

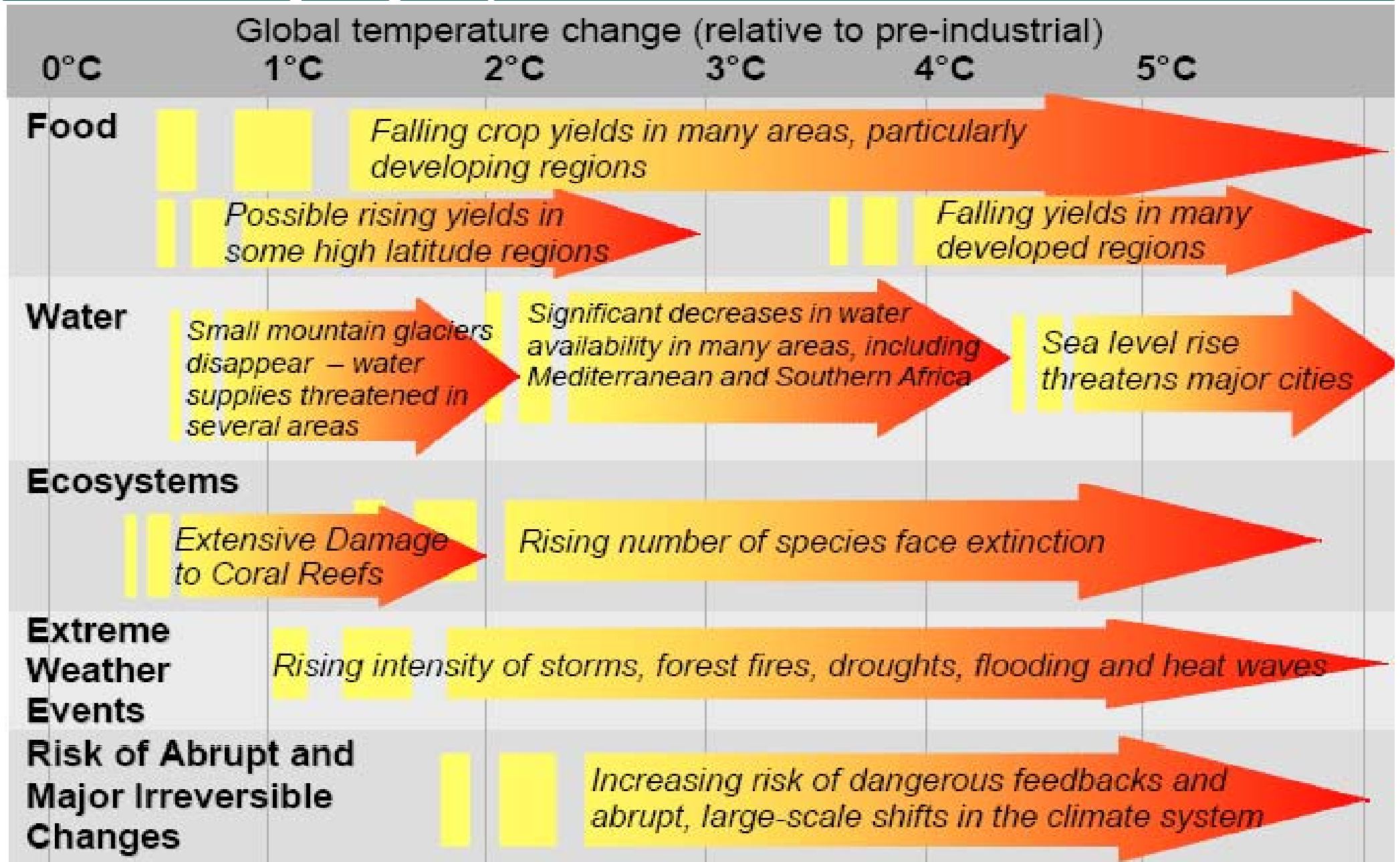
Low Carbon London + Climate Change: Challenges and Opportunities

Charles Secrett
Advisor on Climate, Environment
and Sustainability
LDA Board Member



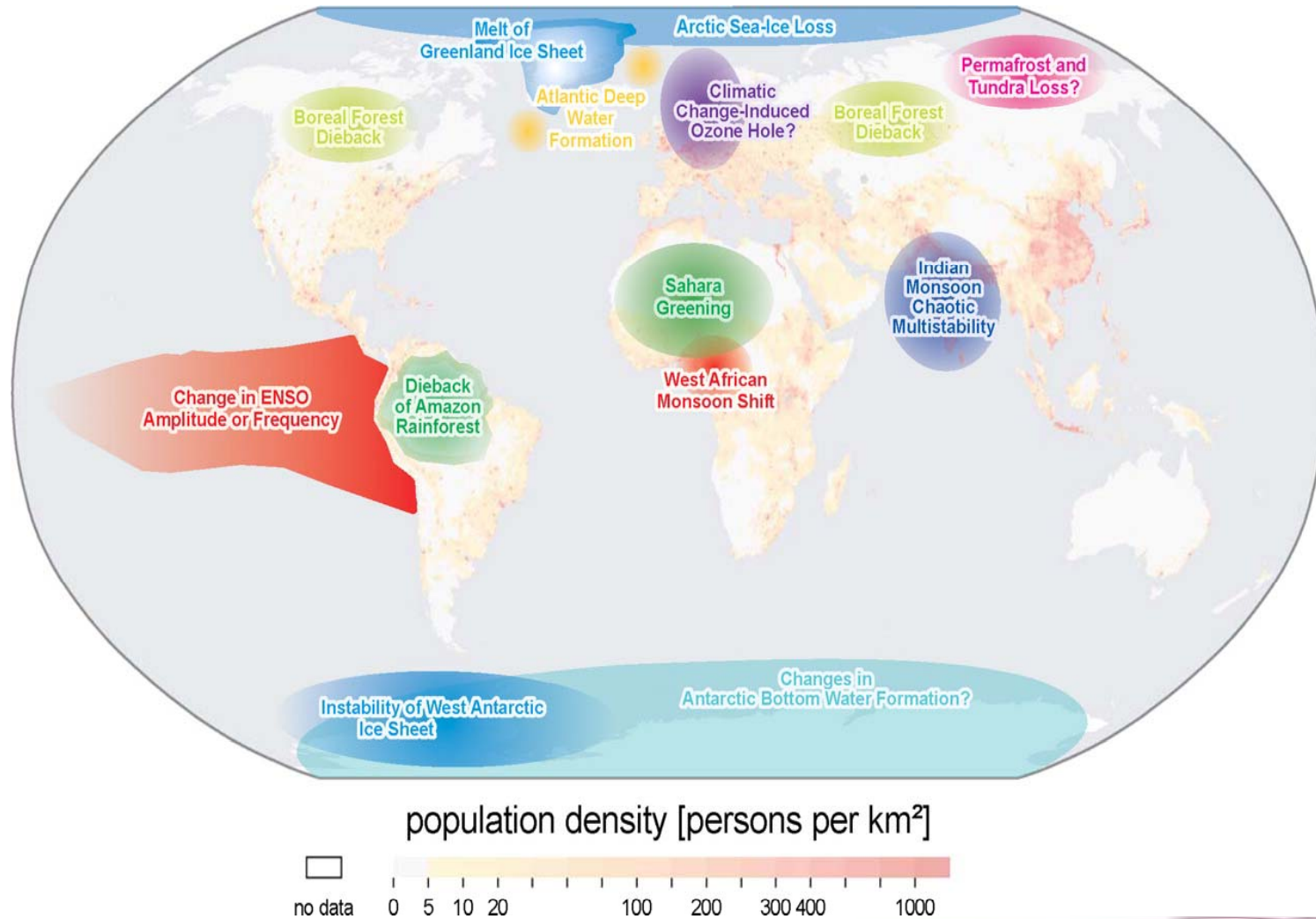
The scale of the problem - threats

IPCC now estimating c. 4 degree C by 2100

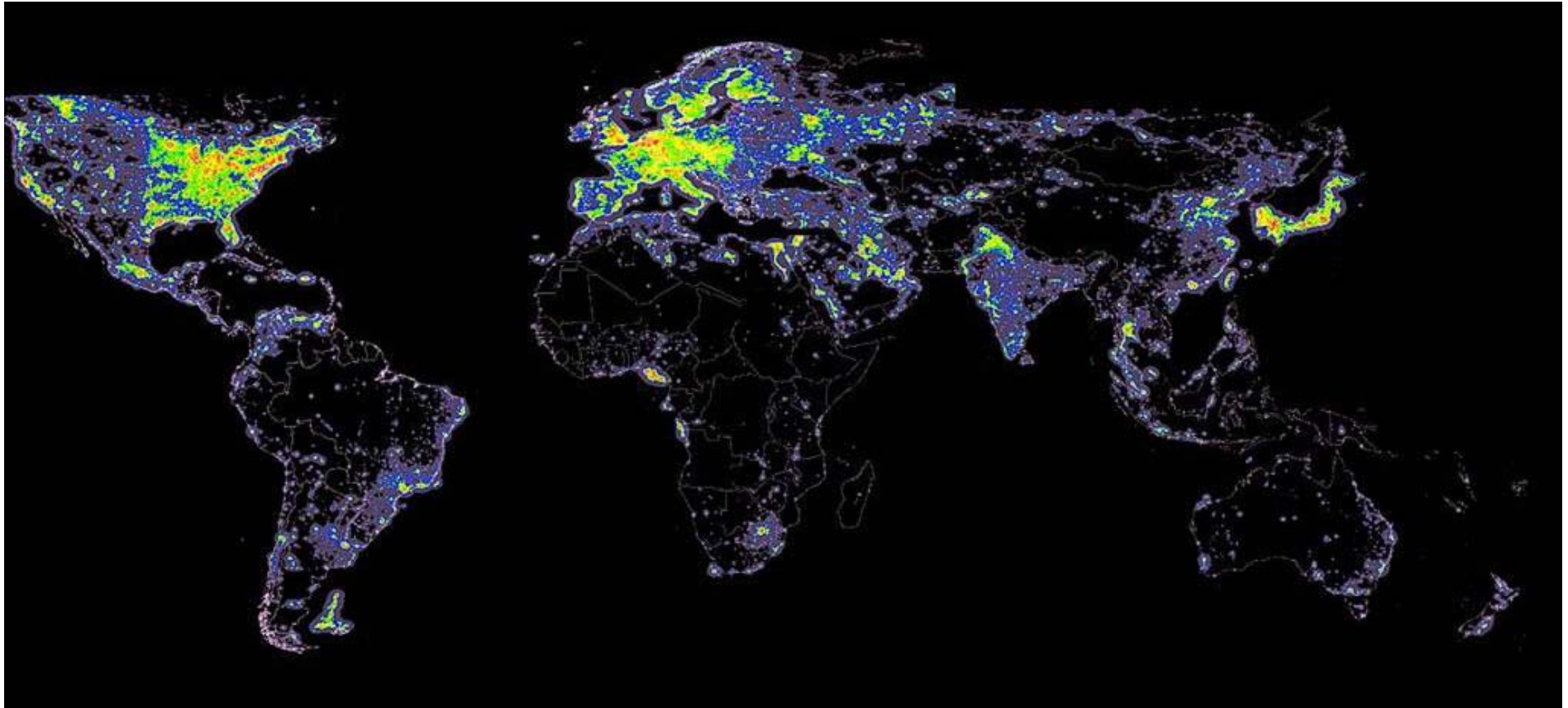


Map of policy-relevant tipping elements in climate system

(updated from ref.: Lenton, Timothy M. et al. (2008) Proc. Natl. Acad. Sci. USA 105, 1786-1793)



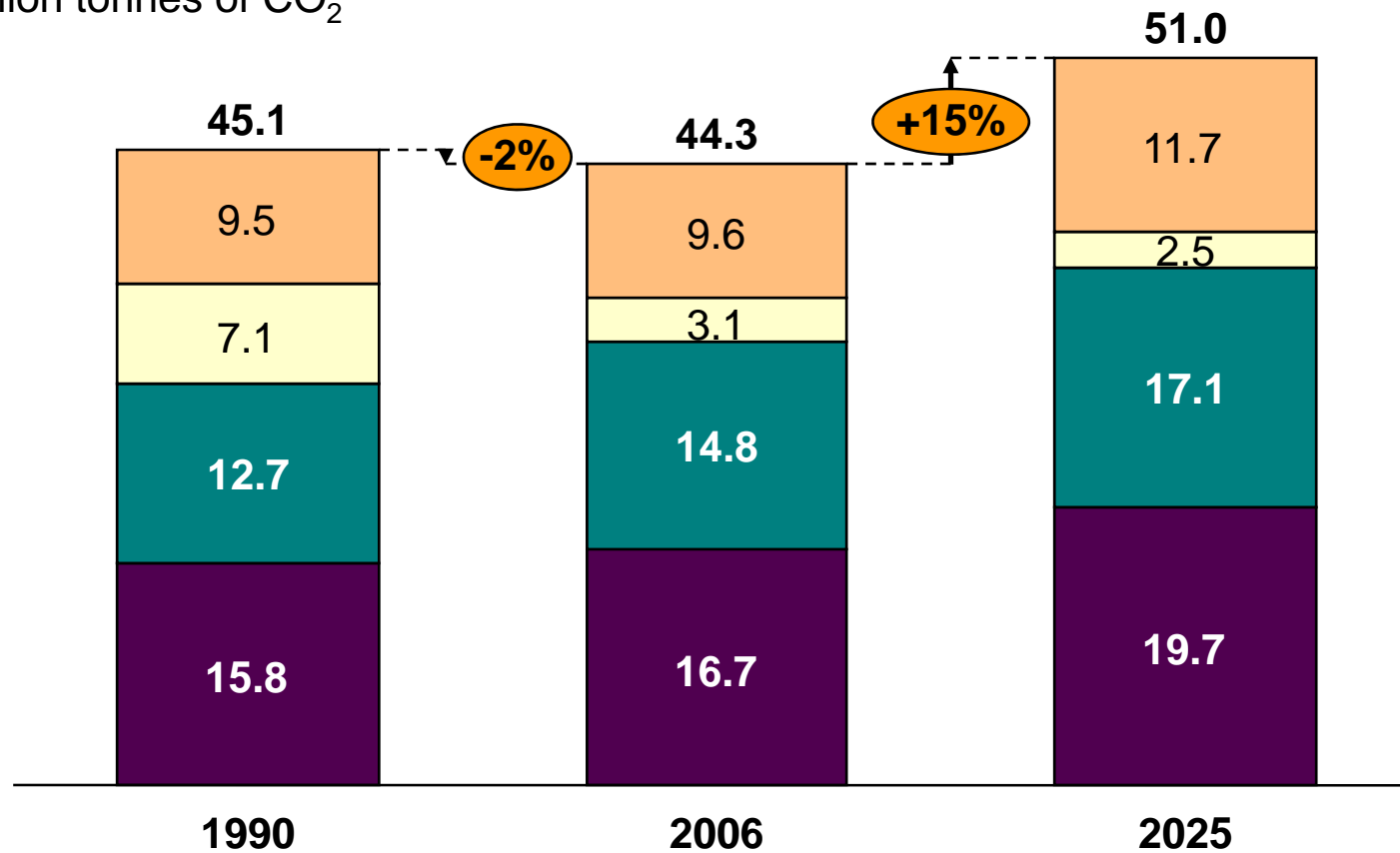
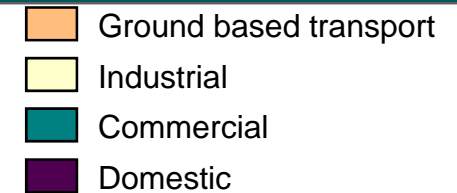
Cities are responsible for **75%** of the world's **CO₂** emissions and **75%** of resource use



London's CO₂ emissions are projected to rise between now and 2025

• London's projected CO₂ emissions for 2025 – the business as usual scenario

• Million tonnes of CO₂



London CO₂ emissions (excluding aviation = + 23 m.t. CO₂) 2006



Ground Based Transport



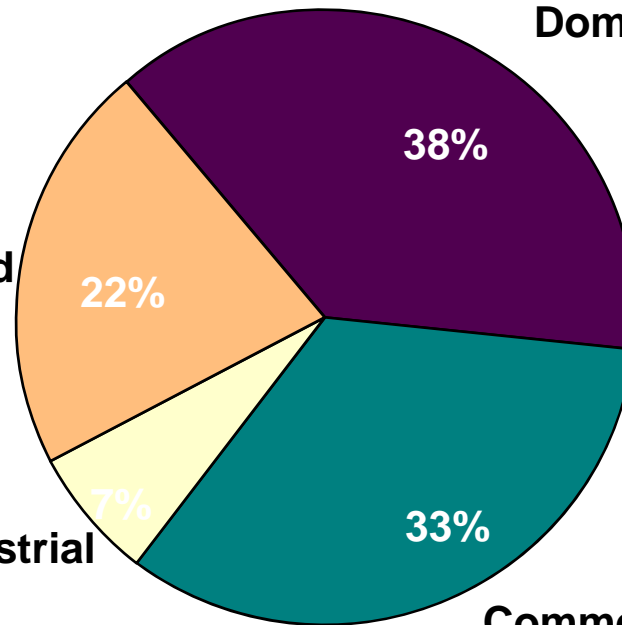
Domestic



Industrial



Commercial and public sector



44 mt CO₂

Simple, beneficial emission cuts – why doesn't everyone do?!



Simple behavioural change by all Londoners could **reduce CO₂ emissions by 2.3 million tonnes and cut fuel bills**



If all light bulbs were energy efficient, London would save **575,000 tonnes of CO₂ and £139 million per year (2006 prices)**



Major reductions from home insulation and **help solve fuel-poverty in 4-500,000 homes in London**

The power of personal choice - same car, twice the CO₂



- VW Golf 1.9 litre diesel engine
- Cost: £16,500
- 132 grams CO₂ /km



- VW Golf 3.2 litre petrol engine
- Cost: £25,000
- 255 grams CO₂ /km

The challenge – turning aspirations to be greener into actions that matter

- In UK, people now believe a sustainable home is: modern (90%); attractive (72%); hi-tech (79%); fashionable (78%); good value for money (72%)
- **BUT** while 90% of people broadly accept the science, and 70% say they are willing to change – **ONLY 20% are changing carbon behaviour slightly** (buying local food, recycling, driving car less) and only 5% changing significantly

Sources: Ipsos-Mori 2007; Energy Saving Trust 2007

The biggest block to behaviour change ...

**As long as it is cheap, convenient and legal to waste carbon and natural resources, then that is what the great majority of individuals, households and companies will do ...
at work, home and play.**

Changing carbon-heavy behaviour ultimately means changing ...

- **Attitudes**
- **Values**
- **Beliefs**
- **AND MARKETS**

What doesn't work ...

- **Endlessly highlighting problems** of environmental degradation and unsustainable behaviour
- **Facts and figures on their own** – data is not enough
- **Moralising and exhortations**
- **Official pronouncements** about what should be done, without a low-carbon enabling policy framework (regulations; fiscal support; planning guidelines; procurement)

So, what does work ...

- **Laws and Regulations** to ban/restrict unsustainable behaviour
- **Polluter Pays Levies and Charges** – *if* revenues are recycled into low carbon solutions (infrastructure, technologies, products)
- **Financial Incentives** – grants, discounts, rewards for low carbon choices and behaviours + procurement
- **Focused Advice and Assistance programmes** that are convenient to access for user, and help navigate a muddled market-place
- **Widely available information on problems, causes and solutions** - especially when help individuals, families companies in short-term
- **Exemplar Best Practice** – ‘seeing is believing’
- **Partnerships** across public, private, domestic and voluntary sectors
- **Respected Champions** – local, professional, celebrity, political, business
- **Coordinated and demonstrable international action** – between companies, communities and countries

**Action Today to Protect Tomorrow:
The Mayor's Climate Change Action Plan**

LONDON C
ON
2

LONDON CLIMATE CHANGE ACTION PLAN

MAYOR OF LONDON

Approach to developing the London CCAP

1. **Baseline**: London's 1990 and 2006 CO₂ footprint

2. **Future emissions**: What will London's emissions be under 'business as usual'?

3. **Targets**: What CO₂ reductions are needed for London to play its role in stabilising global temperatures?

4. **Quantified actions**: How can London deliver these targets?

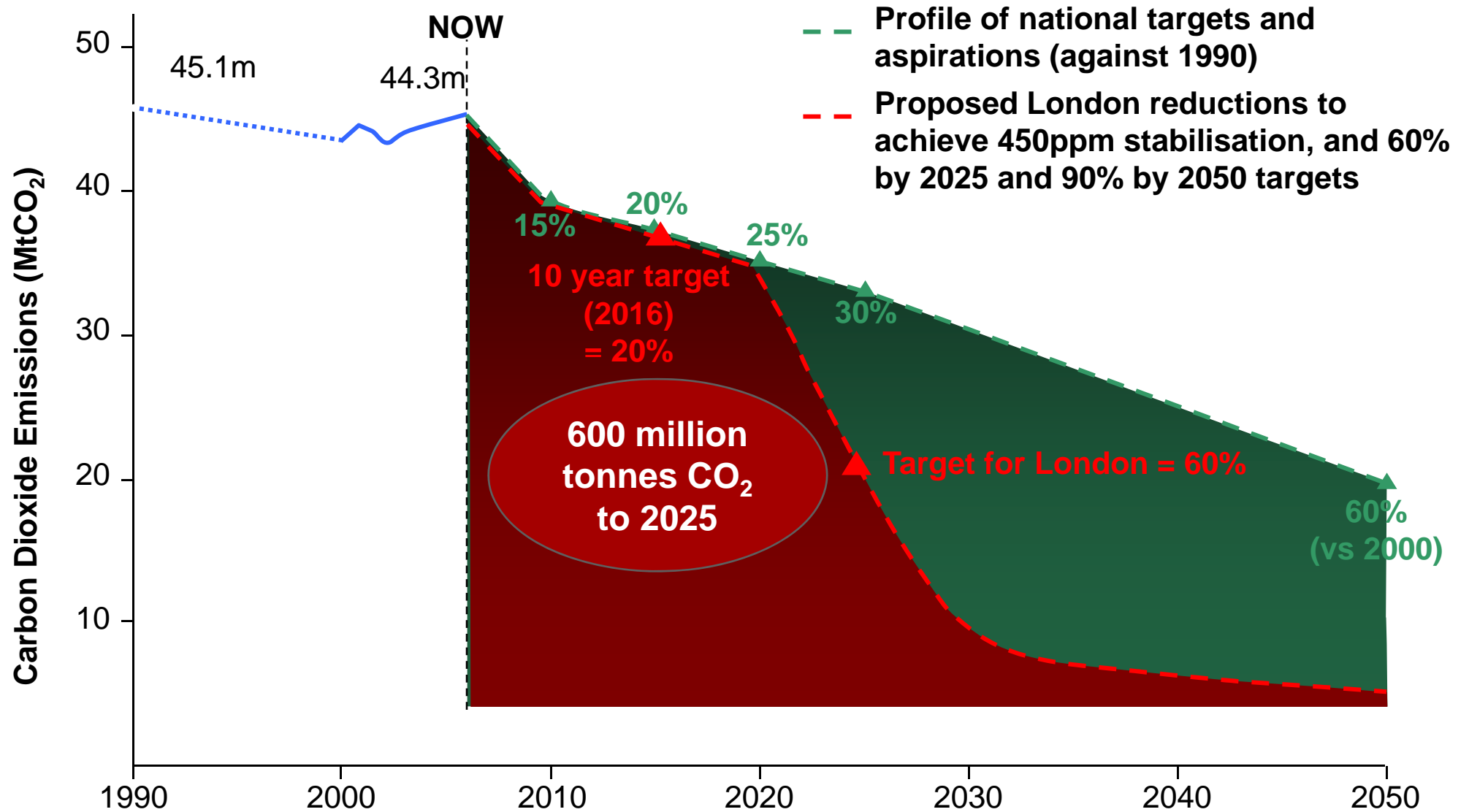
5. **Cost/benefit**: At a high level, what would the actions cost and what will be the CO₂ benefits?

6. **Implementation**: What do we need to do to make this happen?

London Climate Change Action Plan: an enabling framework

- 1. Create Partnerships** – between public, private, voluntary and domestic sectors
- 2. Integrated cross-sector action** in energy, waste, transport, buildings
- 3. Create the conditions** for businesses, communities and families to act
- 4. Maintain standards of living** (and improving for poorer families and communities)
- 5. Best science-driven targets** and a long-term perspective
- 6. Deliver needed economic and social benefits** – many skilled and low-skilled jobs ... inward investment ... lower resource/running costs for households and companies ... carbon trading to keep The City as premier global financial ... economic efficiency, innovation and modernisation ... better public health ... higher quality of life ... a cleaner, more liveable city

Required CO₂ reductions



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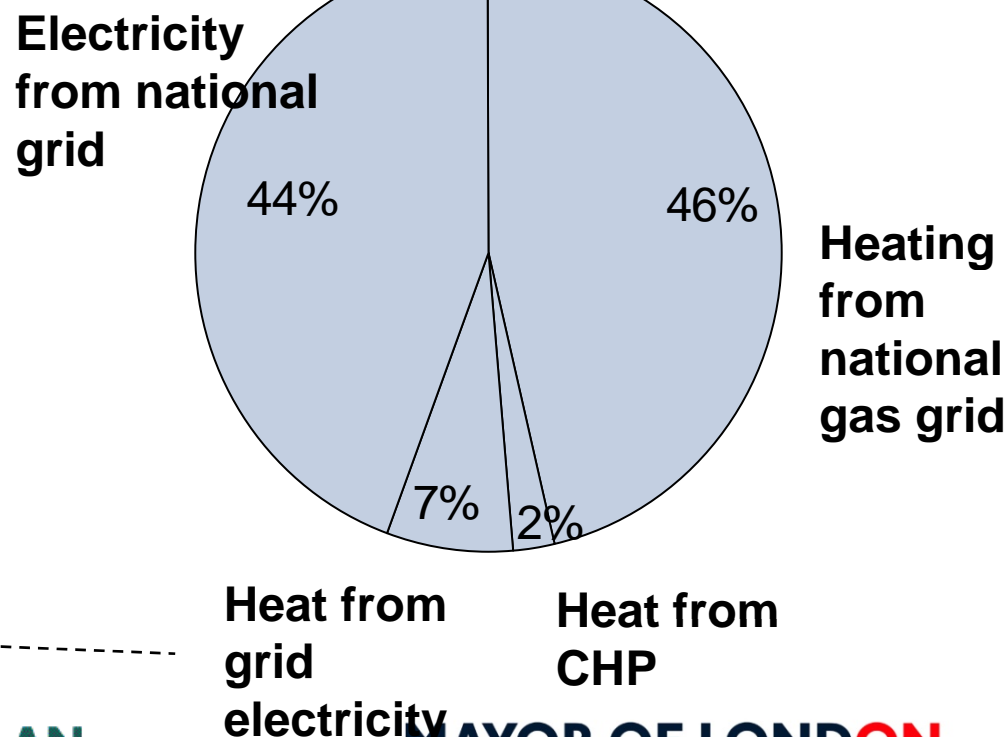
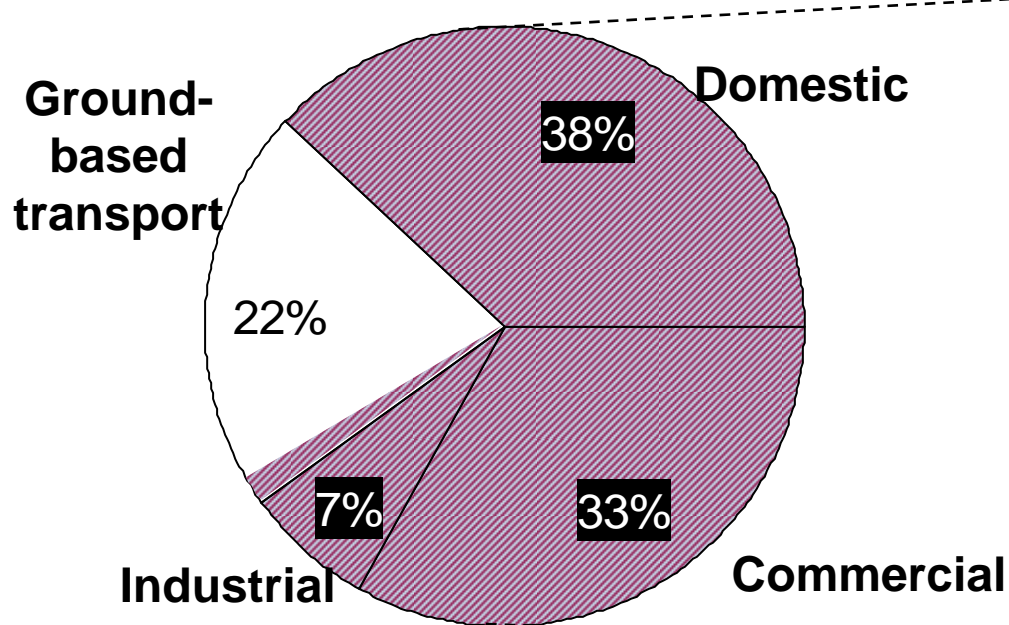
Programmes to help Londoners + businesses change behaviour and reduce emissions

1. **Green Homes Programme**
2. **Green Organisations Programme**
3. **Green Energy Programme**
4. **Green Transport Programme**

Where emissions come from: energy supply

- 2006 emissions from all sectors, excluding aviation
- 100% = **44.3 million tonnes CO₂**

- 2006 emissions from energy supply
- 100% = **34.7 million tonnes CO₂**



Cheaper and more efficient: decentralised energy



25-35 per cent of energy input used



LONDON CLIMATE CHANGE ACTION PLAN



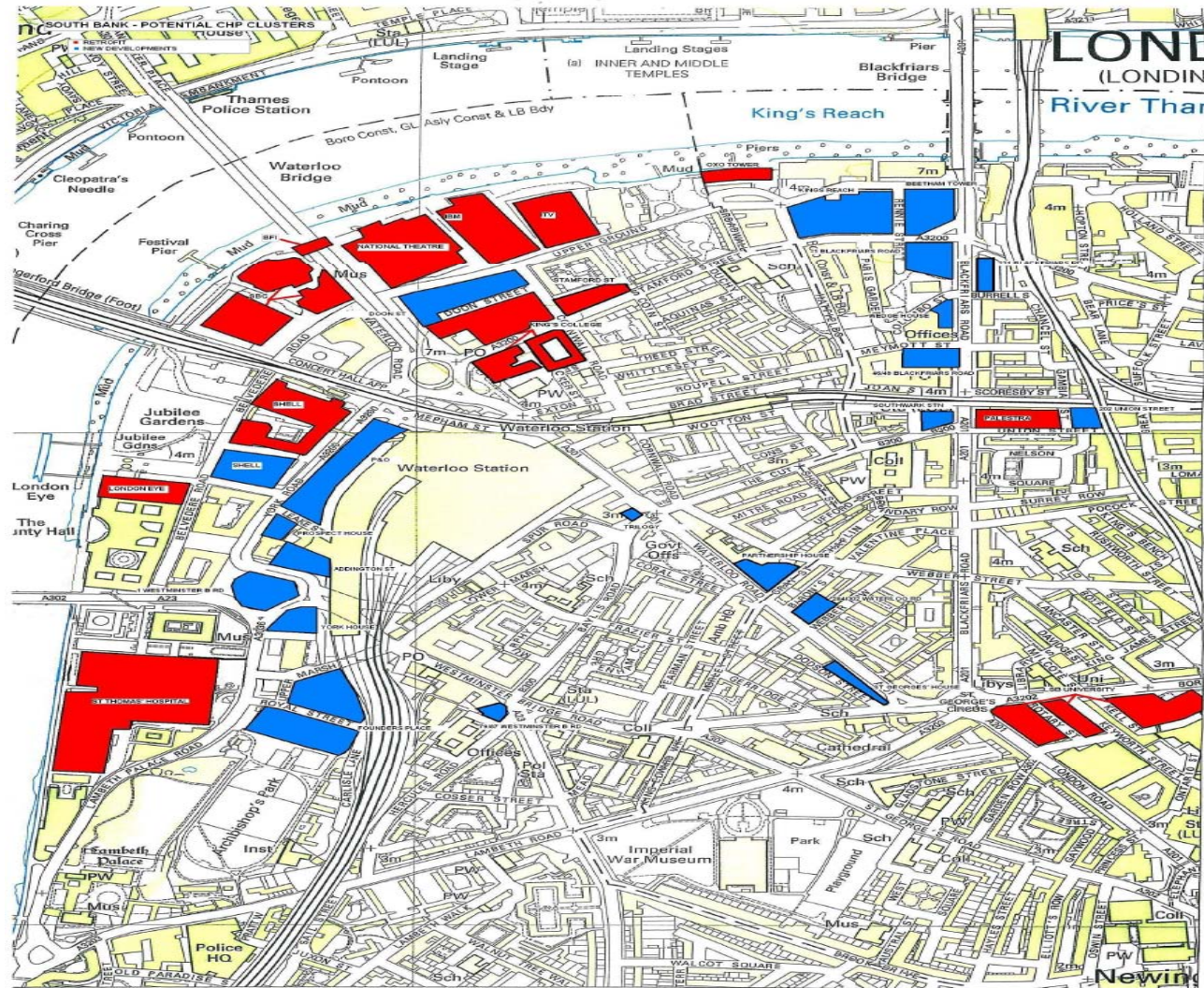
85-95 per cent of energy input used



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Mapping London's commercial waste heat loads – LDA CHP Initiative: SBEG (South Bank Employers Group)

- One of first 5 commercial CHP schemes from LDA project pipe-line rolling out across London
- Proposed SBEG developments:
 - 2,000 hotel rooms
 - 3.28m ft sq offices
 - 30,000 ft sq retail
 - 1,800 dwellings
- 11 Existing loads, including: Guy's, Shell building, IBM etc



Use existing decentralised technologies/products – ITS NOT MAGIC to cut emissions e.g. Combined Heat and Power

Like a car engine – provides rotational power....but also lots of heat.

Electricity generated and used in building or sold to grid

Heat used in building or exported to a district heating network (and adapt for cooling buildings too)



Using existing technologies – solar thermal and solar tiles

Typical system comprises:

Collector

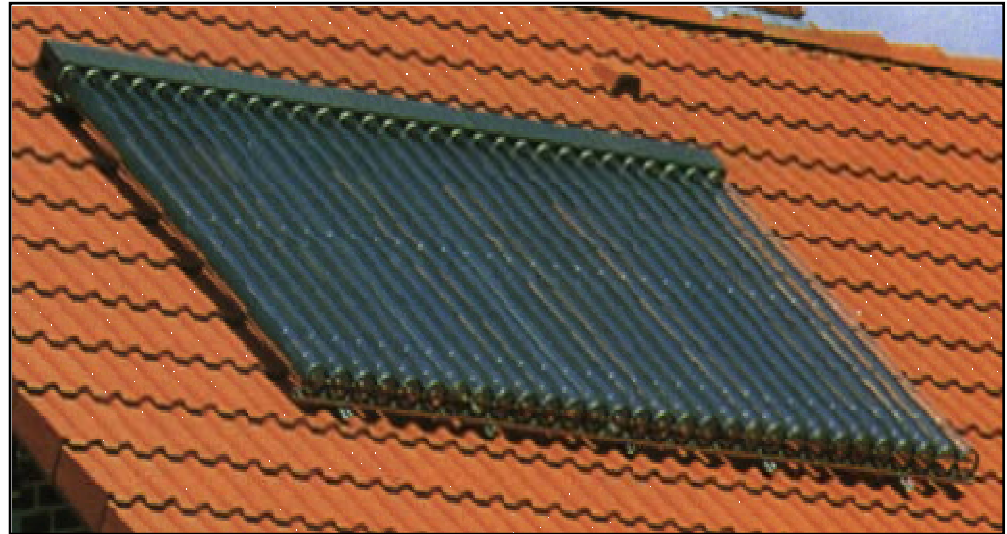
Fluid (water & antifreeze)

Heat exchanger

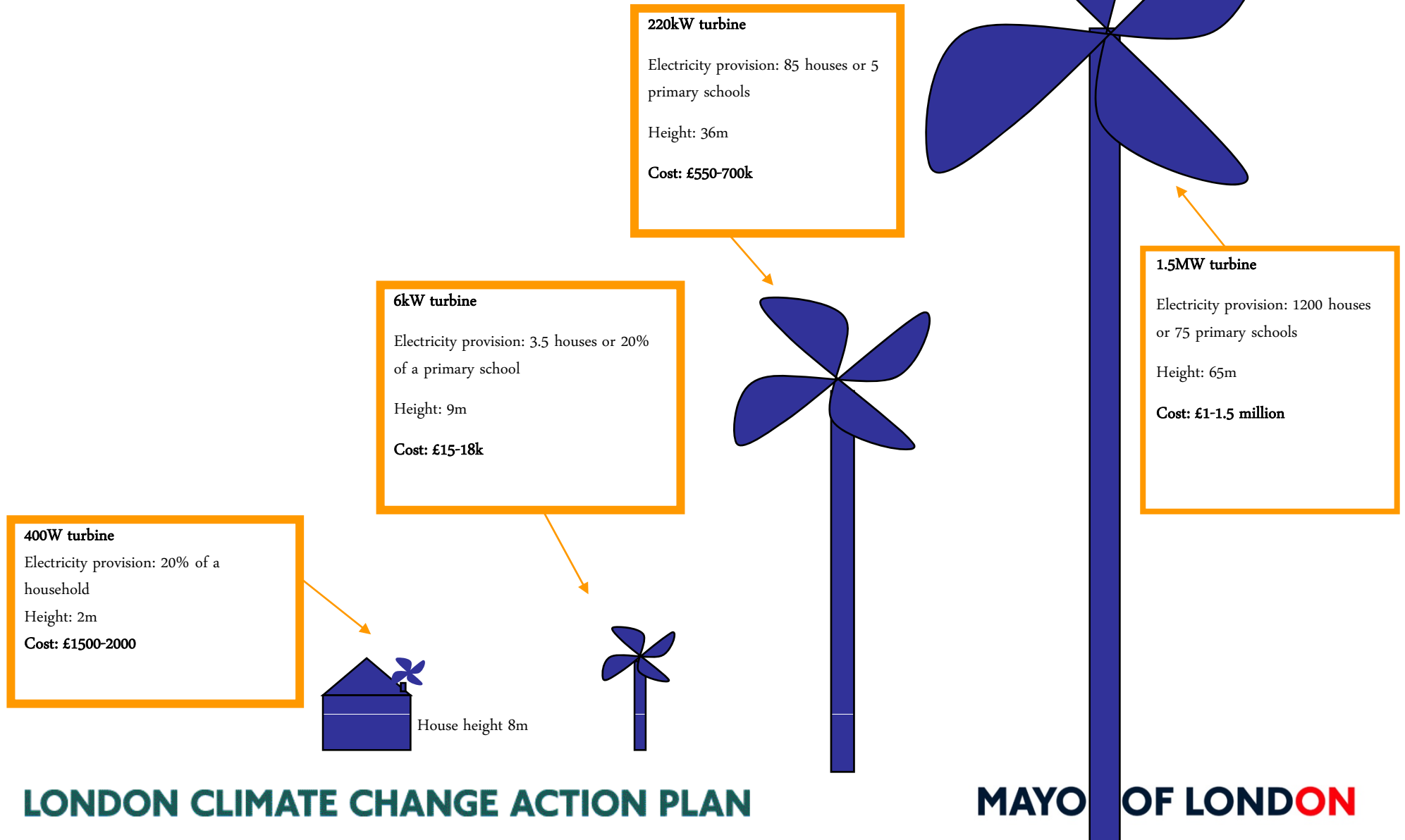
Control system (temperature
sensor & pump)

Will provide around 50% of
year round DHW – no power
or space heating

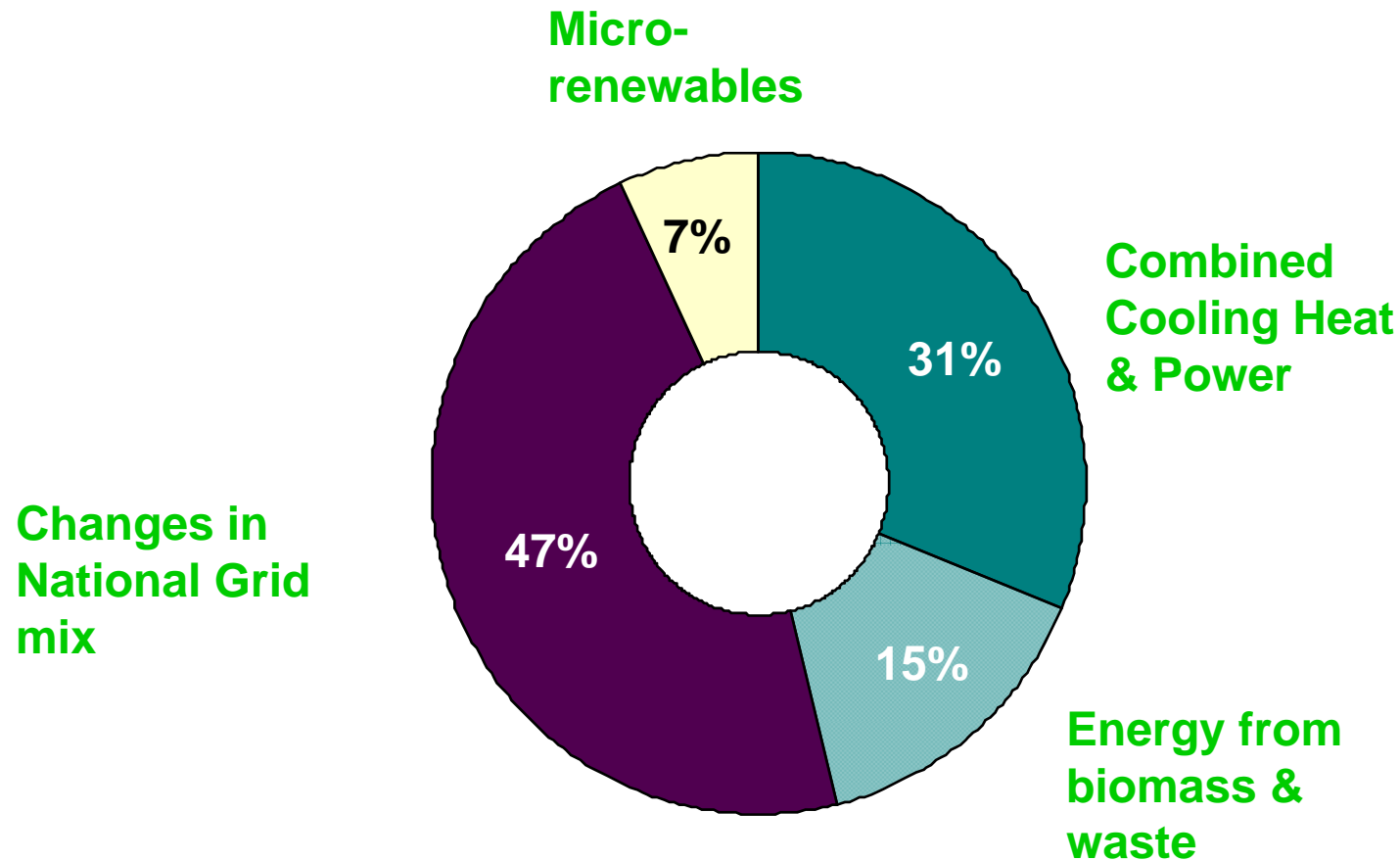
Domestic installation - £3,500



Wind – onshore and off-shore

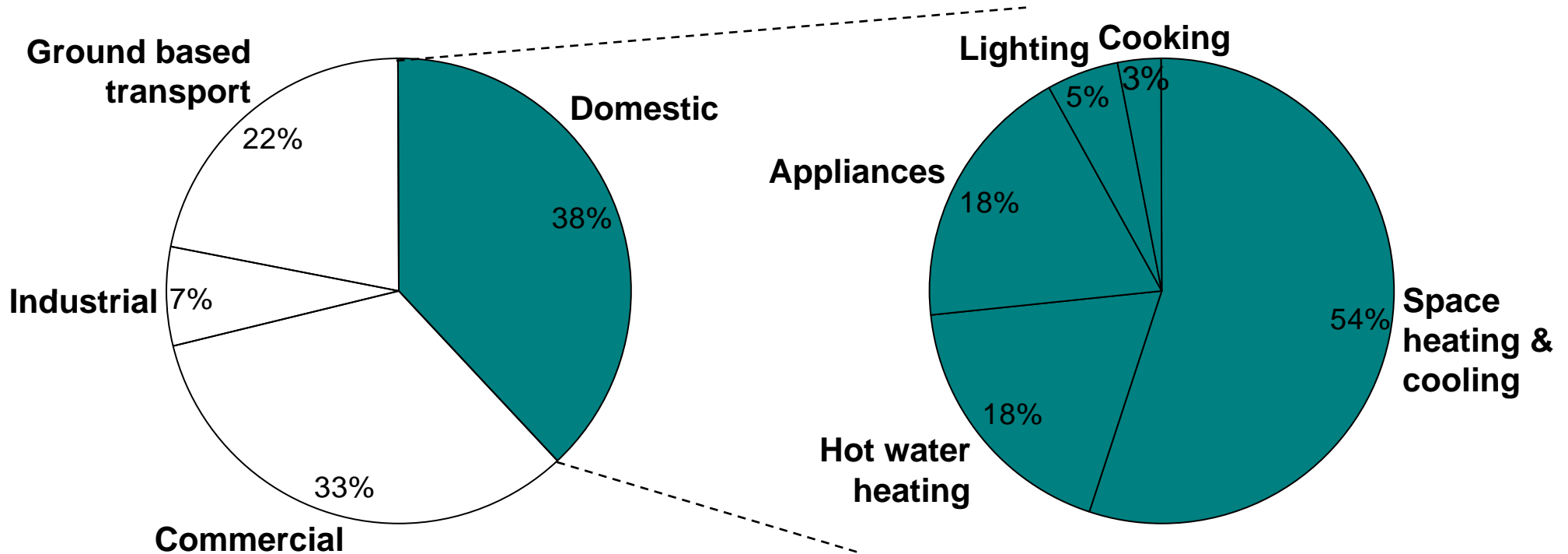


Sources of savings from energy supply



London's CO₂ emissions from domestic sector 2006

- All sectors, excluding aviation
- **44 million tonnes CO₂**
- Domestic sector
- **17 million tonnes CO₂**



Home insulation campaign

M4 poster 21/3/07 12:27 pm Page 1

SAVE! FROM ONLY £250 HOME INSULATION

GET CAVITY WALL INSULATION FROM ONLY £250 AND FULLY FITTED LOFT INSULATION FOR AS LITTLE AS £274...

SAVE! £100 CASHBACK FROM THE MAYOR OF LONDON AND BRITISH GAS. ENERGY SAVINGS GIVING UP TO 60% OFF YOUR HEATING BILLS...

SAVE! AND HELP STOP CLIMATE CHANGE BY HELPING TO SAVE OVER 700,000 TONNES OF CO₂.

CALL 0845 070 5059

British Gas MAYOR OF LONDON

DIY REPAIRS

FREE! FREE INSULATION HOME INSULATION

IF YOU ARE IN RECEIPT OF BENEFITS, YOU COULD GET FREE CAVITY WALL AND LOFT INSULATION...

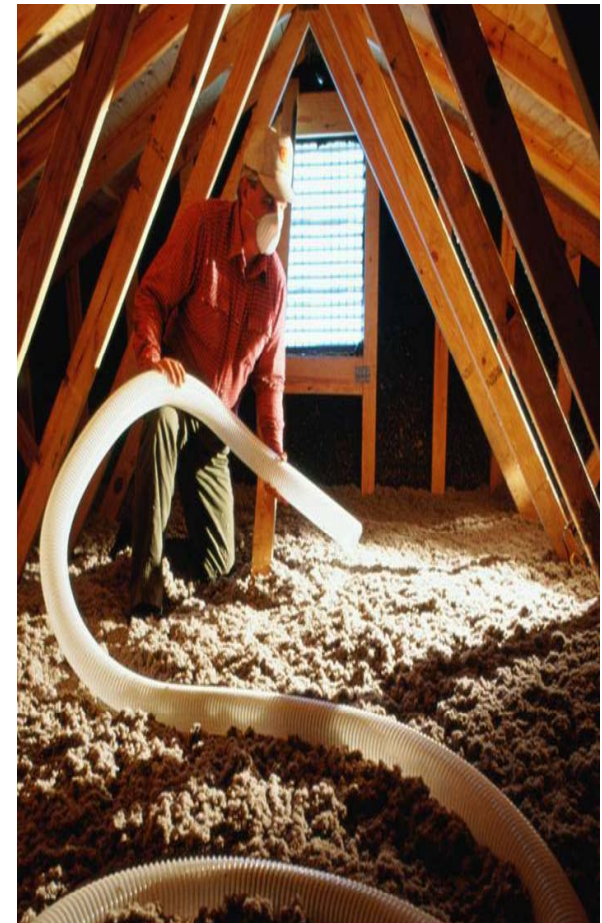
SAVE! INSTALLING INSULATION WILL REDUCE YOUR HOUSEHOLD ENERGY BILLS...

HELP! AND HELP STOP CLIMATE CHANGE BY HELPING TO SAVE OVER 700,000 TONNES OF CO₂.

CALL 0845 070 5059

British Gas MAYOR OF LONDON

DIY REPAIRS



LONDON CLIMATE CHANGE ACTION PLAN

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London incentives - cut price + FREE home energy services

- Cut price loft and wall insulation (1 year payback)
- Available to every home that can benefit across London
- Free to those on benefits and targeting pensioner households
- Partnering with Faith, Charity and Community groups (diverse London and global village outreach)

Real world financial gains NOW

Taken together, these measures will save
the average London household around

£300 each year off energy bills

Not only energy - rainwater recycling and saving water



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A One Stop Shop – The Green Homes Service programme

GREEN HOMES PROGRAMME

£7m 2007/8

1 INCREASE AWARENESS

2 PROVIDE INFORMATION

3 EXECUTE/ DEVELOP THE SUPPLY CHAIN

Issue

- *Not aware how their homes contribute to CO₂, or that they can do anything about it*

- *Not sure what they should do about it, or who they should get to help them with it*

- *Can't overcome the inertia/hassle factor, don't have the funds, inadequate supply of skilled tradesman to perform the work*

Initiative

<p>1. Marketing and behavioural change campaigns (all consumer segments)</p>	<p>2. Advice service (all consumer segments)</p> <ul style="list-style-type: none"> – Web portal – Phone – Face to Face counters – Promotions with private sector 	<p>3. Concierge service (owner occupiers, able-to-pay)</p> <p>4. Social housing and fuel poor programme (non able to pay/fuel poor)</p> <p>5. Skills training (all sectors)</p> <p>6. House Purchase and refurbishment initiative (owner occupier, able to pay)</p> <p>7. Green Landlord initiative (privately rented)</p> <p>8. Influencing government (lobbying programme)</p>
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London homes produce 40% of the city's carbon dioxide (CO2) emissions - which contribute to climate change.

The Green Homes website contains information, help and advice for homeowners, tenants and landlords on simple green practices that will help reduce the city's CO2 emissions and achieve the bold targets from the Climate Change Action Plan.

It's time to make changes in London now. The Green Homes website from the London Development Agency can help.

ENERGY MAKEOVER TV



Watch 'through the keyhole' videos of London homeowners who have signed up for an energy makeover with the Green Homes Concierge Service.



GREEN CONCIERGE SERVICE

Find out how our Green Homes Concierge Service staff could cut your energy consumption, reduce your emissions and slash your utility bills.

WELCOME TO NO.1 LOWER CARBON DRIVE



Discover some of the products, technologies and habits that you can adopt at home to tackle climate change.

What's in this website for me?

For Homeowners

Making positive changes to your home could reduce your impact on the environment - and increase the value of your home.

For Landlords

Help your tenants save money and increase interest in your property with just a few cost effective measures.

For Tenants

There are lots of low cost and low impact measures you can take to make a difference - and reduce your utility bills.

REAL LIFE STORIES

Find out how other Londoners are tackling climate change in their home.

MORE FROM LONDON DEVELOPMENT AGENCY (LDA)

DIY Planet Repairs website

DIY Planet Repairs aims to provide you with practical advice and useful information to help you make simple and effective 'green' changes.



HOW GREEN AM I?

Do you know how much CO2 you're



HELP & ADVICE

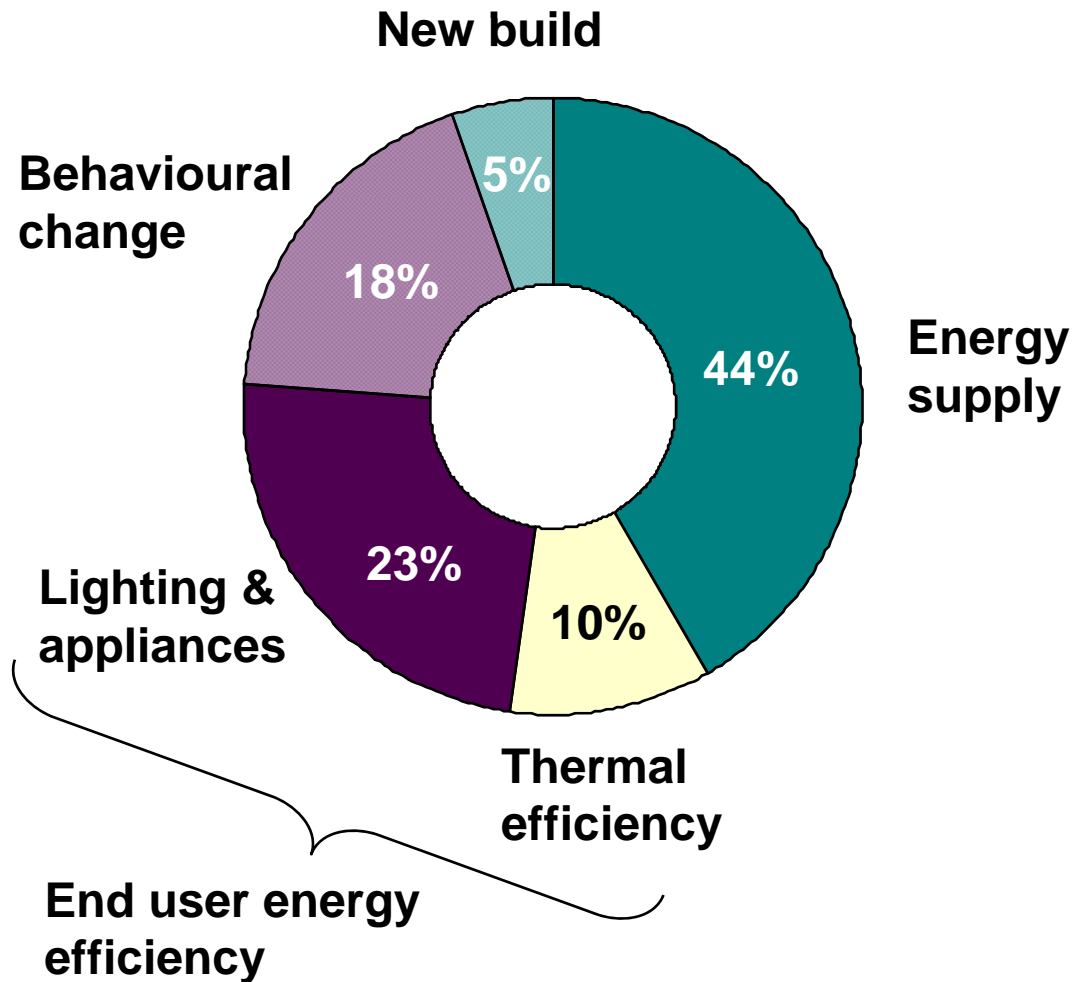
The London home is one of the biggest



PROMISE TO BE GREENER

Why not stand up and be counted

Sources of carbon dioxide savings from existing homes



Seeing is believing – BedZED '0' carbon estate



BedZED

Located in Wallington, South London, BedZED comprises 100 homes, community facilities and workspace for 100 people

http://www.bioregional.com/programme_projects/ecohous_prog/bedzed/bedzed_hpg.htm

<http://www.zedfactory.com/background/background.html>

Key features of BedZED include: *South facing homes that maximise warmth from the sun *300mm insulation in external walls and roofs compared to *the standard 50mm *Triple-glazed windows to further reduce heat loss *A Combined Heat & Power plant that provides electricity *and hot water for BedZED. This is fuelled by woodchips *from waste timber that would otherwise be sent to *landfill *A *Living Machine:1 that recycles wastewater for use in *flushing toilets and irrigation *Wind cowls with heat exchangers on roofs to provide a *passive ventilation system *A green transport plan that promotes walking, cycling *and the use of good local public transport links. A car *club for residents is now fully established at BedZED *Photovoltaic panels that provide clean electricity to *power on-site as charging points for electric vehicles *Kitchens fitted with the latest energy saving appliances.

Exemplar developments: Gallions Park – LDA first '0' carbon estate

Gallions Park ESCo Solution

- Up to 250 new homes proposed.
- Code for sustainable homes level 4 overall, but level 5 for energy.
- Buildings to have a thermal mass of 19, therefore they are warm in winter and cool in summer.
- The development incorporates a biomass CHP boiler, providing energy and power on-site.



The LDA Green House in Trafalgar Sq. – December 2007



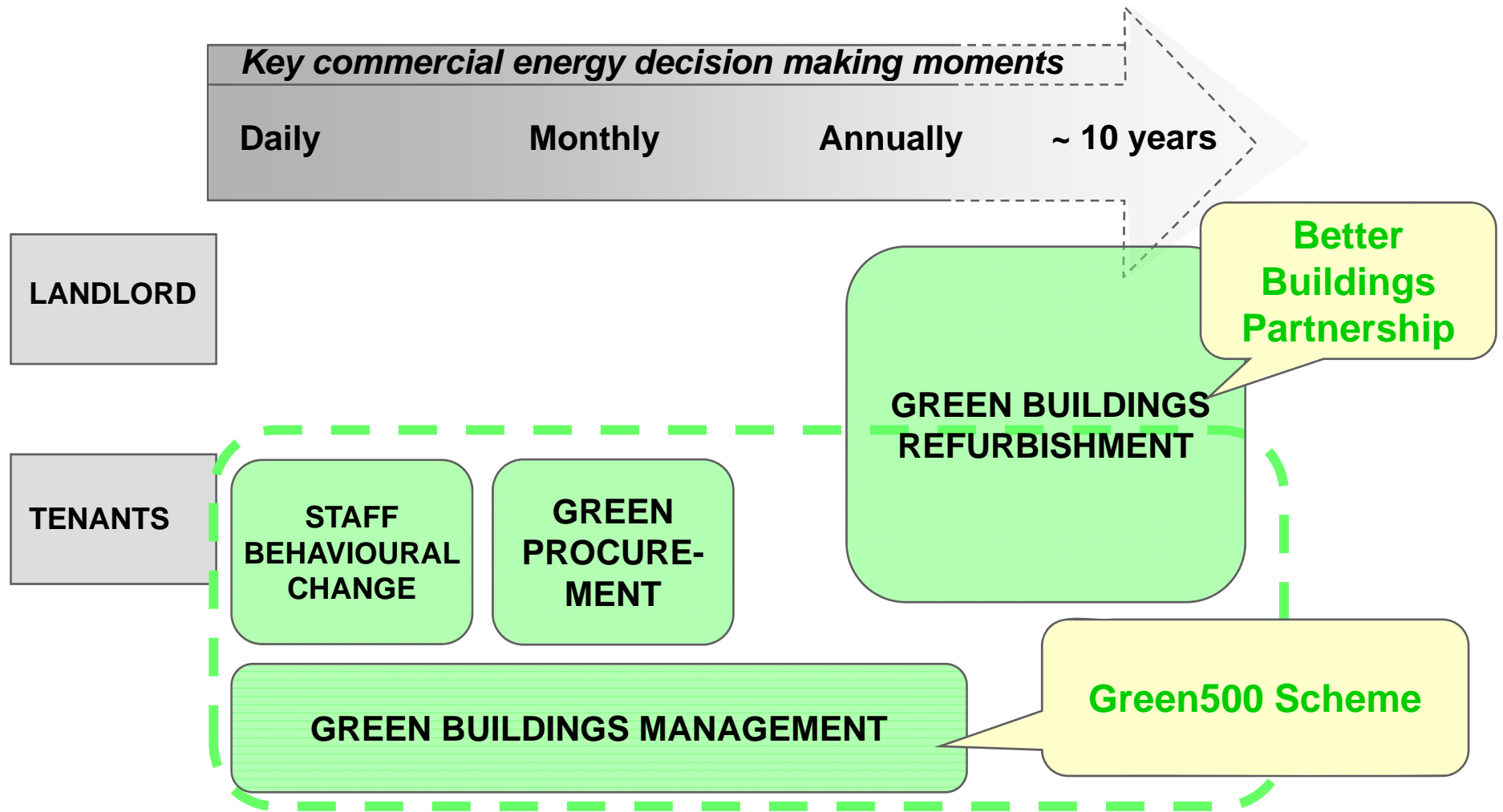
The LDA Green House – inside ...



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Green organisations/business programmes



Better Buildings Partnership



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Green 500, Better Buildings Partnership

www.londonclimatechange.co.uk/greenorganisations

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LONDON
LEADING TO A GREEN LONDON

GREEN
ORGANISATIONS

Enter keywords

Search

The message for all organisations is clear: it's crucial that we take action now to tackle climate change. London's response to the climate challenge has been to champion significant and immediate action.

London Green Organisations is the Mayor's premiere business facing initiative.

This website incorporates the new services, information and advice, tools and case studies that the Green Organisations programme offers - demonstrating how organisations like yours - can really make a difference.

It's time to make changes in London now. The Green Organisations website can help.

WELCOME TO NO.1 LOWER CARBON DRIVE



Discover some of the products, technologies and habits that you can adopt to tackle climate change.

INFORMATION & ADVICE



NATURAL HISTORY MUSEUM

Find out how the Natural History Museum is going to save over 2,000 tonnes of CO2 emissions per year.



BENEFITS OF BEING GREEN FOR SMES

Read how SMEs can put themselves ahead of competitors, increase profits and reduce costs by adopting green measures.

What's in this website for me?

For Small/Medium Organisations
Green Organisations supports London SMEs looking to take action on climate change and adopt greener practices to identify services designed to help.

For Large Organisations
Find out how the London Development Agency's Green Organisations programme can help large businesses reduce their carbon footprint.

LONDON CLIMATE CHANGE AGENCY

The London Climate Change Agency has been set up by the Mayor to help reduce carbon dioxide emissions from London. It is a commercial company wholly owned, controlled by and housed in the London Development Agency. The work of the LCCA is a key part of the Mayor's commitment to making London a sustainable world city.

LONDON: LEADING CLIMATE



BUILDING & ENERGY SAVING TOOL

Assess your organisation's carbon



GREEN 500

Uniting, encouraging, nurturing, acknowledging and celebrating



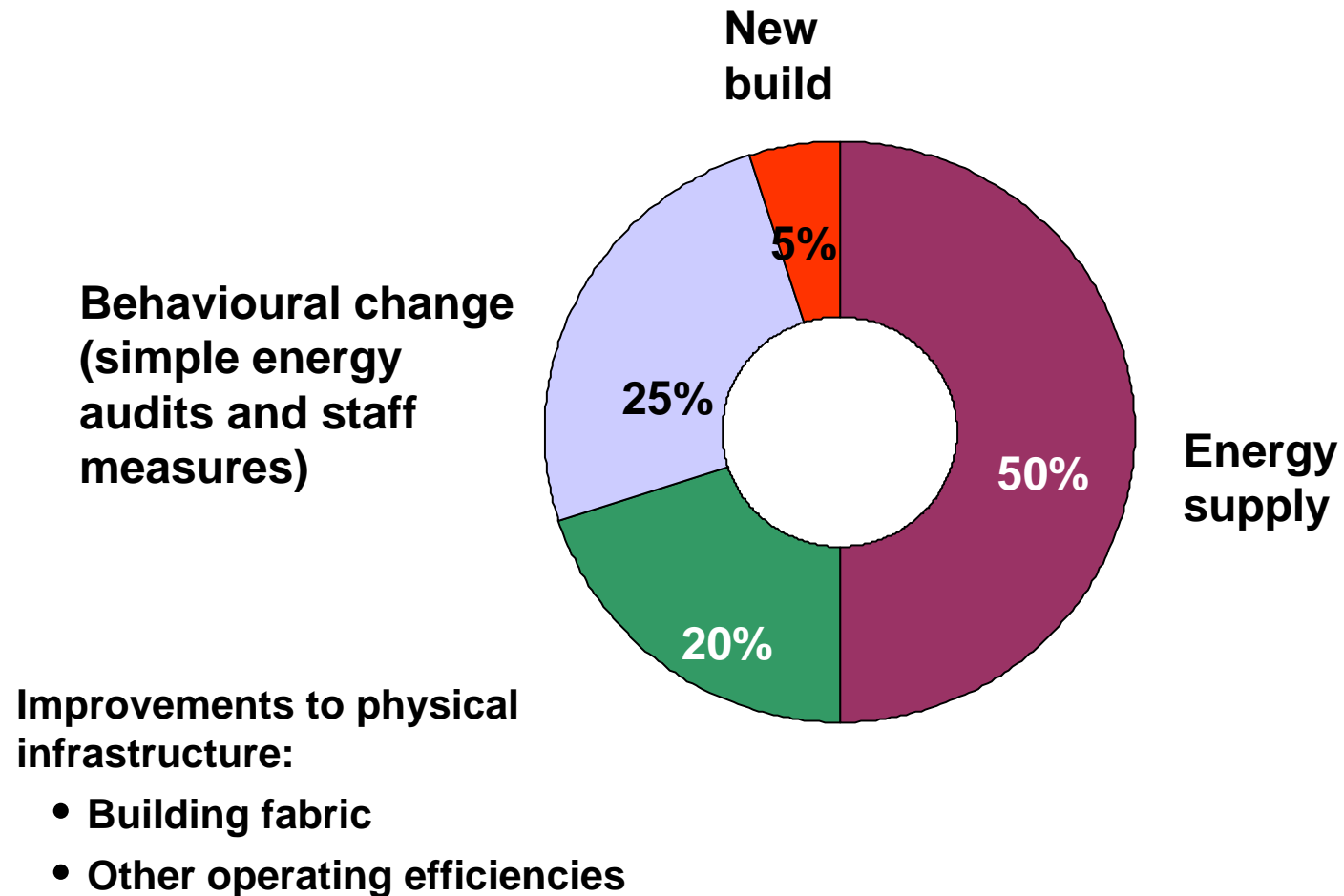
BETTER BUILDINGS PARTNERSHIP

An exclusive collaboration between

LONDON CLIMATE CHANGE ACTION PLAN

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Sources of savings in the commercial and public sector



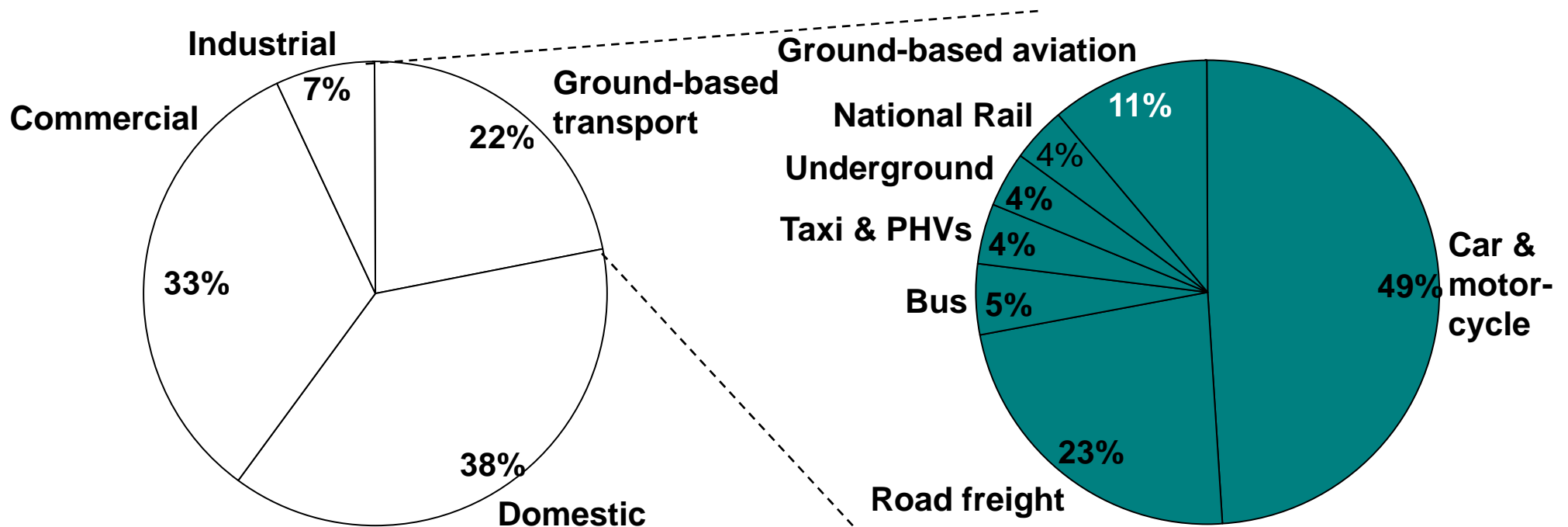
London's CO₂ emissions transport sector 2006

•All sectors, excluding aviation

•44 million tonnes CO₂

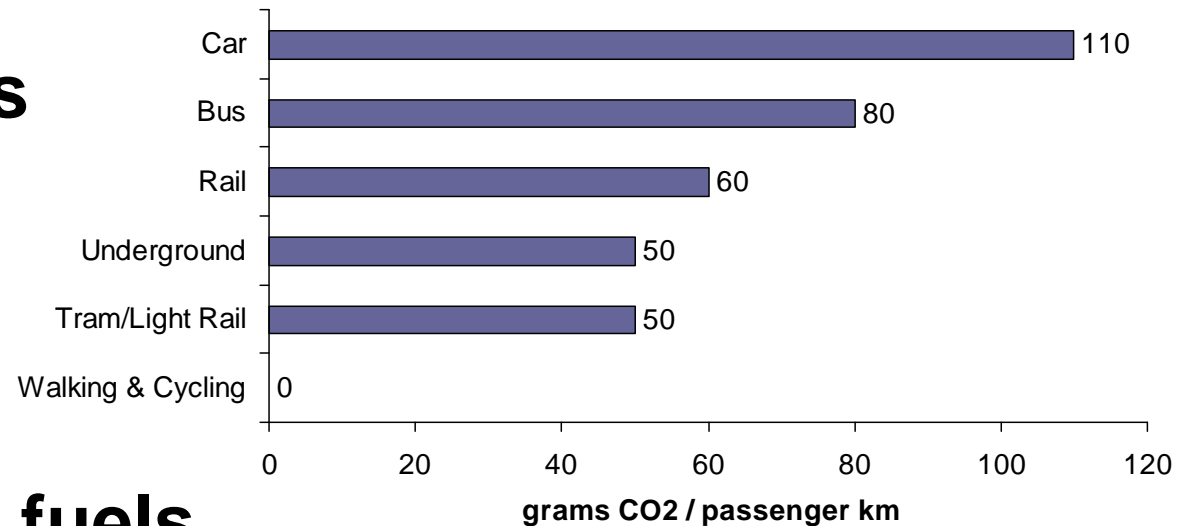
•Transport sector

•100% = 10 million tonnes CO₂



Green Transport Programme

1. Changing the way Londoners travel
2. Operating vehicles more efficiently
3. Promoting lower-carbon vehicles, infrastructure and fuels



= 4 million tonnes of CO₂ saved p.a. by 2025

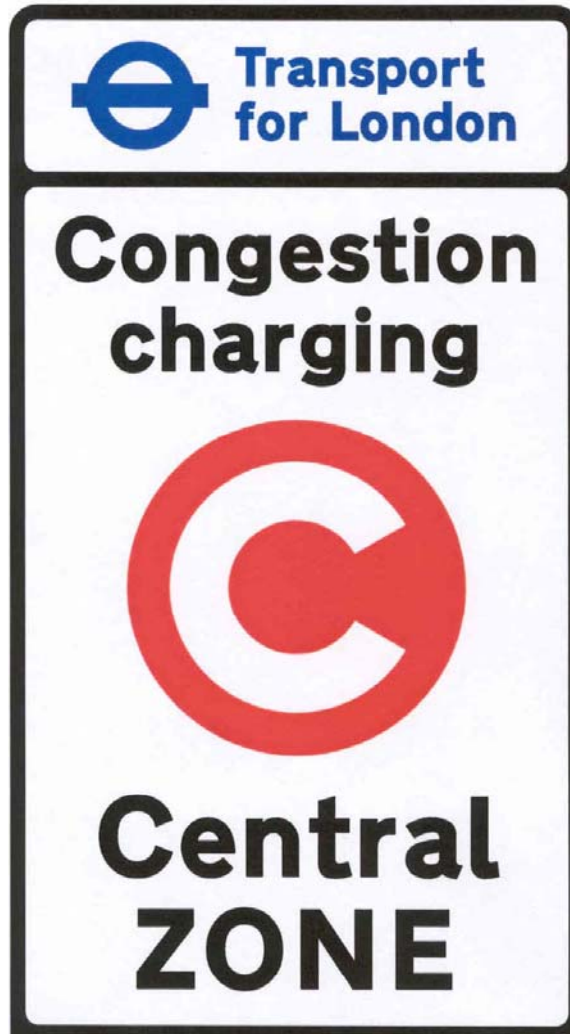
London Hydrogen Partnership

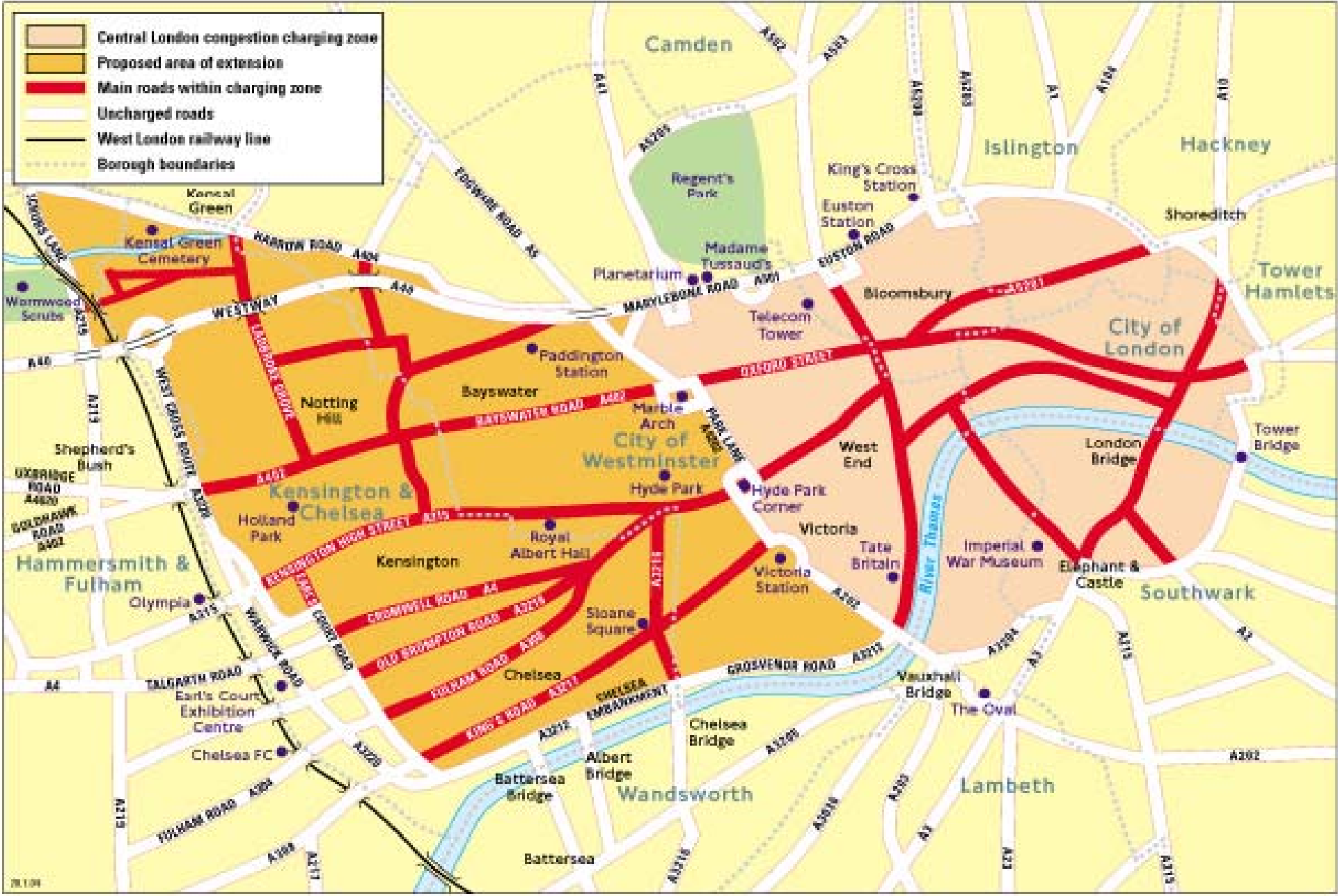
- In February 2006, the Mayor announced the London Hydrogen Transport programme, which aims to introduce 70 new hydrogen vehicles into London - ten of these vehicles will be buses.
- Work also on Hydrogen infrastructure for London
- Report published in 2007 on potential for waste to hydrogen routes in London



Congestion charging and behaviour changes



– **carbon pricing works** (if revenues recycled into alternatives!)





Camera enforcement – no ‘free riders’!

CCS Evidential Records



ANPR 1 - **K924 BEC**

K924 BEC

Site : 195 - Finchley Road - northbound
Lane : ANPR 1
Date : 01 March 2001
Time : 14.15.56
Frame : 000258176
Encryption : JD516383

Start | 14:15

Impacts of congestion charging - Traffic changes

- ➔ **Traffic delays inside charging zone down 30%**
- ➔ **Traffic continues to be successfully managed on boundary route**
- ➔ **Traffic entering the charging zone down 18%**
- ➔ **No significant adverse traffic impacts outside the charging zone**

The majority of ex-car users have transferred to public transport

- ➔ The reduction in car trips into or through the zone is around 60,000 per charging day
- ➔ 20/30% of this reduction is car journeys diverting around the zone
- ➔ 50/60% of the reduction is drivers transferring to public transport
- ➔ 15/25% of the reduction is drivers transferring to other forms of transport

Environmental gains: emissions reductions and modal shift

1. 13% **NOx** and 15% **PM10** emission reductions in zone
2. 16% less **CO2** emissions
3. 20% savings in fuel consumption
4. Net revenues of £123 million in 2006/7 for 'green' public transport schemes
5. 4% shift from cars to public transport, cycling and walking – only global city to have achieved such a modal shift

Cashless carbon friendly travel



The Future? Possible options for transport carbon pricing

- **Oyster – polling shows a very positive public response. Current discounts include FREE travel for kids in school and for Old Age Pensioners**
- **Possibilities to add other carbon-cutting incentives to travel during less busy periods, and integrate with the congestion charge and road pricing, in order to optimise the use of the combined public transport and road networks throughout the day. For example:**
 - 1. for people who travel off-peak (not during the rush hours) or if you decide to work from home one or more days a week. ITC allows this type of finely targeted discounting**
 - 2. tie in with other types of commercial operation – such as purchases of zero-low carbon technologies and home products (e.g. micro-renewables like solar or hybrid or hydrogen fuel-cell car purchases) which may count as reward points for even lower fares.**
 - 3. Offer vouchers for buying a bicycle or purchasing green household products**
 - 4. For cyclists who have never owned a car may provide cash in their pockets**

Aviation

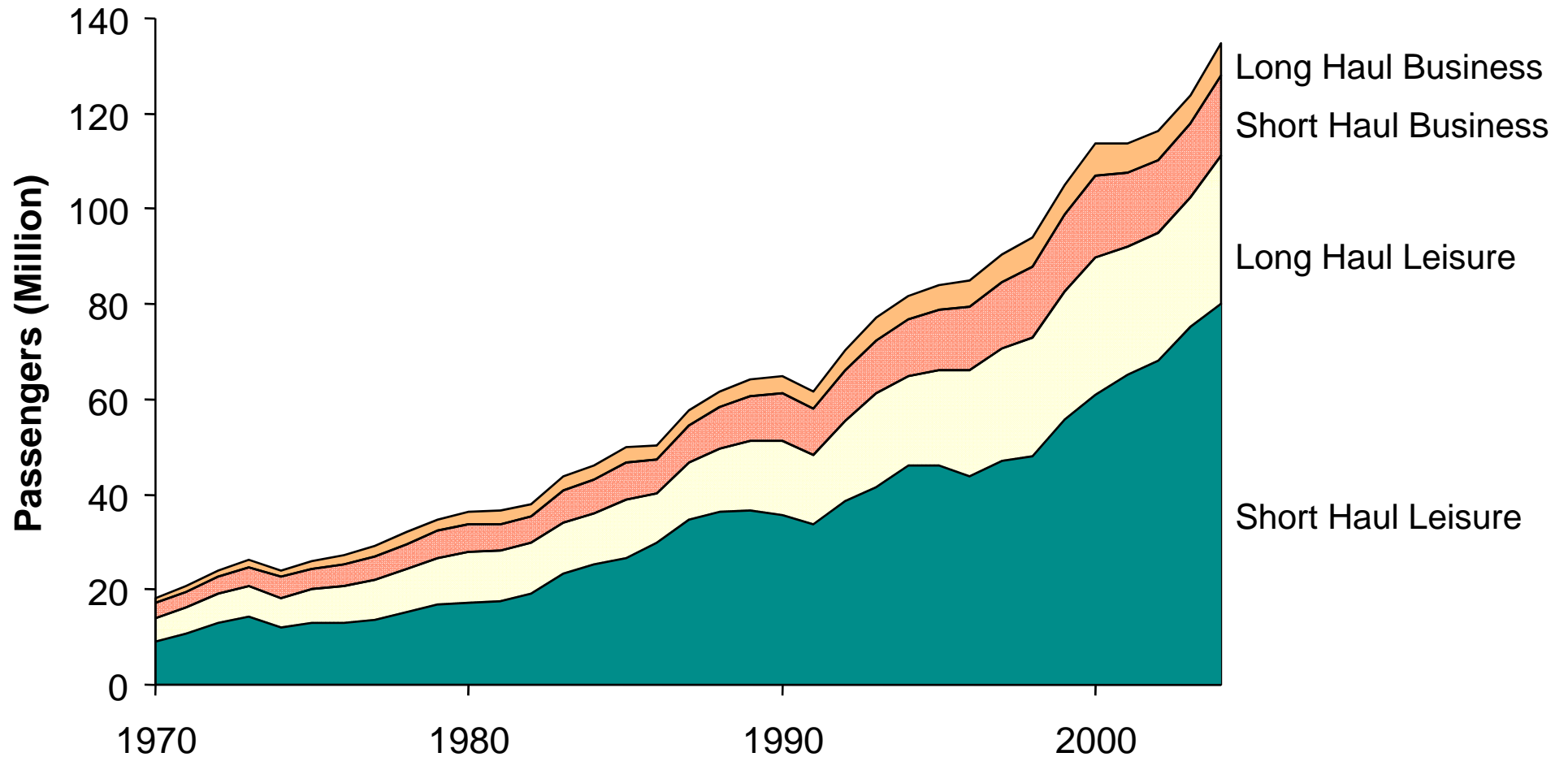


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Rapid **unsustainable growth** in aviation



London action to reduce aviation emissions

- **Seeking to influence EU and international aviation policy**
- **Working with the aviation industry to implement efficiencies on the ground and in the air**
- **Challenging the need for further runway expansion at UK airports**
- **Educating Londoners and advocating alternatives to air travel**
- **Leading by example – train and essential flights only (+ carbon offsets)**

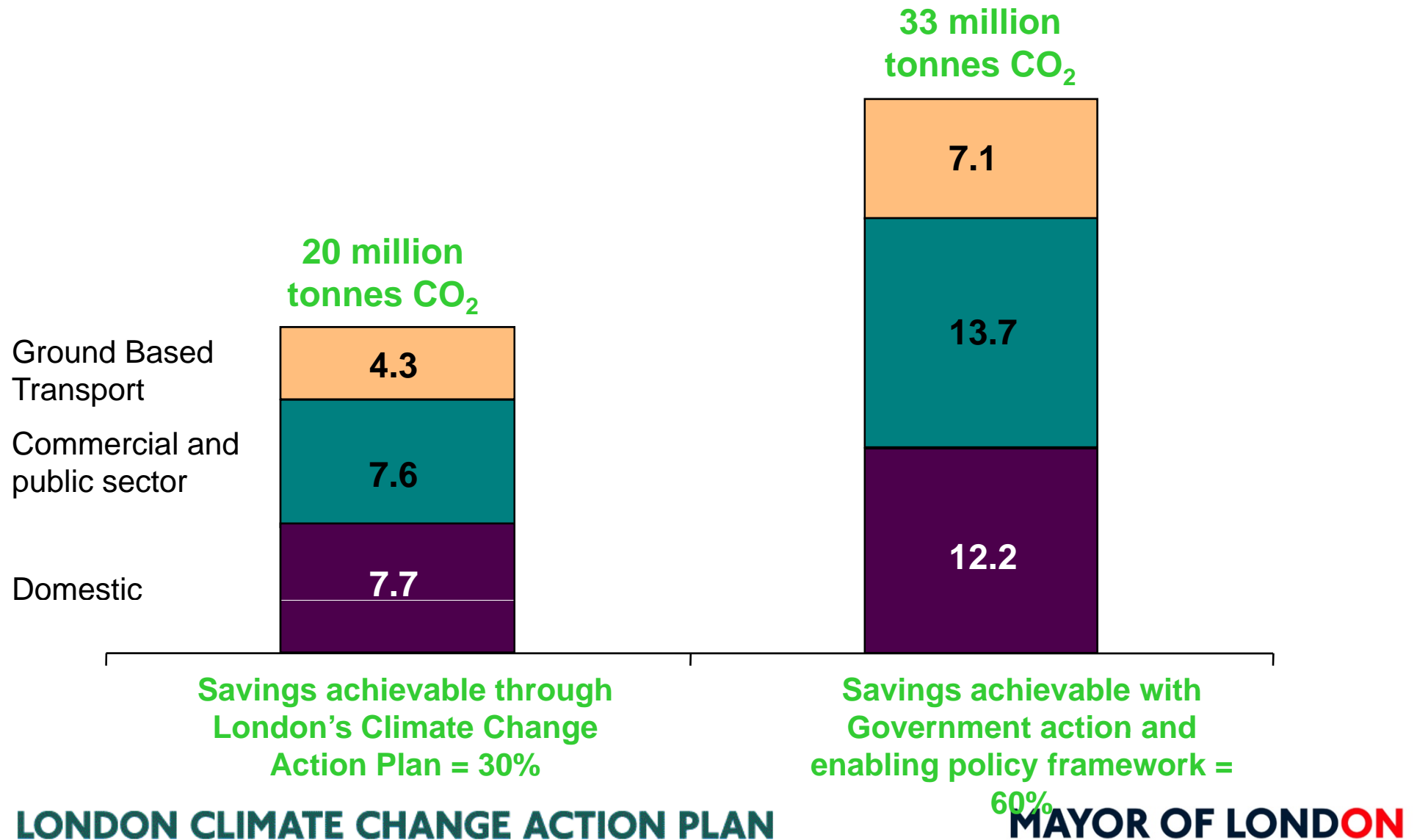
Sources of 60% CO₂ reductions by 2025

PRELIMINARY NUMBERS

Contribution to overall reduction

• Existing homes	13%
• Existing commercial activity	15%
• New build	8%
• London's energy supply	30%
• National energy supply	15%
• Transport	19%

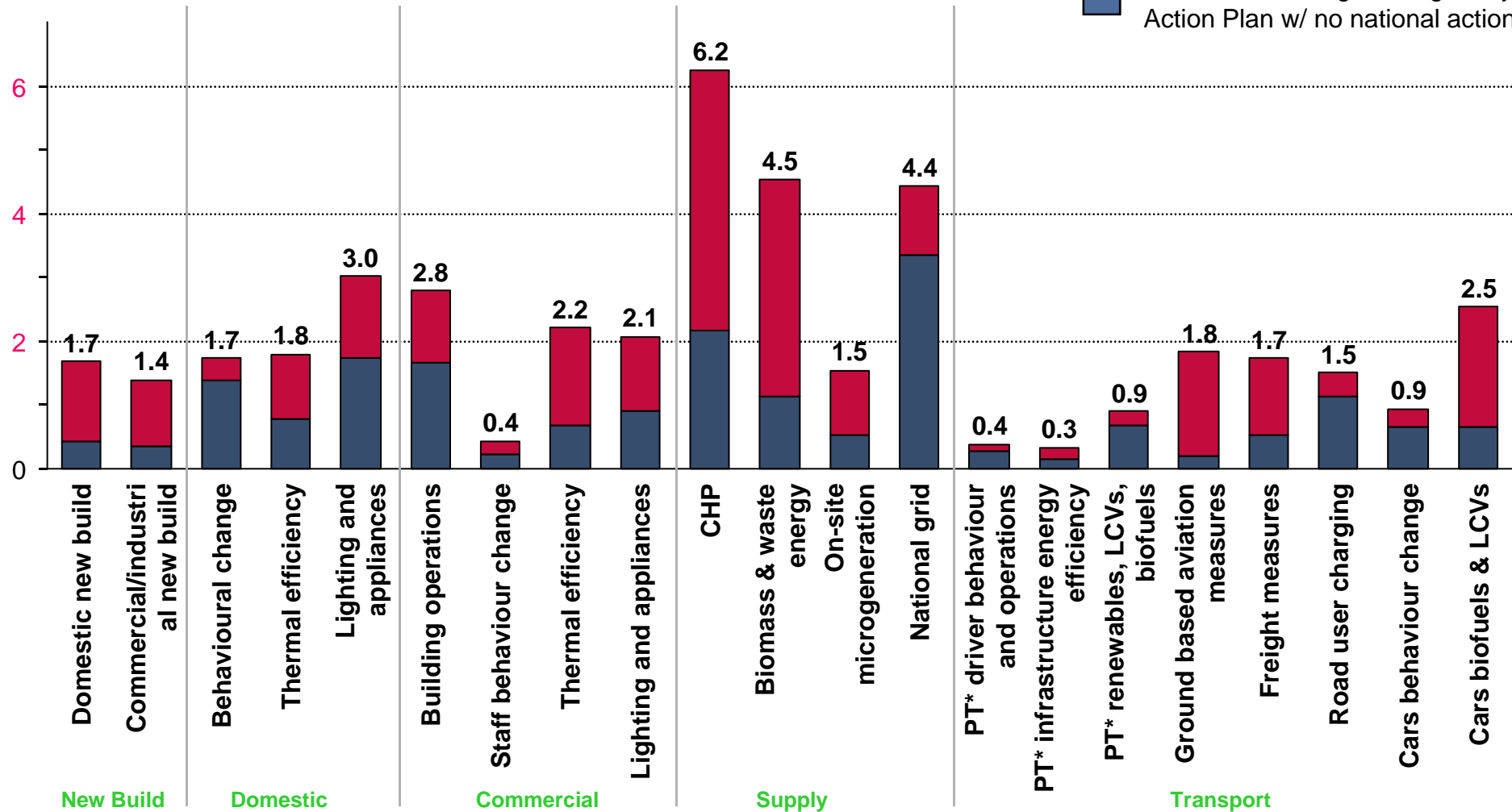
Sources of London annual CO₂ reductions by 2025



Overall CO₂ savings by sector and measure

Million tonnes of CO₂

■ Maximum saving possible
■ Achievable savings through Mayor's Action Plan w/ no national action



* Public transport, i.e., underground, buses & coaches, national rail

Government action – new framework for 60% CO₂ cut by 2025

- **Carbon pricing** (mandatory cap-and-trade emissions market, including air travel; carbon tax)
- **Regulatory and fiscal change** to encourage and incentivise decentralised energy/waste networks (CCHP + bio-gas from waste streams)
- **Incentives and penalties** – polluter pays taxation + hypothecation
- **Planning and policy support** for rapid shift to renewable power (e.g. wind, wave, tidal, solar) and energy efficiencies
- **Statutory CO₂ reduction targets**, based on best science
- **Trade-able national and company (and personal?) carbon allowances**

Imperatives to successfully change carbon-heavy behaviour

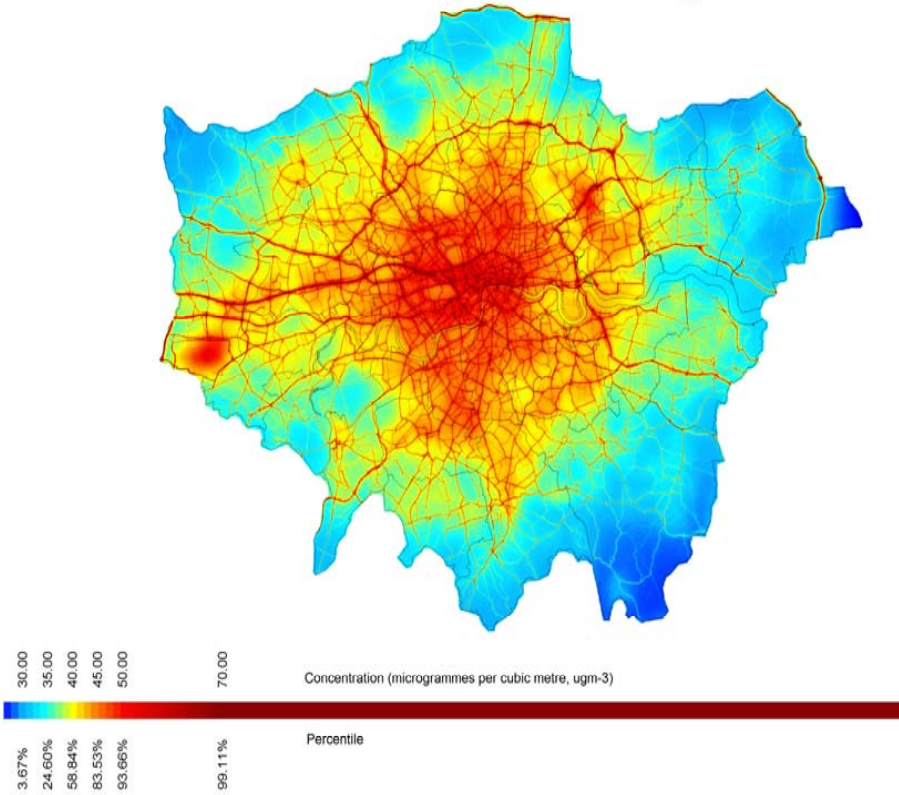
1. **Long-term strategy with best science targets** and policy drivers to transform markets to value zero/low carbon
2. **Enabling policy framework of ‘carrots and sticks’** for companies and citizens
3. **Cheaper, more convenient and integrated low carbon solutions**
4. **Exemplar zero-low carbon/waste developments** and projects
5. **Comprehensive information, advice and audit** programmes for households and companies
6. **Verifiable, coordinated and effective** international action
7. **Partnerships between sectors** – public, private, domestic, voluntary
8. **Integrated changes across economic sectors** – especially financial, energy, transport, waste, buildings
9. **Leadership** – political, professional, personal.

- 
- **Slides that follow briefly cover: air pollution and climate change impacts; green tourism; and, the C40 initiative.**

Air quality and health in London

- Air pollution in London has caused the UK to **breach European health based standards.**
- **1,000 premature deaths estimated annually** in London from particulate (PM₁₀) pollution + **1,000 plus hospital admissions** with serious respiratory and other pollution related ailments
- Poor air quality **reduces our life-expectancy** by 8 months
- Air pollution **worsens respiratory and cardiovascular conditions**, including asthma
- New legislative approaches to air pollution control also consider population exposure
- **Air pollution contributes to and is affected by climate change**

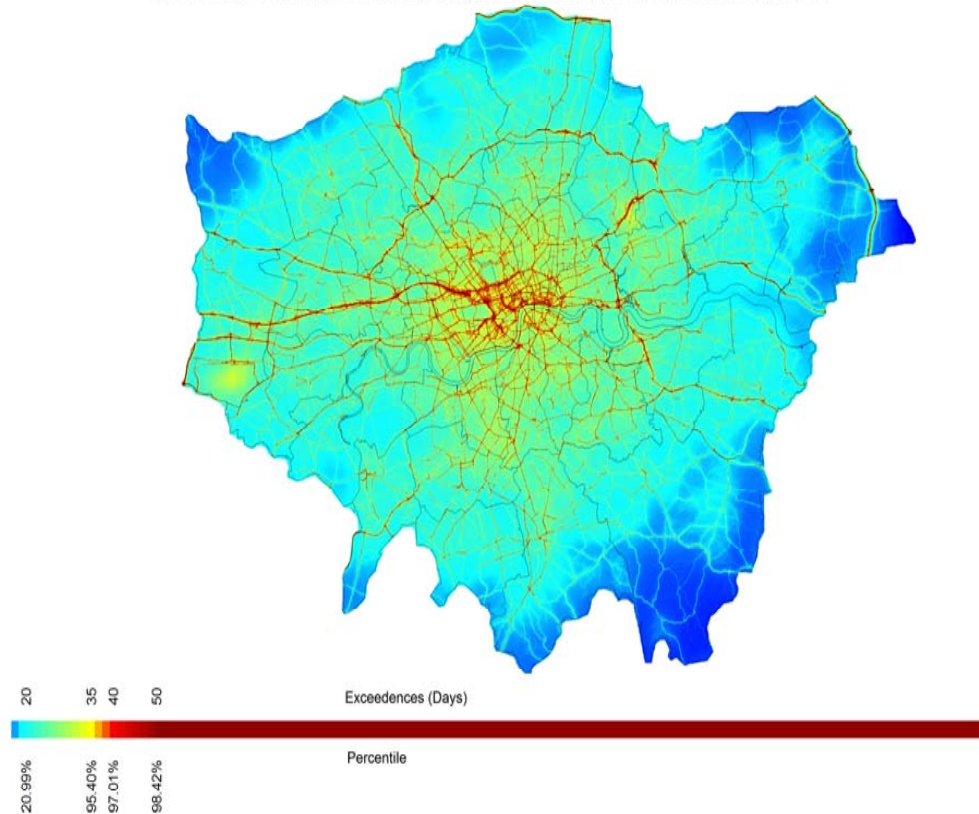
Modelled 2003 Annual Mean NO₂ Concentration (ug/m³), based on 2003 Meteorology and the LAEI 2003



NO₂ pollution in Greater London in 2003

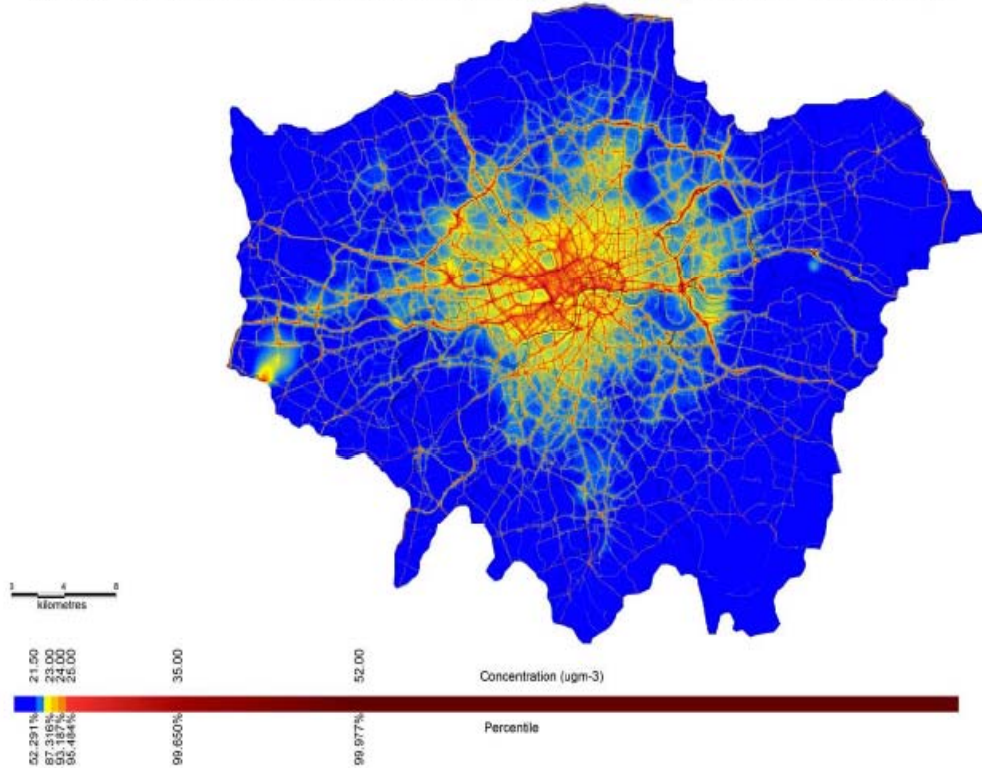
PM₁₀ pollution in Greater London in 2003

Modelled 2003 PM₁₀ Exceedences (Days), based on 2003 Meteorology and the LAEI 2003



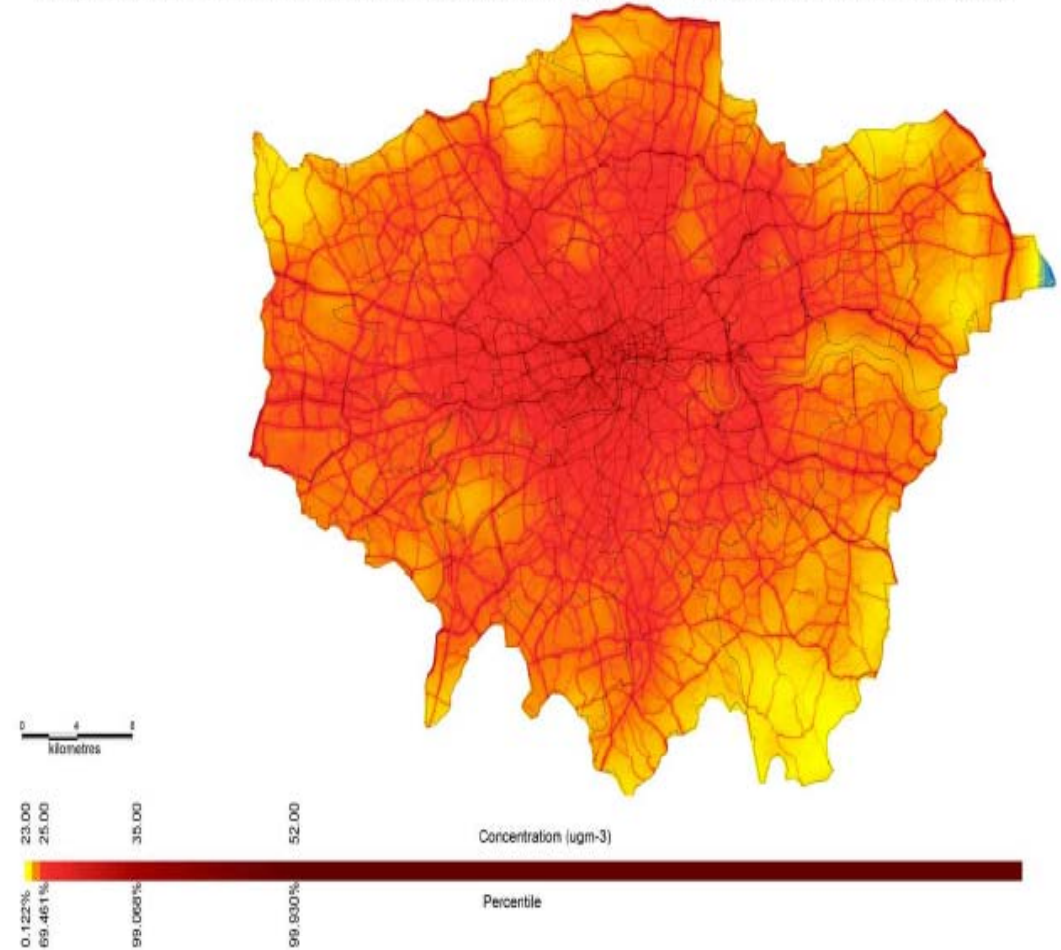
Interactions between climate and air quality – e.g. high temps exacerbate road and airport pollutant health impacts

Modelled 2005 Annual Mean PM10 Concentration (microgrammes per cubic metre, $\mu\text{g}\cdot\text{m}^{-3}$) based on 2002 Meteorology



Modelled PM_{10} concentrations, based on same emissions, but with meteorological data from different years (LAEI 2002 data with 2002 & 2003 met data, compared to 2010 provisional LV)

Modelled 2005 Annual Mean PM10 Concentration (microgrammes per cubic metre, $\mu\text{g}\cdot\text{m}^{-3}$) based on 2003 Meteorology



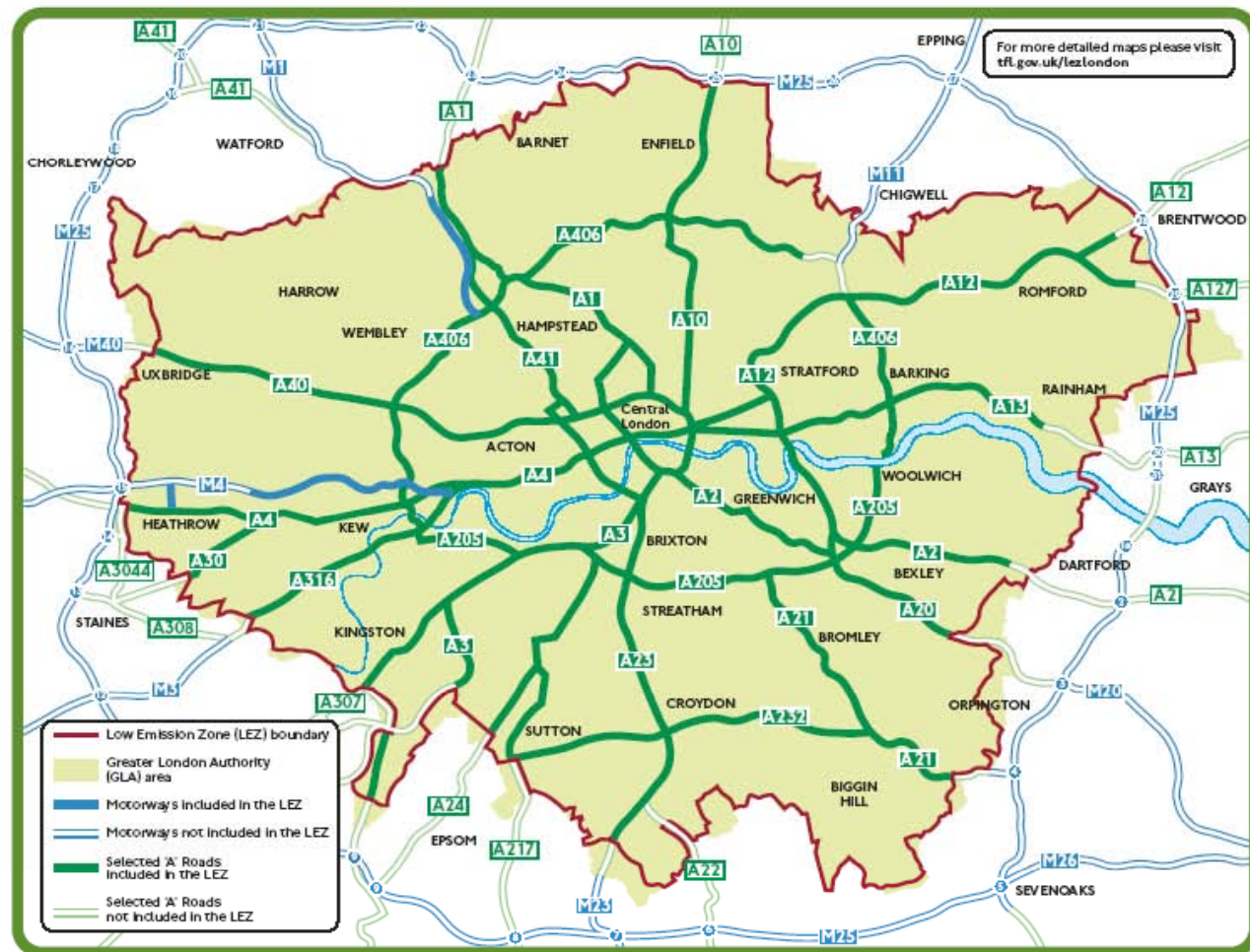
London - A Low Emission Zone

Where will the Low Emission Zone operate?

The Low Emission Zone (LEZ) covers most of Greater London, following the Greater London Authority boundary. In some places the LEZ deviates from this boundary in order to allow for suitable diversion routes and turnaround points.

All roads, including certain motorways within the LEZ boundary are included. The M25 motorway is not included in the LEZ (even where it passes within the boundary).

Please note that if your chosen route takes you through the central London Congestion Charging zone, you may need to pay the Congestion Charge in addition to any LEZ charges. Visit cclondon.com for further details.



London's Low Emission Zone

Designed to improve air quality by discouraging the most polluting vehicles from entering London's streets

- Lorries, coaches and buses must meet Euro III from 2008 and Euro IV from 2010
- Large vans and minibuses must meet Euro 3 from 2010
- Option to upgrade, fit abatement equipment or pay daily charge
- **Range of health benefits:**
 - gains in life expectancy
 - reductions in premature deaths
 - reductions in hospital admissions
 - reductions in respiratory problems
- Reduce the area where the daily PM₁₀ objective is exceeded by 7% in 2008 and 16% in 2012
- Reduce the area where the annual NO₂ objective is exceeded by 4% in 2008 and 16% in 2012



Walkit.com + airTEXT – empowering people

walkit.com

a step in the right direction

Central London Boroughs

- Inclusion of air quality information on walkit.com
- Enable users to select the least polluted route

Consortium of London Boroughs & GLA www.airtext.info

- Free phone alerts and health advice when air pollution is predicted to be moderate or high.
- Launched London-wide in March 2007
- 80% of users found airTEXT helped them manage their symptoms better & reduce their exposure to air pollution





London 2012 Strategy for Tourism



Visit London's 10 point environmental action plan (1)

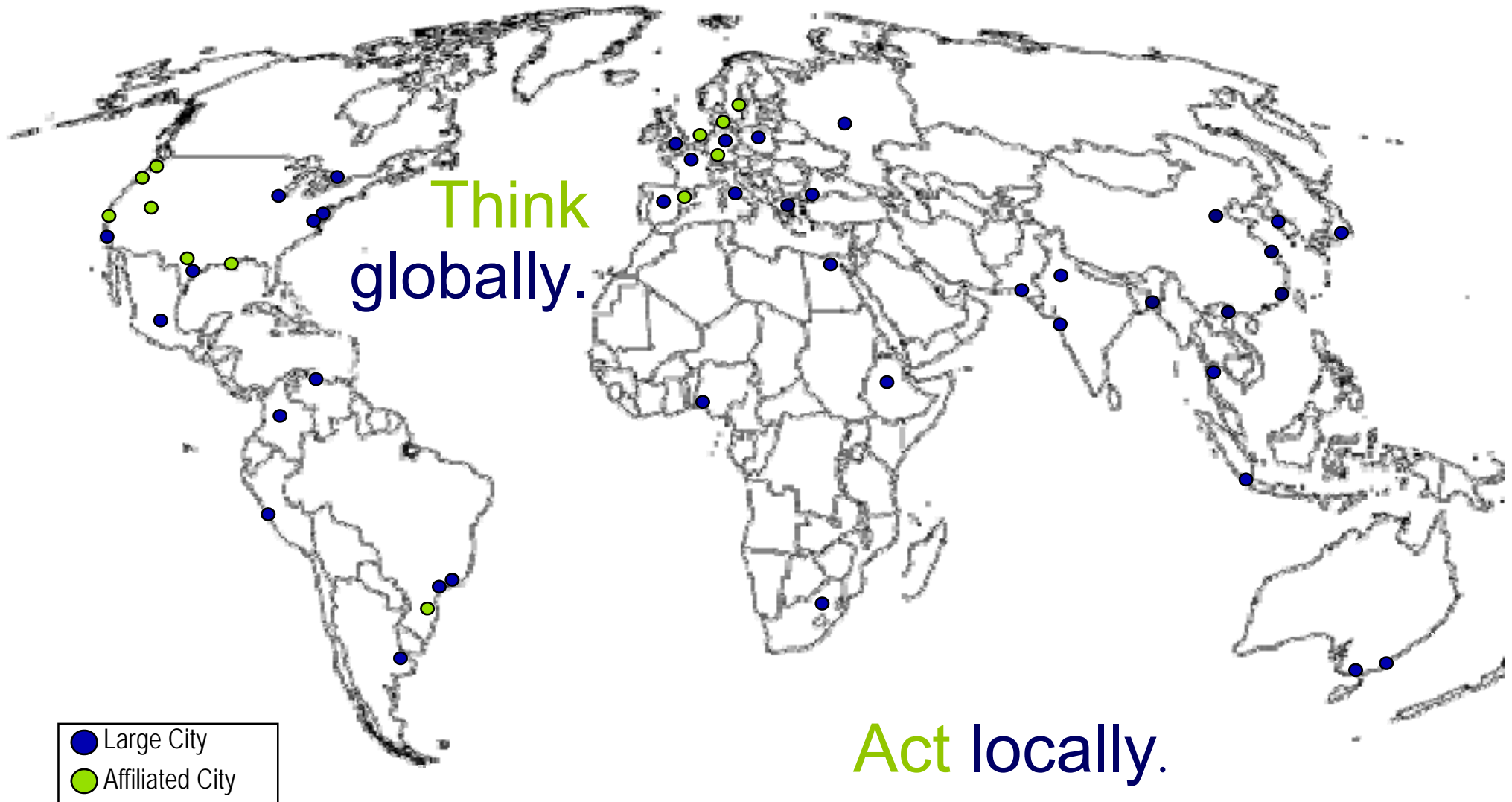
1. **Encouraging environmentally positive behaviour by visitors** (e.g. *Green London Guide; VL website; London 2012 Strategy for Tourism*)
2. **Promoting public transport, cycling and walking** (e.g. working with Transport for London – *the Oyster card*)
3. **Endorsing and promoting good practice** amongst tourism businesses through partner work, awards and green tourism business scheme (e.g. *The Annual Green Tourism Award; Green 500 business scheme with LDA; Partner cities programme – Delhi, Mumbai, Shanghai, Stockholm*)
4. **Securing BS 8555 accreditation for our own office** performance (e.g. *VL Office Green Champions programme*)
5. **Promoting and marketing sustainable London** through partnerships with train operators and Eurostar (e.g. *said promotions to use alternatives to short and medium haul flights where possible, including for visitors and VL/GLA staff*)



Events for London - NFL

Visit London's 10 point environmental action plan (2)

1. **Tackling emissions from aviation** – promoting best practice by airlines and airport operators (e.g. *EU Carbon Emissions Trading Scheme; reducing on-ground aircraft and airport emissions; rationalising EU flight paths and plans to cut stacking and unnecessary flights*)
2. **Encouraging visitors to the capital to off-set** - best practice companies and schemes only - their own travel (e.g. *NFL Wembley 2007*)
3. **Encouraging Londoners' to enjoy their own city** as an alternative to travelling abroad (e.g. *Planet DIY programme*)
4. **Promoting awareness of London's unparalleled green and open space network** (e.g. *VL website and links to Wild Web*)
5. **Commissioning research to identify further opportunities to reduce carbon dioxide emissions** from London's visitor economy (e.g. *detailed plan emerging from TfL policy unit*)



C40 Programme Areas

Building Retrofits

Waste

Transportation

Lighting

Ports

Airports

Water & Wastewater

Clean Power

Residential Energy

International cooperation vital – the C40 group

www.c40cities.org

- **Building on the first ‘Large Cities Climate Change Initiative’ Summit initiated and hosted by the Mayor of London in October 2005, the C40 cities met in New York, from 14-17 May 2007. The Mayors recognized the need for action and cooperation on reducing greenhouse gas emissions, and pledged to work together**
- **Delivering Action Through:**
 1. Measurement
 2. Procurement
 3. Best practice and policy swapping
- **Public procurement – 16 cities – energy efficiency in all public buildings – schools, hospitals, government offices – huge boost to market – 5 biggest banks pledged \$5 Billion in loans and 8 biggest electrical product manufacturers guaranteed to boost production and lower prices – huge boost – and everyone benefits from lower prices ...**



CLIMATE LEADERSHIP GROUP

c40cities.org



CLINTON
CLIMATE
INITIATIVE

Procurement – Purchasing Alliance

- 26 global suppliers — 1000+ products
- Buildings, transport, waste management and lighting
- Negotiated price ceilings
 - 5% to 40% discounts off prevailing prices
 - Price ceilings based on growing and predictable sales volumes

Building Retrofit Programme



- 195 global projects in 26 cities
- 200 million square feet
- 100+ private owners

London

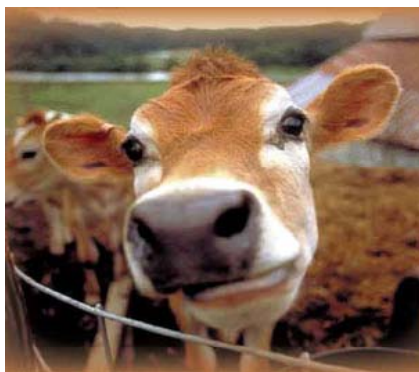
- 1.1 million square feet
- 42 buildings, TfL, Police, Fire Brigade
- Minimum 25% energy savings,
- 10 year payback

Transportation



- Johannesburg, Mexico City and Bogotá, building **Bus rapid transit (BRT) systems**
- Johannesburg establishing **Clean fuel and vehicle options** and Bogotá developing clean air regulations.
- Bogotá, Chicago, Delhi, Johannesburg, Mexico City, London, Mumbai, Paris, Rio de Janeiro, and Sao Paulo developing and rolling out **LED traffic lighting**
- London, Bogotá, Buenos Aires, and Karachi, implementing **Advanced traffic management systems**

Waste and lighting



- **Advanced solid waste facilities** in Mexico City, Rio de Janeiro, Addis Ababa, Cairo, Johannesburg and Karachi, to convert garbage into energy, recycling, composting, and other waste reduction measures.



- **New waste projects** in Delhi, Mumbai, Sao Paulo, Beijing, and Lagos and London.
- **LED lighting project** being developed