IPPR

ZERO-CARBON LONDON: A PLAN FOR THE NEXT MAYORAL TERM

COMMIT TO ACHIEVING ZERO-CARBON LONDON BY 2050

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November 2015

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ACKNOWLEDGMENTS

The authors would like to thank We are Here Now for making this work possible. We are also very grateful to the following for their input to this project: Samantha Heath, CEO, London Sustainability Exchange; Mark Watts, director, C40; Anna Beech, policy and strategy advisor, C40; Dr Tim Rotheray, director, Association of Decentralised Energy; Professor Calvin Jones, Welsh Economy Research Unit, Cardiff Business School; Eleri Jones, project leader, Foresight Future of Cities Project; Dr Hugh Ellis, head of policy, TCPA; Dr Mike Pitts, InnovateUK; and Gareth Harcombe, operational manager – energy and sustainability, Cardiff City Council. Finally, thanks go to IPPR colleagues Nick Pearce, Joss Garman, Mark Ballinger and Josh Goodman for their comments on earlier drafts of this plan.

An earlier version of this pamphlet was published as a presentation. Please note that the Essentials have been reordered and minor material changes made to this version. We thank Dr Bridget Woodman of the Energy Policy Group at the University of Exeter for her review of this plan.

ABOUT IPPR

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POSITIVE IDEAS for CHANGE

THE OBJECTIVE

THE MAYOR'S TARGET IS A 60% REDUCTION IN CARBON EMISSIONS BY 2025

LONDON IS ALREADY BEHIND SCHEDULE

AND OTHER GLOBAL CITIES ARE RACING AHEAD

THE OBJECTIVE

THE NEXT MAYOR MUST STEP UP PROGRESS TOWARDS THE 2025 TARGET AND GO ONE STEP FURTHER...

COMMIT TO ACHIEVING ZERO-CARBON LONDON BY 2050

LONDON SHOULD BE A GLOBAL LEADER IN THE FIGHT AGAINST CLIMATE CHANGE

THE ESSENTIALS

ENERGY

1. MAXIMISE LONDON'S ENERGY RESOURCE: A CITY-WIDE DISTRIBUTED ENERGY NETWORK

2. THE SUN SHINES ON LONDON: DEVELOP A CITY-WIDE SOLAR STRATEGY

TRANSPORT

3. KEEP THE MASSES MOVING: INVESTING IN THE TRANSIT SYSTEM

TRANSPORT

4. GET LONDON CYCLING: ENSURE EVERYONE WHO CAN CYCLE, DOES CYCLE

5. CARBON-FREE FREIGHT: REDUCE THE CLIMATE COST OF DELIVERY

6. BEYOND DIESEL: CUTTING EMISSIONS FROM VEHICLE USE

BUILT ENVIRONMENT

7. RENEW LONDON'S HOMES: RETROFITTING FOR ENERGY EFFICIENCY

8. COOL UNDER THE COLLAR: SCALE UP WORKPLACE RETROFITTING

RESOURCES

9. CLOSED-LOOP LONDON: MAXIMISE THE CITY'S RESOURCE EFFICIENCY

ESSENTIAL #1

MAXIMISE LONDON'S ENERGY RESOURCE: A CITY-WIDE DISTRIBUTED ENERGY NETWORK

ENERGY

ISSUE

Many global cities are rapidly deploying distributed energy, delivering emissions savings and democratising their energy systems – but London is lagging behind.

Progress has been slow towards the current target for ***25%*** of London's energy to come from distributed energy by 2025.

SOLUTION

Create 'Energy for London' (EfL), like TfL, to drive the coordinated city-wide deployment of a smart and distributed energy network.

OUTCOMES

EMISSIONS	***9.3 megatonnes***	estimated emissions savings ($MtCO_2$) from meeting the 2025 target
RESILIENCE	***25% of energy***	share of London's energy to come from diverse sources within the city
ECONOMY	***£2.90 for every £1***	benefit from investments in renewable energy

ESSENTIAL #2

THE SUN SHINES ON LONDON: DEVELOP A CITY-WIDE SOLAR STRATEGY

ENERGY

ISSUE

London has a solar potential approaching **20%** of demand, yet it has one of the lowest deployment rates in the country, at around **1%** of demand.

SOLUTION

Energy for London should coordinate city-wide solar deployment to maximise its potential, as part of a wider smart-energy ambition.

OUTCOMES

EMISSIONS	**1.2–3.6 megatonnes**	estimated emissions savings ($MtCO_2$) maximising solar by 2031
CAPACITY	**150,000 installations**	on schools, homes, public, commercial and city sites
RESILIENCE	**2 gigawatts**	added capacity of deployed solar

ESSENTIAL #3

KEEP THE MASSES MOVING: INVESTING IN THE TRANSIT SYSTEM

TRANSPORT

ISSUE

Transport accounts for **21%** of London's emissions, with road vehicles accounting for **71%** of that and **47%** from cars and motorbikes.

SOLUTION

Continue to optimise and develop London's mass transit system. To maximise the potential, London must extend and expand congestion charging, ensure a clean bus and taxi fleet before 2020, drive the take-up of ultra-low-emissions vehicles, and deliver safe and secure cycling routes.

OUTCOMES

EMISSIONS	**up to 3.6 megatonnes**	estimated emissions savings ($MtCO_2$) by 2030
JOBS	**1.4 million**	additional jobs supported
LIFE	**9 months**	reduced impact of emissions on life expectancy for a child born in 2008

ESSENTIAL #4

GET LONDON CYCLING: ENSURE EVERYONE WHO CAN CYCLE, DOES CYCLE

TRANSPORT

ISSUE

Transport accounts for around ***21%*** of London's emissions, and increasing the number of cyclists would rapidly reduce this total. But ***14*** cyclists have already been killed in London in 2015.

SOLUTION

Create an expanded city-wide network of safe and secure cycle highways and affordable hire bikes.

OUTCOMES

EMISSIONS	***up to 500 kilogrammes***	annual emissions savings (CO_2) for each new cyclist on the road
CONGESTION	***reduced traffic volumes***	
HEALTH	***increased exercise and reduced air pollution***	

ESSENTIAL #5

CARBON-FREE FREIGHT: REDUCE THE CLIMATE COST OF DELIVERY

TRANSPORT

ISSUE

While progress is being made on public transport, a challenge remains in managing freight, freight emissions and air pollution – this is the missing link in TfL's transport action.

SOLUTION

Bring forward the introduction of the Ultra Low Emission Zone by two years, to September 2018, and reinforce spot checks to crack down on standards abuse.

OUTCOMES

EMISSIONS	***0.7–1.7 megatonnes***	estimated emissions savings ($MtCO_2$) by 2025
AIR QUALITY	***17% reduction***	in nitrogen oxide (NOx) emissions
AIR QUALITY	***13% reduction***	in PM10 particulate emissions

ESSENTIAL #6

BEYOND DIESEL: CUTTING EMISSIONS FROM VEHICLE USE

TRANSPORT

ISSUE

Particulates and nitrogen oxide (NOx) pollution contribute significantly to poor air quality – diesel emissions are responsible for as much as **40%** of London's air pollution. Car journeys continue to increase.

SOLUTION

Return to the extended Congestion Charge Zone, raise the diesel congestion charge, ban diesel vehicles from central London at peak hours, work towards a phasing-out of diesel buses and taxis before 2020, and introduce spot checks to enforce the new rules.

Rapidly develop a network of electric and hydrogen fuelling stations.

OUTCOMES

EMISSIONS	**4.7 megatonnes**	estimated emissions savings ($MtCO_2$) by 2050
AIR QUALITY	**18% reduction**	in nitrogen oxide (NOx) emissions by 2050
AIR QUALITY	**28% reduction**	in PM10 particulate emissions by 2050

ESSENTIAL #7

RENEW LONDON'S HOMES: RETROFITTING FOR ENERGY EFFICIENCY

BUILT ENVIRONMENT

ISSUE

Homes account for around **35%** of London's emissions, and around 80% of existing homes will still be in use in 2050.

More than **1 million** Londoners live in fuel-poverty.

SOLUTION

Refresh the RE:NEW programme, to reach 250,000 homes each year, or 1 million homes per term.

This can be achieved by creating a revolving energy efficiency fund and seeking access to Energy Company Obligation (ECO) funds.

OUTCOMES

EMISSIONS	**up to 1.5 megatonnes**	estimated emissions savings ($MtCO_2$) by 2030
ECONOMY	**£1.27 for every £1**	return on investment from increased economic activity
BUDGETS	**£0.42 for every £1**	savings from lower NHS costs

ESSENTIAL #8

COOL UNDER THE COLLAR: SCALE UP WORKPLACE RETROFITTING

BUILT ENVIRONMENT

ISSUE

Around **42%** of London's emissions come from public and private workplaces, and the majority of those workplaces will be in use right up to 2050.

SOLUTION

Revive and expand the RE:FIT programme to reach 1,200 workplaces by 2020.

OUTCOMES

EMISSIONS	**5 megatonnes**	estimated emissions savings ($MtCO_2$) from achieving the original 2020 target
ENERGY USE	**25%**	average energy savings for a retrofitted building
BILLS	**£1070 a year**	average bill saving for a medium-sized business

ESSENTIAL #9

CLOSED-LOOP LONDON: MAXIMISE THE CITY'S RESOURCE EFFICIENCY

RESOURCES

ISSUE

London is a resource-intense city, yet recycling rates have been falling. London is unlikely to achieve its current target of **50%** domestic recycling by 2020.

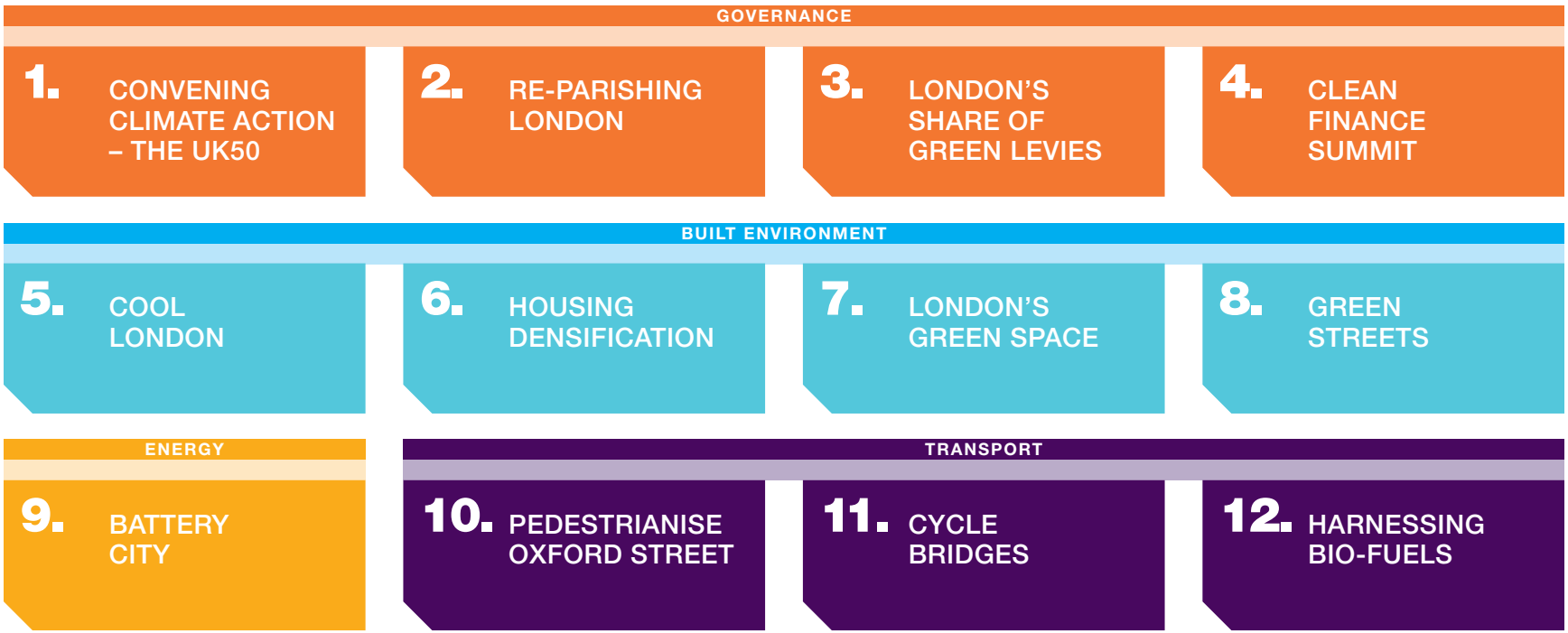
SOLUTION

Commit to be the first global 'closed-loop' manufacturing city. Being a closed-loop city would help drive demand for reused, recycled, recovered and secondary materials, and so ensure that more material is reclaimed from waste and put to new economic use.

OUTCOMES

EMISSIONS	**1 megatonne**	estimated emissions savings ($MtCO_2$-equivalent) by 2031 from domestic recycling alone
JOBS	**22,750**	new jobs created in the closed-loop economy
ECONOMY	**£3.45 billion**	value available through recycling, reprocessing, sharing and renting for greater resource efficiency

THE DESIRABLES



DESIRABLE #1

CONVENING CLIMATE ACTION – THE UK50

GOVERNANCE

ISSUE

Cities are increasingly acknowledged as the leading delivery actors in addressing climate change. London can empower and support other cities through the convening power of the Mayor of London.

SOLUTION

London led the world in establishing the global C40. London can lead again by establishing the UK50 – a grouping of the UK's largest cities and towns that coordinates collective climate mitigation and adaptation activities.

OUTCOMES

A world-leading low-carbon capital city that shares with and learns from the UK's major cities and towns.

DESIRABLE #2

RE-PARISHING LONDON

GOVERNANCE

ISSUE

London is growing faster than expected and the city is changing – yet communities are further from decision-making than ever.

SOLUTION

Re-parish London to allow local devolution, supporting every community and neighbourhood in local decision-making, including tackling climate change. This would build on the example of Queens Park community council in the London borough of Westminster.

OUTCOMES

Improved local public participation rates, increased local decision-making and neighbourhood planning, and greater community action to mitigate and adapt to climate change.

DESIRABLE #3

LONDON'S SHARE OF GREEN LEVIES

GOVERNANCE

ISSUE

Deployment rates from levy-funded energy programmes are lower in London than any region in the UK. Compared to similar global cities London has limited powers, raising only a small amount of the revenues that fund its responsibilities.

SOLUTION

Redirect London's portion of levies – such as the Energy Companies Obligation (ECO) – to the General London Assembly for it to use to fund the low-carbon investments that London needs to deliver the policies set out in this zero-carbon plan.

OUTCOMES

A self-funding low-carbon city that is energy-secure and resilient, more energy-efficient, where modal shift has occurred, and where residents can lead healthier, less-polluted lives.

DESIRABLE #4

CLEAN FINANCE SUMMIT

GOVERNANCE

ISSUE

While cities are increasingly recognised as the leading delivery agents of climate action, city-scale financing lags behind its potential. London is a premier climate-finance centre, with ***93.5%*** of the global market in carbon exchanges.

The City could play a leading role in creating the investment vehicles required for cities around the world to mitigate and adapt to climate risks.

SOLUTION

The mayor should convene a global climate financing summit to champion the role of the City of London and begin to develop the financial tools that global cities need.

OUTCOMES

London becomes a global leader in developing financing for cities that matches their potential and ambition to tackle climate change.

DESIRABLE #5

COOL LONDON

BUILT ENVIRONMENT

ISSUE

London experiences significant 'urban heat island' effects, often **4°C warmer** than surrounding country. This drives increased air pollution and heat stress, particularly affecting the elderly and people with health conditions.

SOLUTION

A strategy to cool London, with public fountains, tree-planting, green roofs and reflective surfaces (including installed solar).

OUTCOMES

A city that is healthier and more pleasant to live in, reduced summer illness and deaths, reduced burden on the NHS due to lower heat impacts on health, reduced demand for air-conditioning and electricity, and improved air quality.

DESIRABLE #6

HOUSING DENSIFICATION

BUILT ENVIRONMENT

ISSUE

Much of London housing is low density, leading to poor resource use and a housing shortage.

SOLUTION

Increase housing density to maximise the transport links of every area. Convert roads to cul-de-sacs by adding housing at one end and creating ‘pocket parks’.

OUTCOMES

1.4 million new homes could be created across London if well-connected areas with a low housing density were to match the density of higher-density areas that are similarly connected.

More efficient land use would make better use of existing infrastructures, not least London’s transport network

Cul-de-sacs would reduce road use and accidents, improve air quality and reduce crime rates.

DESIRABLE #7

LONDON'S GREEN SPACE

BUILT ENVIRONMENT

ISSUE

2 million Londoner's live further than 1km from open green space. This has a negative impact on air quality and quality of life, contributing to illness, poor health and shortened life expectancy.

SOLUTION

Ensure everyone lives within 1km of an open green space by 2020, through green space innovations such as the Peckham Coal Line and by adopting London as a national park.

OUTCOMES

Health benefits from access to and time spent in green space, and improved air quality.

DESIRABLE #8

GREEN STREETS

BUILT ENVIRONMENT

ISSUE

Many Londoners experience poor-quality local environments and air quality contributing to illness, poor health and shortened life expectancy.

SOLUTION

Green London's streets with an ambitious programme of tree planting, green roofing and green walling. Species such as silver birch, fruit trees and grape vines are being trialled in Amsterdam as a way to remove particulates and enhance air quality. London should follow this lead.

OUTCOMES

Health benefits from improved air quality, carbon capture, and improved local environment and quality of life.

DESIRABLE #9

BATTERY CITY

ENERGY

ISSUE

London has committed to decentralising **25%** of energy supply by 2025.

SOLUTION

Making energy storage solutions such as fuel cells and Tesla Powerwalls ubiquitous, to help drive the transformative impact of distributed energy, reducing issues of intermittency, and maximising the renewable contribution to electricity supply.

OUTCOMES

Energy storage in public buildings can support a city-wide smart grid, reducing London's dependence on UK fossil-fuel supplies and maximising its use of renewable energy. This could result in emissions savings of 4MtCO_2 or more by 2031, with consequential green economy benefits.

DESIRABLE #10

PEDESTRIANISE OXFORD STREET

TRANSPORT

ISSUE

Oxford Street suffers from severe traffic congestion, overcrowding and air pollution.

Up to ***300 buses*** an hour pass along the road at peak times – among the highest flow of buses anywhere in the UK.

Levels of nitrogen dioxide reach ***489mg/m^3*** at peak times, the highest known concentration recorded anywhere in the world.

SOLUTION

Crossrail services will reduce demand for many of the bus services accessing Oxford Street. This provides an opportunity to fully pedestrianise the road.

OUTCOMES

Dramatically improved air quality and pedestrian safety along Oxford Street and surrounding roads. Improving the look and feel of the area would increase its attraction as a visitor destination, bringing major benefits to the local economy.

DESIRABLE #11

CYCLE BRIDGES

TRANSPORT

ISSUE

Cycling in London can often be unsafe, and too many Londoners have died cycling.

SOLUTION

Create cycle bridges – akin to the Hogarth roundabout flyover in Chiswick, New York's High Line or Copenhagen's CycleSnake Bridge – to provide dedicated cycle routes over dangerous junctions and routes.

OUTCOMES

Safer cycling through traffic separation, greater take-up of cycling, and associated health benefits from improved air quality.

DESIRABLE #12

HARNESSING BIO-FUELS

TRANSPORT

ISSUE

Transport accounts for **21%** of emissions, and within that the hardest vehicles to power (HGVs) account for **9%** of CO_2 emissions and **12%** of NOx emissions.

SOLUTION

Maximising bio-gas and hydrogen production and use within the city, primarily as clean vehicle fuels, would help to deliver decentralised energy, ultra-low-emissions vehicles and to close the resources loop.

OUTCOMES

Lower vehicle emissions, improved air quality and greater resource efficiency for London.

POSITIVE IDEAS
for CHANGE