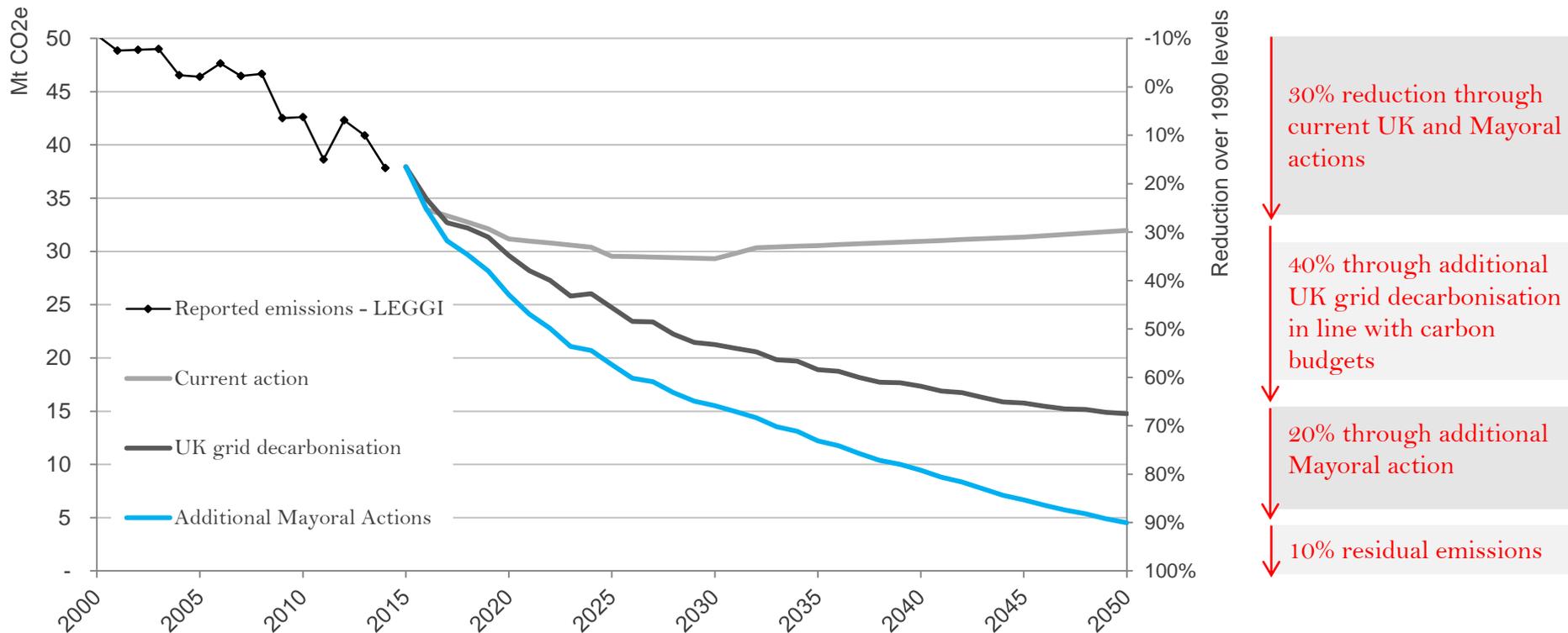
- London's first integrated environment strategy
- Ambition includes:
  - Zero carbon city
  - Zero waste city
  - World Health Organisation PM<sub>2.5</sub> targets for air quality
  - Increase green cover to 50%
  - Action plans for fuel poverty and solar
  - New funding to catalyse action
  - New businesses cases for energy efficiency and green infrastructure



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## National policy still a main driver

- London is responsible for 8% of the UK's GHG emissions and is looked to as key international leader as Vice Chair of the C40 group.
- As of 2014 London's GHG emissions were 16% lower than 1990 levels. Target is for 20% by 2015 (which we are going to meet), 40% by 2020 and 60% by 2025.
- Achieving (net) zero carbon will require Negative Emission Technologies (sequestration)



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**2016**  
Zero carbon  
new homes



**2017** Central  
London transport  
emissions surcharge



**2018** Minimum energy efficiency  
performance standards for all rented  
properties

**2019** All new  
buildings zero  
carbon



**2019** Central  
London Ultra  
Low Emission  
Zone (ULEZ)

**2020**



**2020** Smart  
meter in every  
home

**2021** ULEZ expanded to inner  
London for light vehicles

**2022** 40%  
reduction in carbon  
emissions over 1990  
levels

**By 2030** UK  
Government  
decision on the  
long term role of  
natural gas

**2030**

**By 2030**  
15% of demand  
met by  
renewable and  
community  
energy



**2020s**  
Insulation of  
remaining lofts and  
cavity walls and  
replacement of  
remaining low  
efficiency gas boilers



**2026** Zero  
waste to landfill

**2025** GLA car  
fleet zero  
emission capable



**2025**  
Local zero  
emission  
zones

**From 2030**  
All GLA group  
heavy vehicles are  
fossil fuel-free



**2030s** City wide  
deployment of  
low carbon  
heating systems  
eg. heat pumps

**2037** All bus  
fleet zero  
emission



**2040**

**2040s** Gas and  
electricity networks  
reach zero carbon

**2050** 2 GW of solar  
PV installations

**2050** any remaining  
residual emissions  
offset

**2050** zero emissions  
from all transport and  
buildings

**2050**

## The Mayor aims for London to be a zero carbon city by 2050 and will:

- help Londoners cut their energy use by supporting efforts to improve the energy efficiency of homes and public buildings and helping to roll out smart meters
- cut fuel poverty by targeting energy efficiency to low income homes and working with boroughs to enforce regulations for private landlords to improve the energy performance of their properties
- provide technical assistance to help increase the number of homes and businesses connected to communal heat networks that use local energy sources, including energy created from waste
- increase clean energy generation with at least 100 megawatts more solar installed by 2030, through grants to community groups, pilot projects promoting lower cost solar panels, and by putting solar panels on TfL buildings
- support programmes to replace old polluting commercial boilers with new cleaner ones
- make sure that new developments are zero carbon from 2019, with clean supplies of energy and high energy efficiency designed in from the start
- tender for the delivery of an energy supply company, aiming to offer fairer energy bills to Londoners
- trial low carbon technologies like heat pumps and batteries and new ways to make expensive insulation more affordable

## **Fuel Poverty Action Plan**

- £10m over the next four years for new energy efficiency delivery programmes
- £500k over the next four years to support the creation or roll out of local advice and referral networks, including home visiting services
- new online database of landlords and letting agents who have been convicted of relevant criminal offences
- make available a new open-source pan-London Energy Performance Certificate data model in 2018

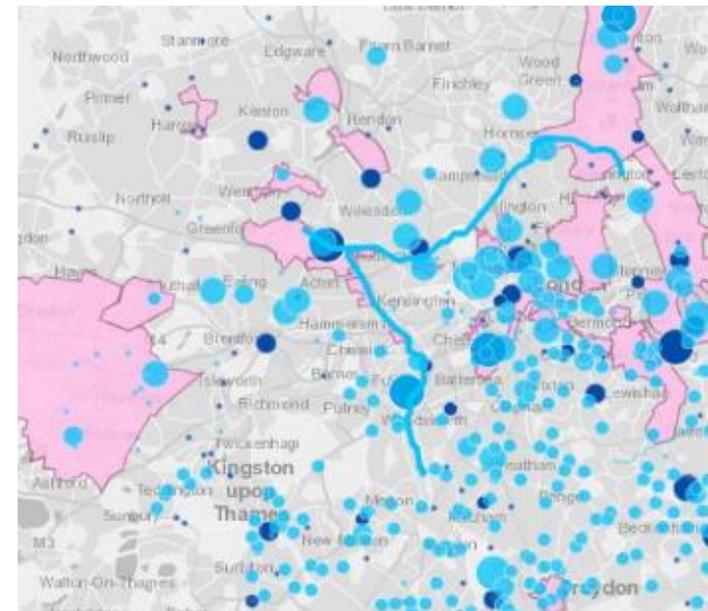
## **Solar Action Plan**

- maximise solar on GLA group buildings and land
- encourage solar energy installations through the planning system
- pilot a solar reverse auction scheme to reduce installation costs for Londoners
- develop a grants scheme to help community solar energy projects get off the ground

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## The energy system will be shaped by range of regional and local actors

Function	Regional/local actors
Policy new development	GLA, Boroughs, developers, designers, businesses
Policy existing development	GLA, Boroughs
Transport policy	GLA, TfL
Ensure efficient design and delivery of infrastructure, grid connections, EV charging etc	GLA, Utilities, Boroughs, Developers, OEMs, installers, Businesses etc
Ensure efficient operation of infrastructure	GLA, Utilities, Boroughs
Longer term policy planning	GLA, Boroughs, Utilities, NGOs, community groups
Target and help vulnerable end users	GLA, DNO, Energy suppliers, Boroughs, Community Groups, NGOs



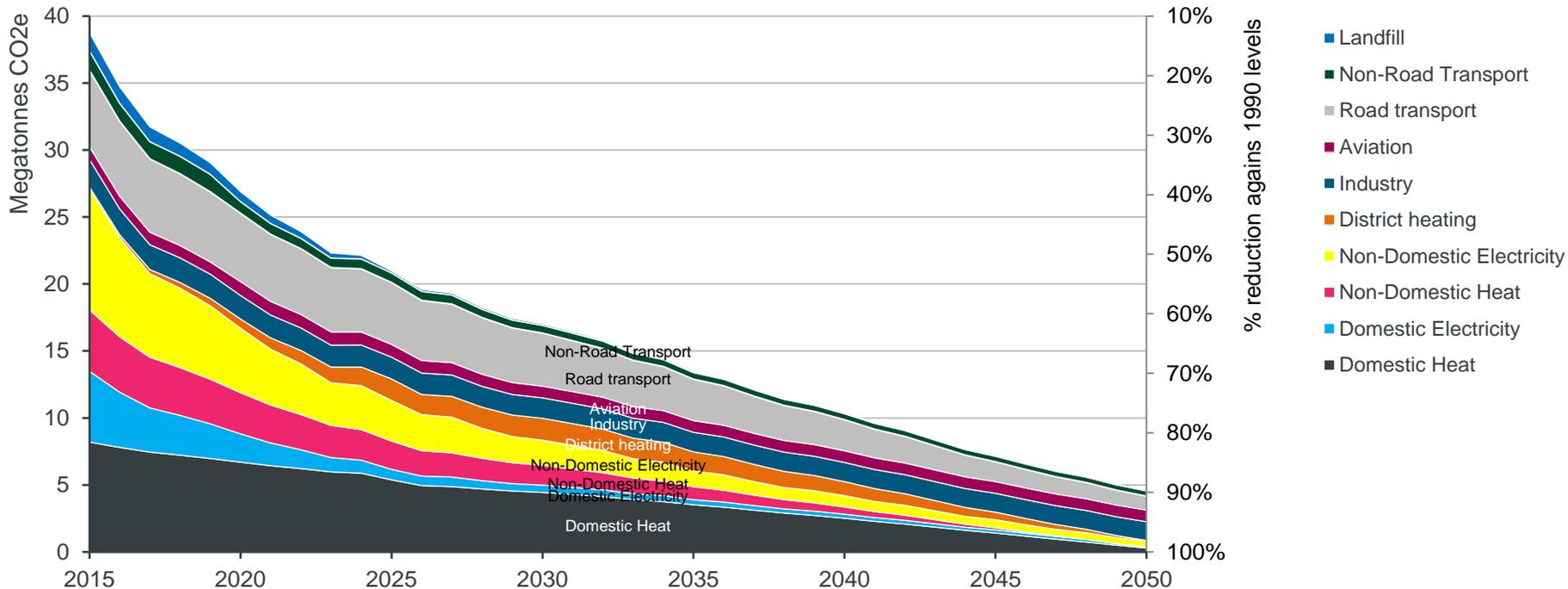
London Infrastructure Map



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## Zero carbon modelling – how to get close

- **Energy demand reduction** through energy efficiency and behaviour change is a priority in the short term while the market for zero carbon supply of heat and electricity matures.
- **Electric heat pumps** will need to replace gas boilers to deliver zero carbon heat as the carbon content of electricity continues to fall. London will need to develop significant supply chains and retrofit programmes
- **Vehicles to be** 100% electric/ hydrogen by 2050.
- **District heating** to connect buildings in dense areas and areas not suited to building-scale heat pumps. District heating provides the infrastructure for zero carbon transition as secondary heat sources can be exploited.
- **£20bn investment** in London's existing building stock
- Retrofit of 100,000 homes per year



# The New London Plan



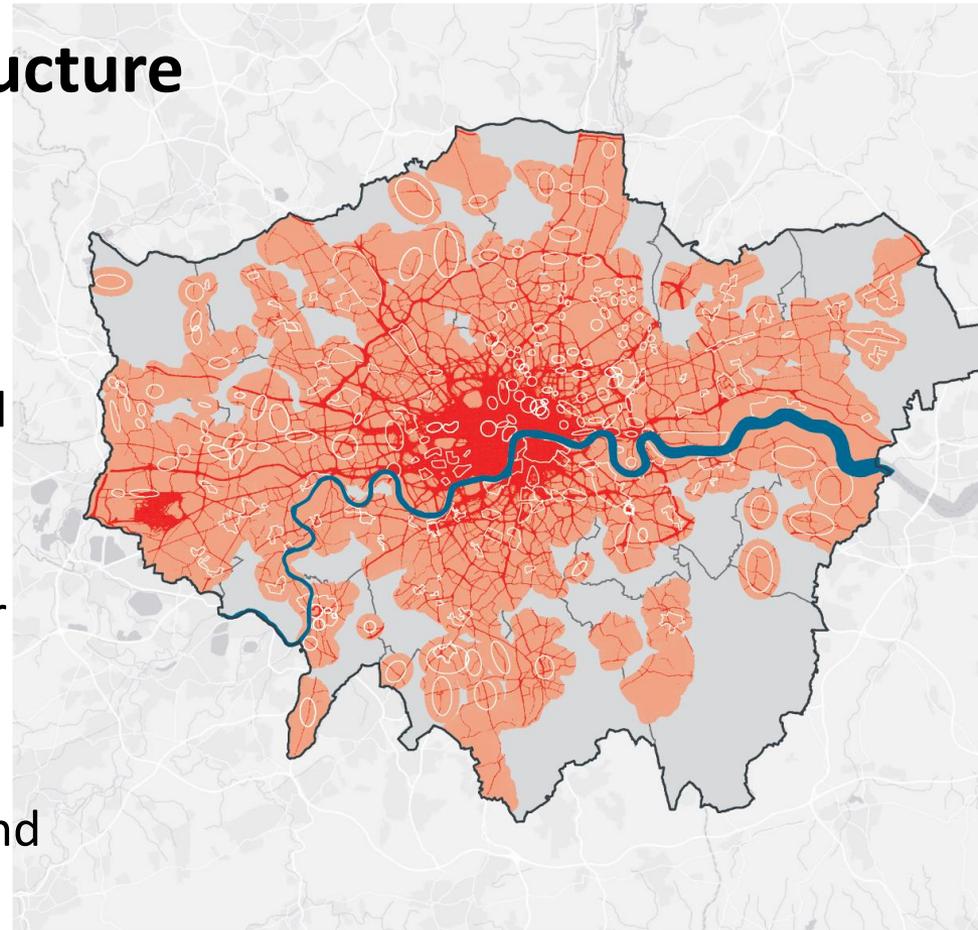
## Policy SI2 - Minimising greenhouse gas emissions

- Extends zero carbon target to all new major development
- Maintains the minimum 35% on-site carbon reduction target
- Introduces new energy efficiency targets
- Monitoring requirement
- Maintains the requirement for offset funds with a new carbon offset price set of £95/tonne CO<sub>2</sub>
- Expanded list of requirements for energy strategies

## Policy SI3 – Energy infrastructure

New heating hierarchy for developments in Heat Network Priority Areas:

- connect to local existing or planned heat networks
- use available local secondary heat sources generate clean heat and/or power from zero-emission sources
- use fuel cells
- use low emission combined heat and power (CHP)
- use ultra-low NOx gas boilers.



**Heat Network Priority Areas and Heat Density in London**  
Relative heat demand based on fuel use kWh/m<sup>2</sup>/year

- Heat Network Priority Areas
- Areas where legal air quality limits are exceeded
- Local Authority Heat Network Studies

Source: GLA Environment

Contains OS data  
Crown copyright  
database right

# Challenges

- Coordination – roll out of DG and EVs requires lots of different actors to work together.
- Identifying and aggregating projects and lack of central coordinator.
- Lots of small income streams needed to get projects over line.
- Engagement in market and policy design – even harder on smaller scale.
- Need to make sure new revenue streams reward all types of technology equally and open to wide range of actors.
- Innovation – how to ensure funding is open and it is built into standard business practice

# Questions

- Are we doing everything we can to minimise demand first at every stage?
- How can we bring in greater cost reflectivity without penalising early adopters and protect vulnerable?
- Should greater data sharing and cooperation be mandated?
- Who should build pipeline of projects and pool benefits?