

Why Consider CHP?

CHP for RSLs Event

City Hall

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GLA Energy Team



Combatting Climate Change

“In my manifesto I committed to the existing 60% carbon dioxide reduction target for London by 2025. Scientific evidence shows that we must make even deeper cuts in the longer term and that early action is vital. Our view has always been that the science – also reflected in the Stern Review – requires cuts of 80-90% by 2050. The Government’s new target reflects London’s existing ambitions. Any strategies and programmes on climate change will therefore absolutely be driven off of this trajectory.”

Boris Johnson
Mayor of London

Tackling Fuel Poverty

• “Fuel poverty is a significant issue and linked to excess winter deaths, which tend to affect the elderly in particular. The key factors which affect whether people can pay their fuel bills are: their income, the energy efficiency of their home and fuel prices. ”

“I am determined to continue the programme of eradication of fuel poverty. As you know, in London we have a much higher level of fuel poverty than other parts of the country just because of the definitions of it. I think the best thing we can do is to make our homes more fuel efficient. ”

Boris Johnson
Mayor of London

Decentralising London's Energy Supply

- DE can be defined in several ways – but broadly understood as heat and power generated onsite or near site

Includes a range of technologies:

- Sizes range from micro to small scale (few kWe to few MWe)
- Key focus in London on Combined Heat and Power (CHP)
- CHP at present tends to be natural gas-fired (but market also seeking to deliver biogas, biofuel and biomass CHP and fuel cells)
- Also includes renewables such as wind power, solar thermal, photovoltaics (PV), ground source heat pumps, biomass heat
- Waste to energy schemes present some large scale opportunities

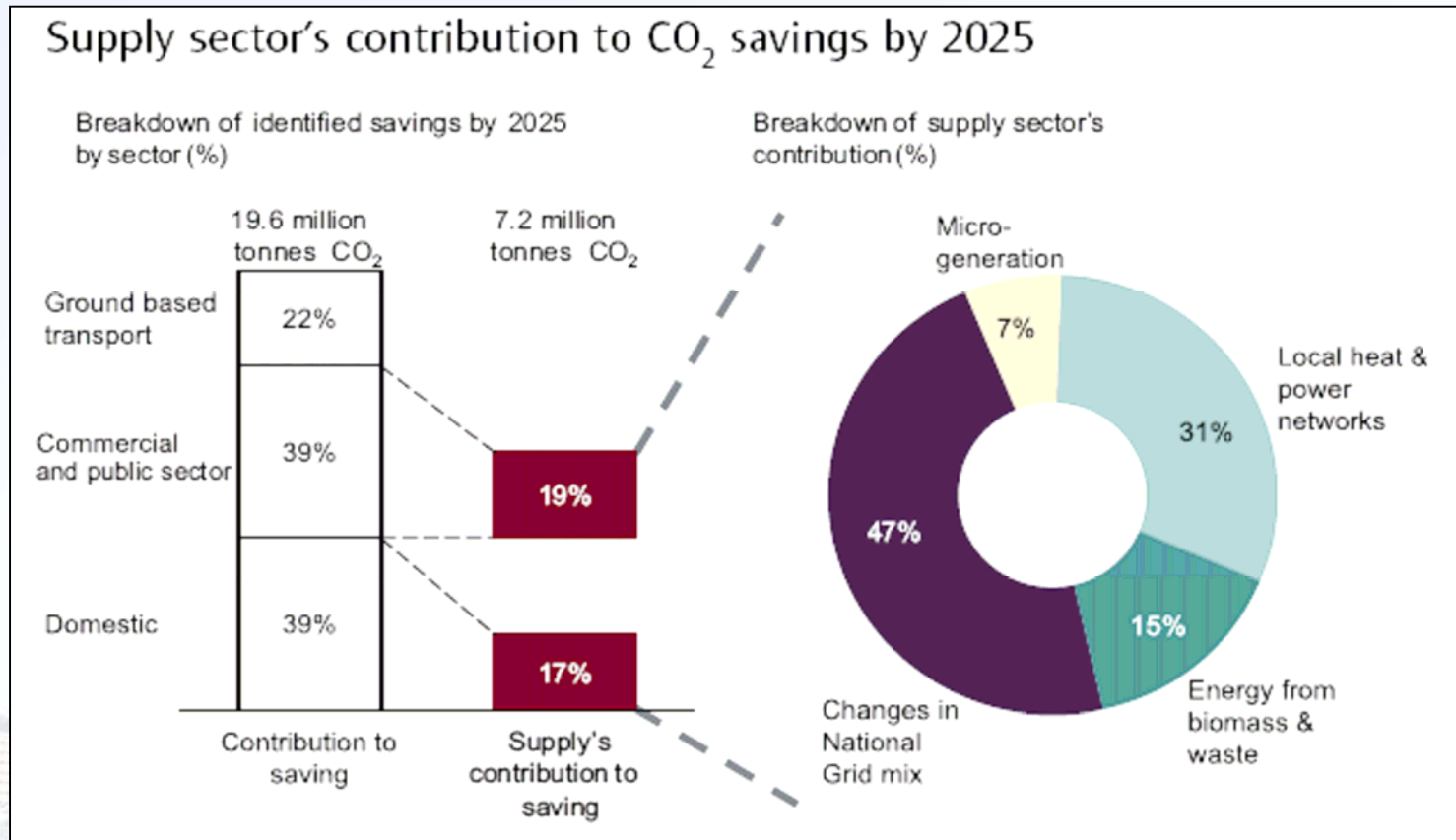
Why is greater use of DE important in London?

...top priority for reducing carbon emissions is to move as much of London as possible away from reliance on the national grid and on to local, lower-carbon energy supply (decentralised energy, including combined cooling heat and power (CCHP), energy from waste, and onsite renewable energy - such as solar panels).

...goal is to enable a quarter of London's energy supply to be moved off the grid and on to local, decentralised systems by 2025, with the majority of London's energy being supplied in this way by 2050

[CCAP pg xxiii]

DE and carbon savings



Displacing centralised generation with DE can help deliver 3.8 million tonnes of CO₂ savings annually by 2025

Potential for CHP in London

- 2,300 MW identified by Defra 2007 study
- Over 200 CHP units (200MW+) installed
- 170,000 dwellings connected to an existing communal heat network in London

Policies to Promote DE

London Plan's energy hierarchy requires the use of DE technologies where feasible

2004 *Energy Strategy* sets targets for use of CHP and renewable heat and power technologies

Supporting information provided through:

- *SPG on Sustainable Design and Construction*
- *London Renewables Toolkit (Low Carbon Designer)*
- *London Energy Partnership Wind and Biomass Study*
- *Powering London in 21st Century study*

DE target in Climate Change Action Plan (CCAP)

London Plan Energy Policies applied to individual development

'Developments should evaluate combined cooling, heat, and power (CCHP) and combined heat and power (CHP) systems and where a new CCHP/CHP system is installed as part of a new development, examine opportunities to extend the scheme beyond the site boundary to adjacent areas.'

The Mayor will expect all major developments to demonstrate that the proposed heating and cooling systems have been selected in accordance with the following order of preference:

- connection to existing CCHP/CHP distribution networks*
- site-wide CCHP/CHP powered by renewable energy*
- gas-fired CCHP/CHP or hydrogen fuel cells, both accompanied by renewables*
- communal heating and cooling fuelled by renewable sources of energy*
- gas fired communal heating and cooling.'*

(Policy 4A.6 Decentralised Energy: Heating, Cooling and Power)

London Plan Decentralised Energy Policies

'Boroughs should ensure that all DPDs identify and safeguard existing heat and cooling networks and maximise the opportunities for providing new networks that are supplied by decentralised energy.'

'The Mayor will and boroughs should work in partnership to identify and establish network opportunities, to ensure the delivery of these networks and to maximise the potential for existing developments to connect to them.'

(Policy 4A.5 Provision of heating and cooling networks)

London Plan Energy Policies and OAPFs and LDFs

- Energy team comments on energy policies in LDF documents, including decentralised energy policies
- Guidance on climate change evidence base and the process of energy masterplanning
- Proactive engagement with boroughs

LDA's DE Delivery Team

The objective of the DED team is to **deliver** low and zero carbon energy supply schemes where:

- The market is failing to do this or,
- Where the market is proposing a sub-optimal solution

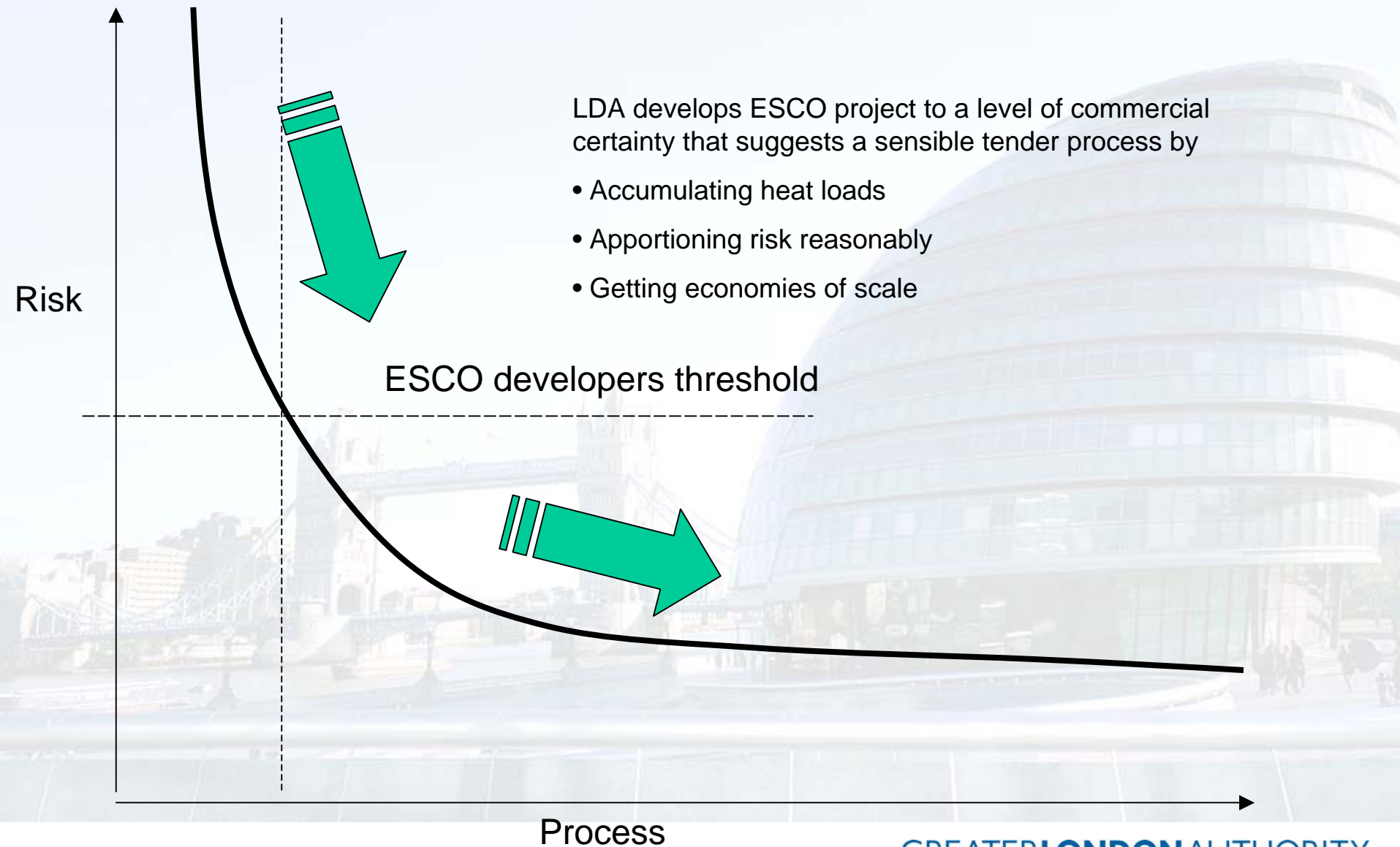
This may occur where:

- Long development timescales create too much uncertainty and risk for commercial involvement;
- Contiguous developments are pursuing independent approaches where a collective approach would be much more effective;
- The size of the project is too small to deploy the best technology.

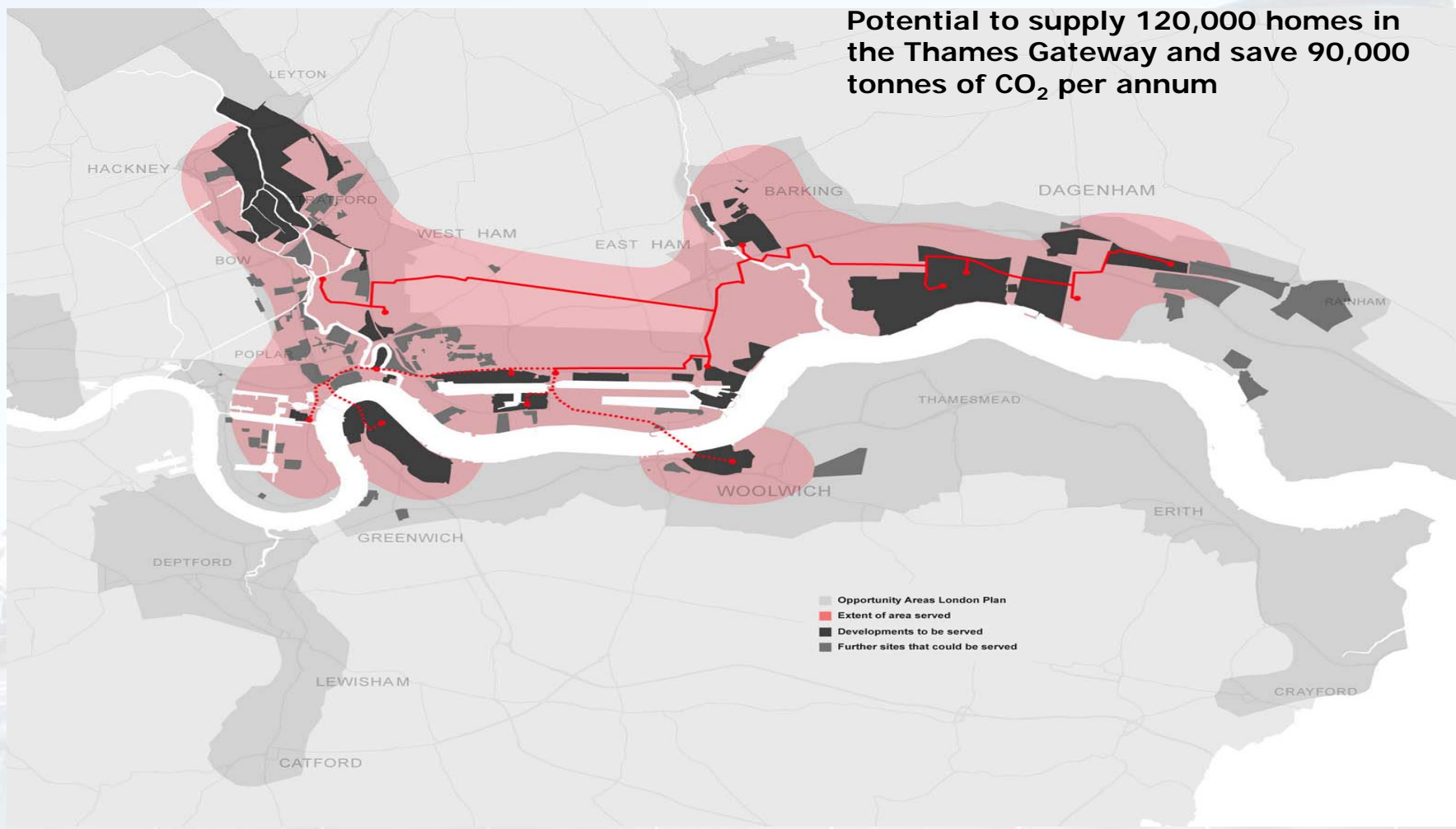
Projects will:

- Be based on **conventional proven technologies**
- Take forward projects that are otherwise **commercially viable**
- Fulfill the Mayor's climate change strategy

Taking ESCO developers down the risk curve



Decarbonising the Thames Gateway



Barking Power

Power Station

Combined cycle gas turbine plant (CCGT)

1,000MWe from 5 gas turbines and two steam turbines

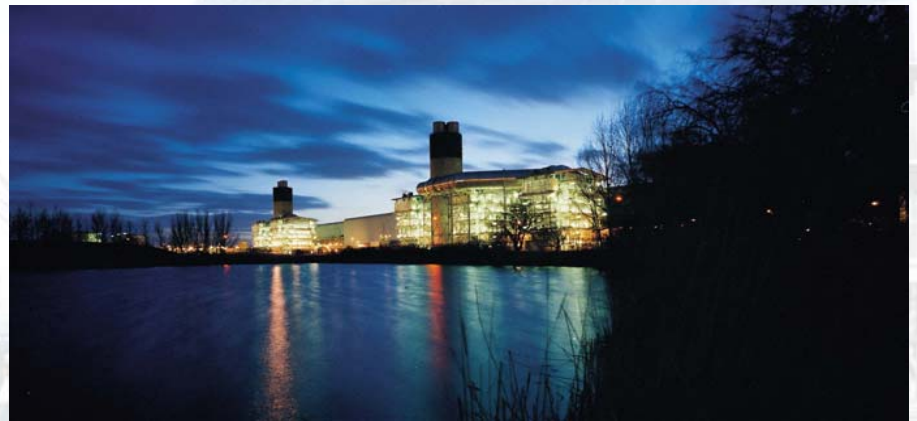
46% efficient (**400MWth** of heat into Thames)

Addition of a further 400MWe planned

Owners have committed to supplying **100MWth** heat from the new extension

The Benefits

- Potential to supply 120,000 homes (400MWth)
- Saves 90,000 tonnes of CO2 per annum

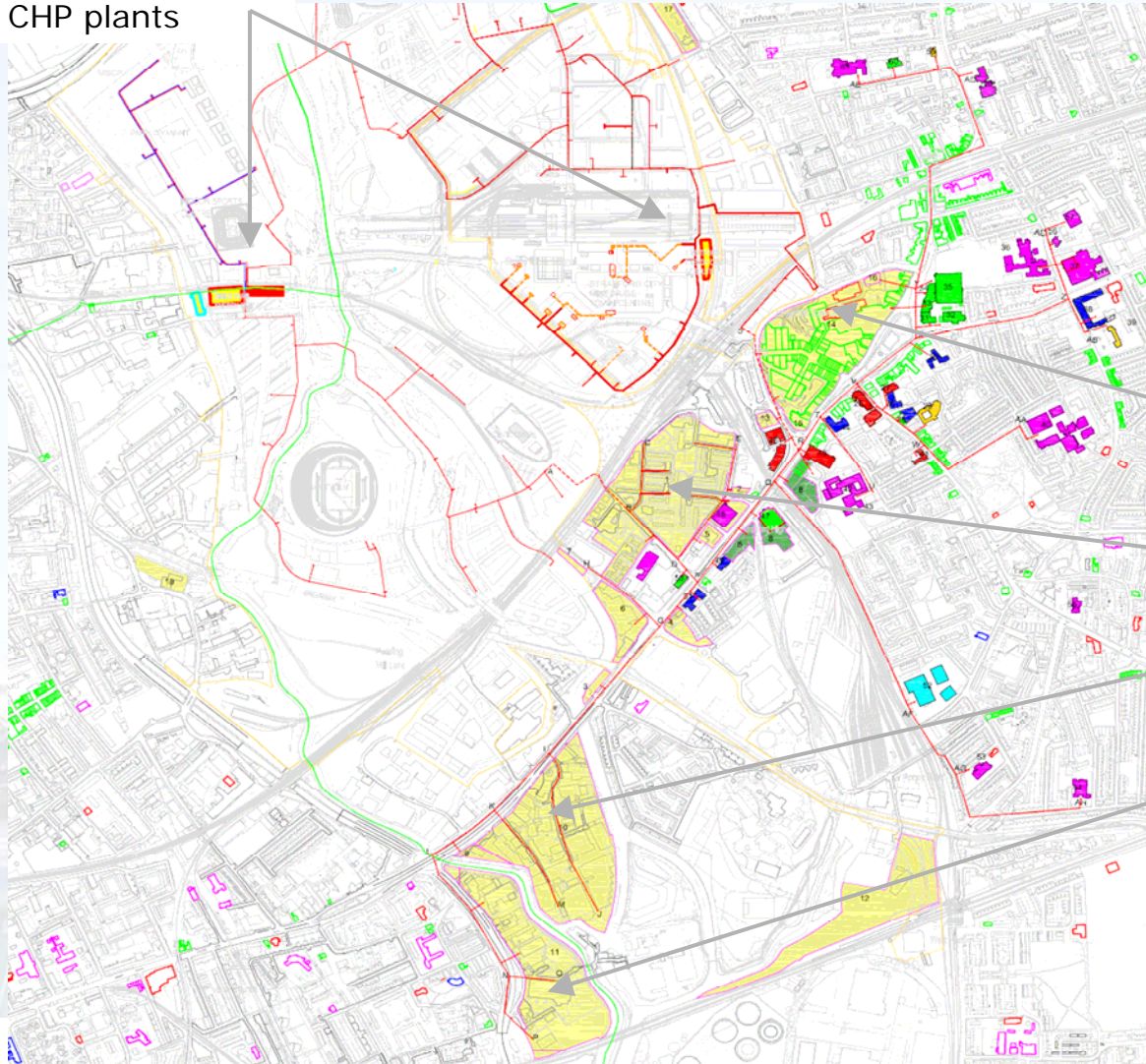


Barking Power District Heating Pipework Routes



Olympic Fringe CHP/district heating (LTGDC)

Olympic park
CHP plants



10,000 new
dwellings

1m ft² commercial

6m tonnes of CO₂
reduction potential

Stratford town
centre

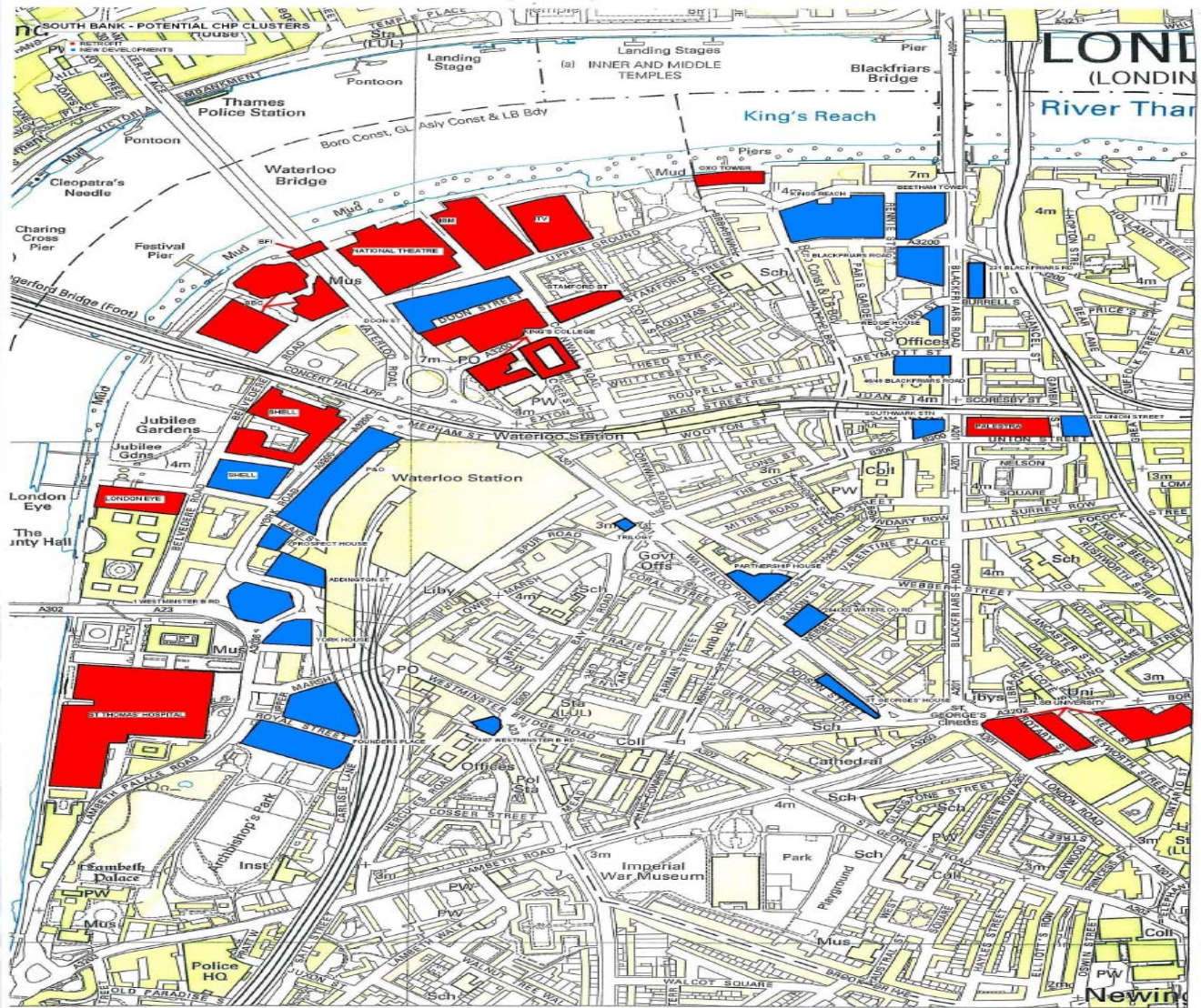
Stratford High
Street

Sugar House lane

Bromley on Bow

SBEG Initiative (South Bank Employers Group)

- Proposed 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



The Project Pipeline

Projects

Barking power station to CHP (DCLG project)

National Sports Centre CHP

Olympics CHP (ODA/LDA project)

Olympics Satellite loads

Royal Albert Basin CHPDH scheme

South Bank initiative

Tate & Lyle/Royal Docks low/zero carbon energy project

Euston Road

Shoreditch Trust

Pimlico DH Unit

Whitehall DH

SELCHP

Prospects

Edmonton

Existing CHP assets carbon optimisation incentives

Lee Valley Park

Other LDA land developments

Transport for London

National Policy Drivers for CHP

- 10,000MWe by 2010
- Code for Sustainable Homes
- PPS1 supplement on Climate Change
- CERT
- ...Heat Incentives
- ...CESP

Mayoral Support for CHP

- Targetted Funding Stream
- Housing Strategy: Prioritising funding to developments that achieve higher CSH Levels
- DED Team
- Low Carbon Zones

London's Community Heating Database (2)

- Data collated in Access database
- Designed to be 'future proof' – to accommodate new connections
- Soon to be publicly available at www.lep.org.uk

The screenshot displays the 'LEP Heat Map Database' application window. The main window is titled 'Scheme' and contains a 'Community Heating Scheme Data' form. The form includes several input fields and a 'Scheme Status' section with radio buttons. A 'View/Edit Data Menu' is visible on the left side of the application.

View/Edit Data Menu

- Community Heating Scheme Data
- Energy Centre Data
- Boiler Data
- Connected Block/Building Data
- Contact Data
- Energy Consumption Data
- Fuel and Emission Factors
- Network Pipe Data
- Chilled Water Network Data
- Private Wire Network Data
- Exit

Community Heating Scheme Data

SchemeName: Eithelred Estate

Fundamental SchemeType: CH Scheme

SchemeType: Residential Estate

Year Started: [Empty]

Borough Name: Lambeth

Contact: Leonard Igboodo

Scheme Status:

- Constructed
- Under Construction
- Proposed
- Conceptual
- Disconnected

Filter by Scheme Type: [Dropdown]

Locate a Scheme

Click below to search for a Scheme. Search data is listed by borough then in alphabetic order.

Eithelred Estate [Dropdown]

EnergyCentres in Scheme | Scheme Contact | Notes and Diagrams

| EnergyCentreName | Address | Postcode | Recent Works | CHP | Borough | Te |
|------------------|---------|----------|--------------|--------------------------|---------|----|
| Eithelred Estate | | SE11 6LU | | <input type="checkbox"/> | Lambeth | |
| * | | | | | | |

Record: 1 of 1546

Form View

DE Strategic Implementation Plan

- Borough Masterplans
- Heat Mapping
- Identifying DE potential
- Financing Heat Networks
- Heat Charters
- ESCOs
- Changing the regulatory frameworks
- Heat Incentives
- Etc.