Financing Low-Carbon London

Sustainable Development of Cities

Zagreb

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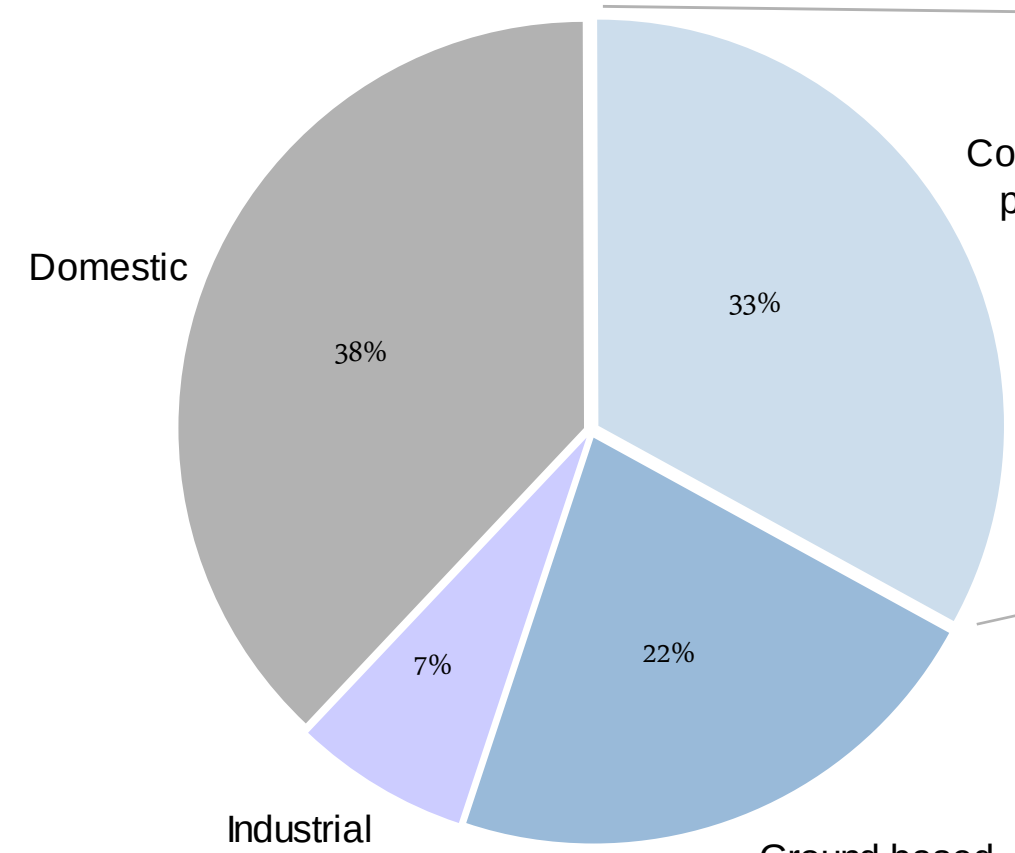
GREATER**LONDON**AUTHORITY

Outline

- **Challenges and Opportunities**
- **Initiatives**
- **Financing**
- **Appendix**

Challenges and Opportunities

As expected, urban activities drive London's carbon dioxide emissions



GLA (2006 & 2007)

London has a key role and a clear strategy in meeting the UK's climate change policy commitments

- The UK government enshrined in law in 2008 the objective of reducing greenhouse gas emissions by 80% (versus a baseline of 1990) by 2050
- London accounts for 13% of the UK's population and 9% of its total carbon footprint. The Mayor of London has committed to a 60% reduction in greenhouse gas emissions by 2025
- Committed to EU 20-20-20 targets
- Signatory to Covenant of Mayors

- Deliver CO2 reduction programmes at scale
- Extracting the huge economic value in London's waste, through investment in new waste technologies, co-ordinated by the London Waste and Recycling Board
- 26+ million sq.m of public and private commercial space retrofitted by 2025
- 25% of London's energy supply from DE by 2025
- £2b of London's energy consumption delivered through energy from waste
- 100,000 electric vehicles on London's streets by 2020 (5% of London's Fleet).
- Large-scale uptake of new technologies such as LED traffic lights
- Deliver the growth potential for London from the low-carbon economy

There is a compelling economic case for Low-Carbon London

- £17b+ of public and private capital investment; creation of public/private ‘London Green Fund’
- 10-15,000 jobs potential
- £600m gross value added per annum
- London USP: financial & business services + academic institutions + VC/cleantech funds

Summary of Initiatives

Retrofitting

- **BEEP & BEEP Lite**

Retrofit of public buildings with longer payback projects in BEEP and shorter in BEEP Lite

- **BBP**

Retrofit of commercial buildings with the above measures

- **Social and Private Housing**

Retrofitting with measures ranging from shorter payback projects (e.g. draughtproofing and cavity wall insulation) to longer payback projects (e.g. efficient boilers, solid wall insulation and micro power)

Decentralised energy

- Construction of 2000 MW of heat capacity via a mix of small, medium , and large size plants by 2025

Waste

- Construction of upto 50-100 waste plants to meet London's target of self-sufficiency by 2025

Transport

- Electric vehicle charging infrastructure
- LED street and traffic Lighting
- Hybrid Buses

Financing

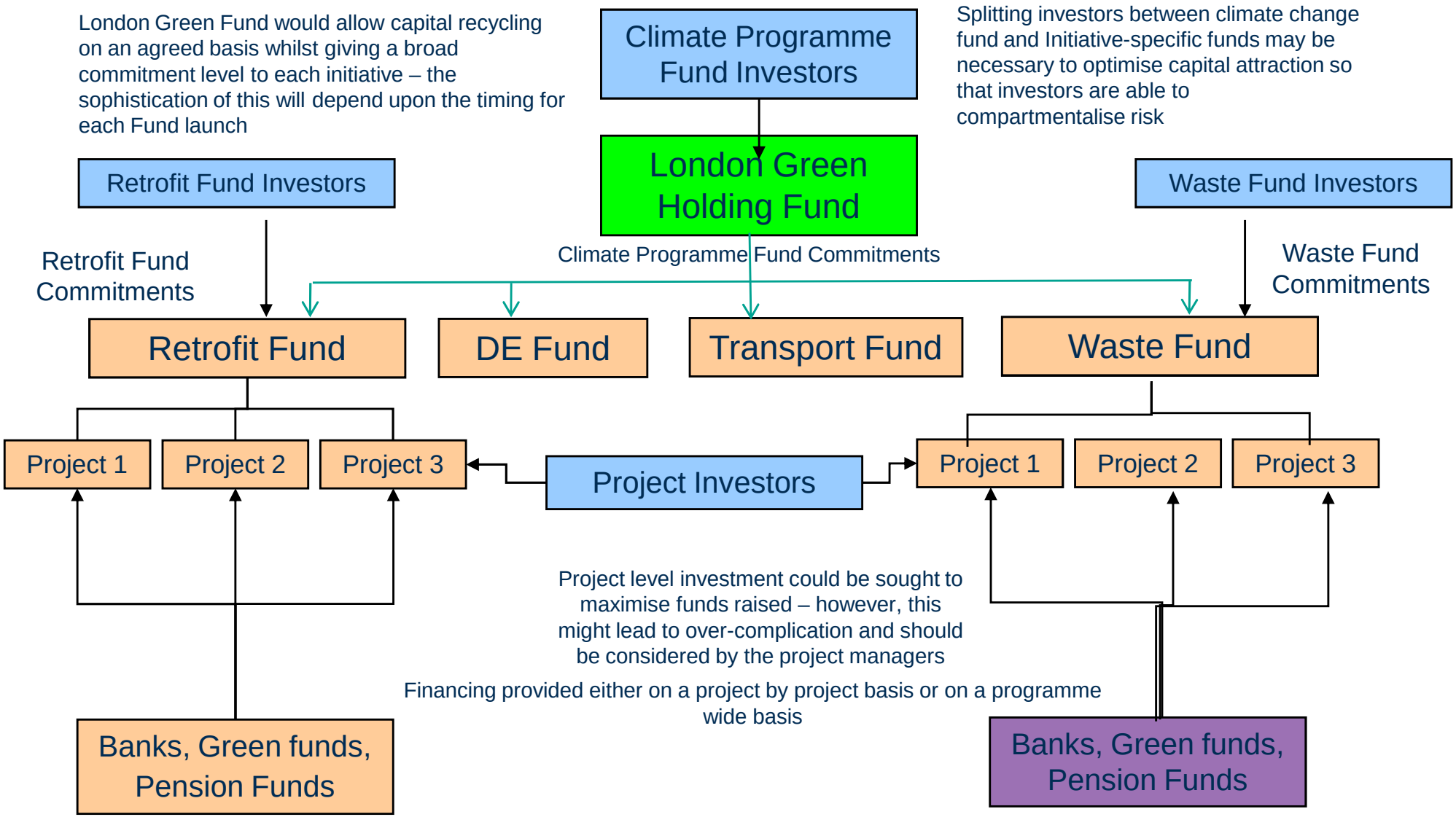
Financing the Vision

- Delivering this high-impact programme will require substantial capital c. £15-20 billion up to 2025

- To achieve the scale of the manifesto commitments private capital will be indispensable

- **‘London Green Fund’** is being proposed to enable private capital to invest in GLA projects
  - The fund must enable commercial returns to be made alongside the delivery of measured financial and non-financial (e.g. carbon) benefits
  - A fund will help reduce fragmentation of programmes and so increase impact across the board
  - Merton Rule contributions- new developments could pay into the fund in lieu of specific CC planning requirements

Possible Fund Structure – Illustration of End Result



Appendix

Contacts

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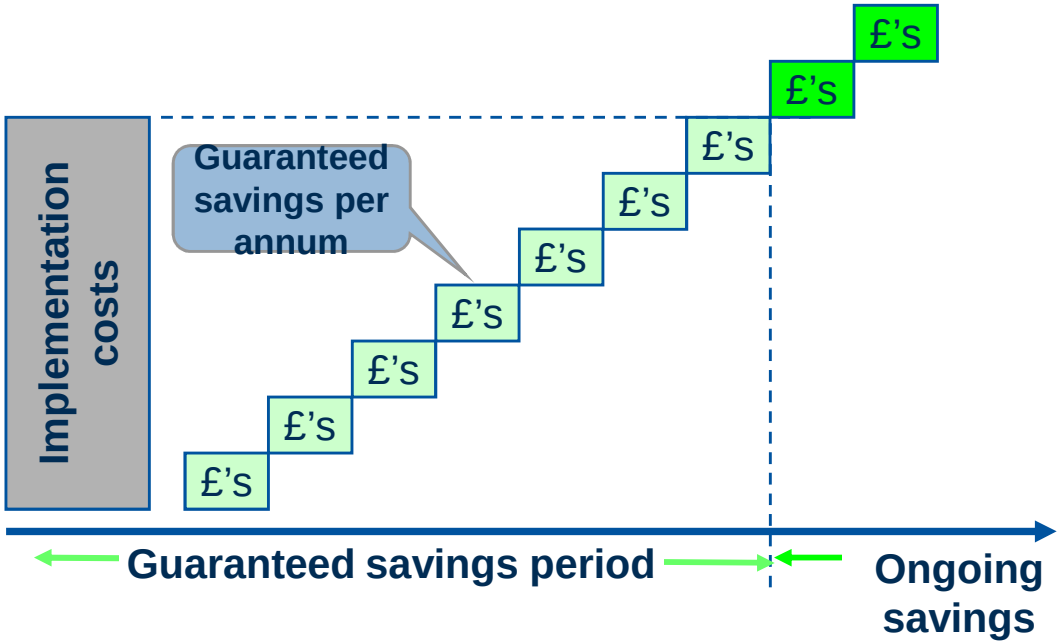
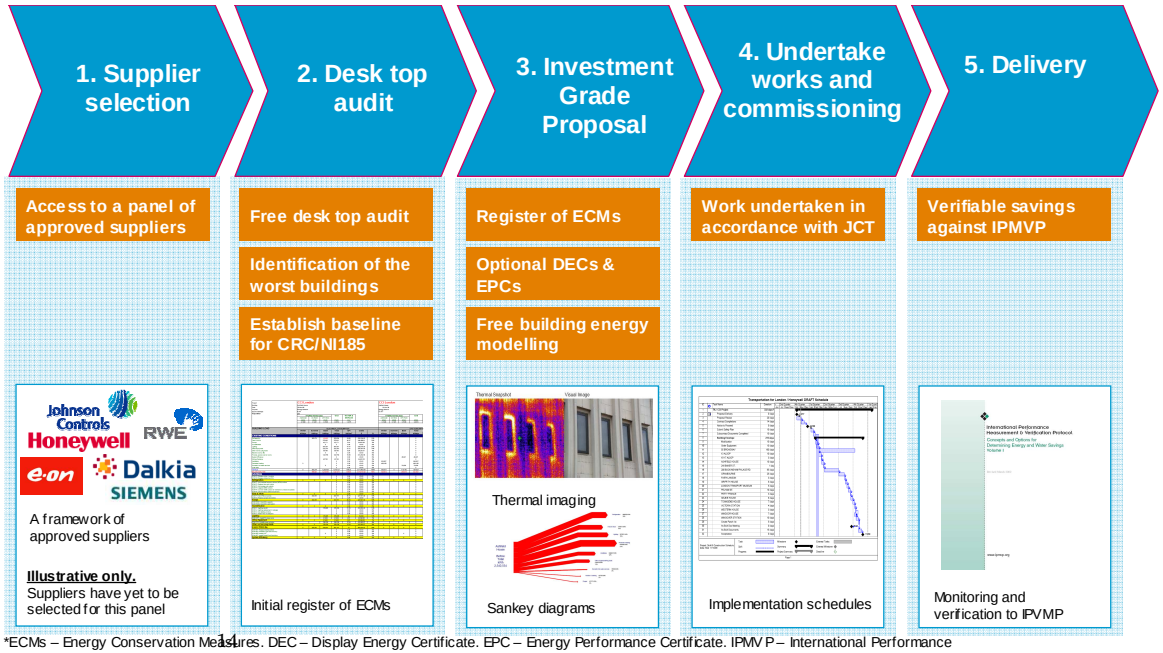
BEEP/BBP Retrofitting Business Model



WWell proven technologies – new delivery model
SShort payback periods
BBudget Neutral/+ve
FFinancial guarantees from reputed ESCOs

=Asset life >Payback period



*ECMs – Energy Conservation Measures. DEC – Display Energy Certificate. EPC – Energy Performance Certificate. IPMVP – International Performance Measurement and Verification Protocol. JCT – Joint Contracts Tribunal Limited. CRC – Carbon Reduction Commitment. NI – National Indicator

GLA to push for DE schemes ranging from £10 million to £500 million

Archetype 1– Small/Medium Mixed Use Schemes (50)

- The heat network will typically serve 300-5,000 residential units, plus a mix of public or commercial buildings.
- Powered by a single energy source fired by gas or biomass.
- Although electricity is generated, its key attractiveness will be community heating
- Represents the most numerous opportunities for introducing urban decentralised energy systems.

Archetype 2– Large, Heterogeneous, Schemes (5)

- Generate 50 – 100MWe of electricity, delivering heat to 5,000-20,000 residences
- Fired by a range of fuels including gas, biomass, and waste
- Connect several separate sites through a transmission network
- Electricity revenues will be significant for the project economies

Archetype 3 - Very Large, 'Excess Heat' Schemes (1)

- These are very big schemes based on 'free' heat energy. In simple terms, all power stations produce more heat energy than the electrical energy which they generate. This 'excess heat' is simply dumped to the surrounding environment (the air, a local river, or the sea).
- The heat networks will connect to power stations generating 500MWe-1,500MWe and will deliver heat energy to schemes which serve (maybe) in excess of 100,000 residential units and mixed public/commercial/industrial end-users.
- The economics will revolve principally around the delivery of heat. This is because the delivery of electricity is already accounted for through the existence of the power station in the first instance

There is a strong financial case for LEDs

- TfL would like to replace existing HPS street and traffic light units with LED light units because of its lower life cycle cost
- The lower cost is because of longer life and better energy efficiency
  - 100,000 (20years) vs. 20,000 hours (4 years)
  - 50% more efficient
  - Estimated pay-back period is 5 years
- Challenges
  - Financial: Higher upfront cost and no budgets
    - Reviewing off balance sheet lease option
  - Technical: UK specific standards and regulatory compliance
  - Commercial: market for second-hand units, manufacturer warranties
    - Discussions ongoing with other cities and manufacturers

100,000 electric vehicles by 2020: A possible roadmap

Consumer Incentives

£2000-£5,000 subsidy per EV between 2011-14 announced by the UK government

Supportive GLA Policies

•Convert at least 1,000 Greater London Authority fleet vehicles to electric by 2015

• Require the installation of charging points in all new developments over certain size.

•100 per cent exemption of the congestion charge for electric vehicles, saving electric car users approximately £1700 a year

Charging Point Infrastructure

•25,000 charging points in London workspaces, retail outlets, streets, public car, parks and station car parks by 2015

•TfL commitment to contribute £20 million- a third of the total investment required

•Possible loan/ guarantees for providers of EV infrastructure under the £2.3 billion Automotive Assistance Programme (AAP)