

**MAYOR OF LONDON**

---

**THE MAYOR'S  
CLIMATE CHANGE  
MITIGATION AND  
ENERGY ANNUAL  
REPORT: 2013-2014**

---

## **COPYRIGHT**

**Greater London Authority  
June 2015**

Published by  
Greater London Authority  
City Hall  
The Queen's Walk  
More London  
London SE1 2AA  
**[www.london.gov.uk](http://www.london.gov.uk)**  
enquiries 020 7983 4100  
minicom 020 7983 4458  
Copies of this report are available  
from [www.london.gov.uk](http://www.london.gov.uk)

## CONTENTS

1. Introduction	4
<b>SECTION 1: London's CO<sub>2</sub> emissions (2013)</b>	
2. London's CO <sub>2</sub> emissions and energy use	6
<b>SECTION 2: London's activities (2013-2014)</b>	
3. Making London one of the world's leading low carbon capitals	11
4. Securing a low carbon energy supply for London	14
5. Reducing CO <sub>2</sub> emissions and energy bills for London's homes	18
6. Reducing CO <sub>2</sub> emissions and energy bills for London's workplaces	21
7. Reducing CO <sub>2</sub> emissions from new development	24
8. Reducing CO <sub>2</sub> emissions from transport	27
9. Reducing CO <sub>2</sub> emissions and energy bills in the GLA group	31

---

# 1. INTRODUCTION

The Mayor has set world-leading targets to reduce London's carbon dioxide (CO<sub>2</sub>) emissions. With concerted effort by the Mayor, Government, Londoners and the wider market London can achieve a target to reduce its CO<sub>2</sub> emissions by 60 percent from 1990 levels by 2025. This report updates on London's progress towards meeting this target and Mayoral activity to reduce London's CO<sub>2</sub> emissions and secure its energy supply in 2013-14.

Progress in 2013-14 was promising. Despite an ever-increasing population and one of the coldest winters in recent history, which increased London's gas use, interim figures show London's emissions have fallen by 11 percent on their 1990 baseline, and 20 percent since their peak in 2000. Had it not been for the cold winter, London's emissions are estimated to have been 13 percent down on their 1990 baseline<sup>1</sup>. With a population now at 8.6 million, London continued to reduce its per capita emissions by 28 percent on 1990 levels and by 20 percent on 2008 levels to 4.8 tonnes of CO<sub>2</sub> (tCO<sub>2</sub>) per capita in 2013. In the same period London's GVA grew by 18 percent. As more of the world's populations move to cities, London's example shows the potential for decoupling CO<sub>2</sub> emissions from economic and population growth, and the opportunities of increasingly more carbon-efficient city living globally.

To reach the Mayor's CO<sub>2</sub> emissions reduction targets will require commitment and activity by the Mayor, Government, businesses, local authorities and the wider market in London. The Mayor is continuing to deliver programmes which secure our energy and reduce our CO<sub>2</sub> emissions including:

- **Energy supply** - The Mayor's Decentralised Energy Project Delivery Unit is overcoming market barriers to investment in large-scale decentralised energy projects and the Mayor's work on new development has secured commitments to invest nearly £103 million in decentralised energy in London in 2013 alone. In 2013 the Greater London Authority (GLA) also led the way in opening up the electricity market to smaller suppliers by becoming the first authority in the country to apply to Ofgem for a junior electricity licence or 'Licence Lite'. The GLA has also been active in overcoming the barriers to investing ahead of need in electricity infrastructure through its leadership on the High Level Electricity Working Group.
- **Homes retrofit** - By the end of the 2013-14 financial year, over 100,000 homes were visited through the Mayor's retrofit programmes. Coupled with wider market delivery, 500,000 home have been retrofitted across the capital. This has resulted in a reduction in Londoners' energy bills of over £4.7 million per annum.
- **Workplaces retrofit** - By the end of 2013-14 the Mayor's RE:FIT programme retrofitted over 400 public sector buildings, with an active pipeline of buildings for the future, including London's schools.

The rest of this report is split into two sections. Part 1 (chapter 2) provides an update and analysis of the interim measurement of London's CO<sub>2</sub> emissions in 2013 through the London Energy and Greenhouse Gas Inventory (LEGGI). Part two (chapters 3-9) provides a summary update on progress on Mayoral programmes in the context of wider activity.

---

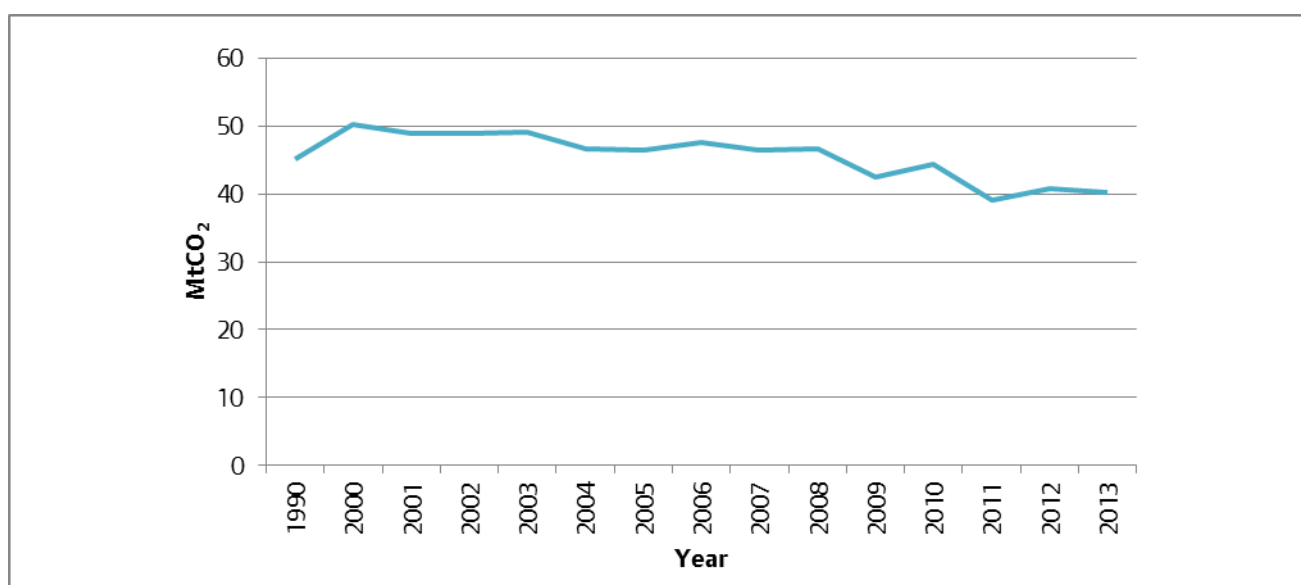
<sup>1</sup> Compared to if London had experienced an average number of 'heating degree days'.

---

# 2. LONDON'S CO<sub>2</sub> EMISSIONS AND ENERGY USE

London's CO<sub>2</sub> emissions are measured through the London Energy and Greenhouse Gas Inventory (LEGGI). The most recent measurement of London's CO<sub>2</sub> emissions is the interim LEGGI published in June 2013<sup>2</sup> and is available on the London Datastore. This data shows that in 2013, London's CO<sub>2</sub> emissions were estimated to be 40.19 million tonnes of CO<sub>2</sub> (MtCO<sub>2</sub>) per annum<sup>3</sup>. As figure 1 shows this is an 11 percent reduction on the baseline of 1990 and a 20 percent reduction on the height of London's CO<sub>2</sub> emissions in 2000. It also shows London's CO<sub>2</sub> emissions levelling off in 2013. However, this is primarily due to an increase in gas use due to a particularly cold winter in 2013 (see later analysis).

**Figure 1: London's CO<sub>2</sub> emissions - 1990 to 2013**



Source: Interim London Energy and Greenhouse Gas Inventory 2013

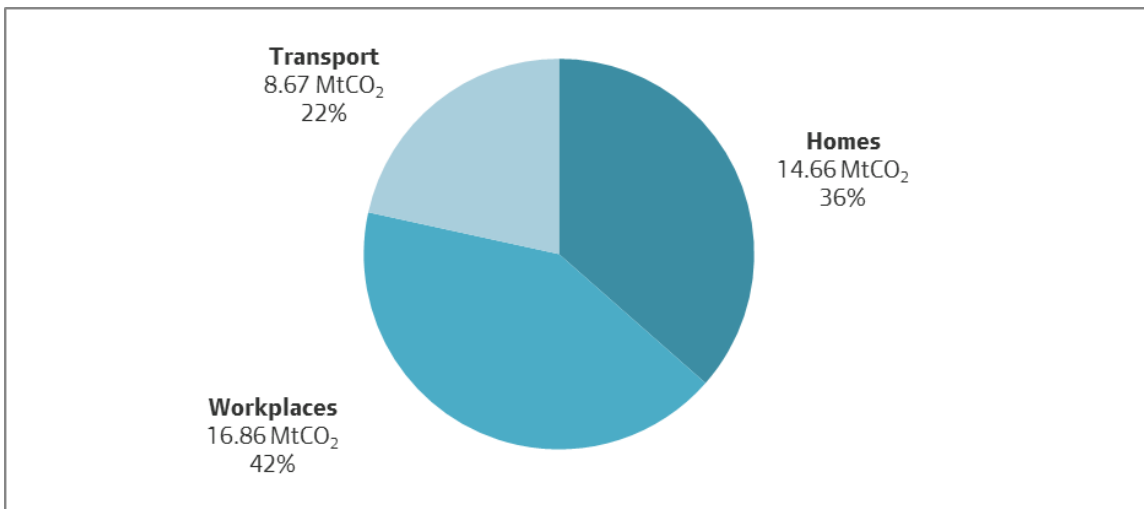
Of London's total emissions, 36 percent were generated from London's homes, 42 percent from London's workplaces, and 22 percent from London transport (see figure 2). All sectors have seen a reduction in CO<sub>2</sub> emissions from the 1990 baseline, with homes seeing a seven percent reduction, workplaces seeing a 15 percent reduction and transport seeing a nine percent reduction.

Gas remains the majority fuel source for London, accounting for nearly 48 percent of the energy used in London, predominantly for heating homes and workplaces. Electricity accounts for nearly 29 percent of the energy used in London, used for both lighting and appliances in buildings, and for rail in transport. Oil-based transport fuels (petrol, diesel and aviation fuels) accounted for 22 percent of London's energy use. The remainder (two percent) is from use of other fuels, such as coal use in buildings (see figure 3).

<sup>2</sup> The interim LEGGI includes some estimated transport data and interim figures from government. The LEGGI 2013 will be finalised by the end of 2016 once final data is available from government.

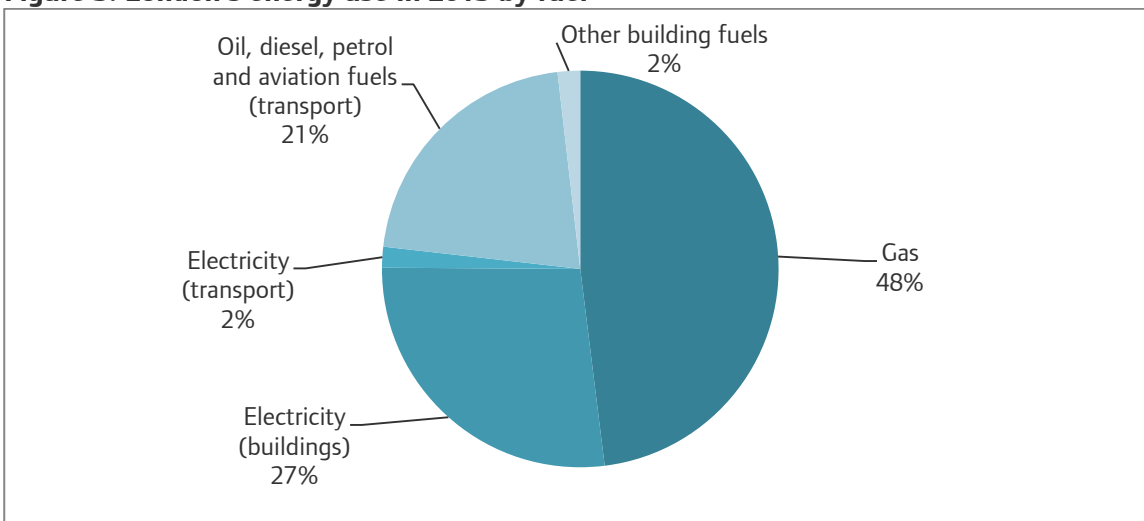
<sup>3</sup> London's CO<sub>2</sub> emissions are reported non-weather corrected in the LEGGI. This is to give a more accurate measurement of London's total CO<sub>2</sub> emissions.

**Figure 2: London's CO<sub>2</sub> emissions in 2013 by sector**



Source: Interim London Energy and Greenhouse Gas Inventory, 2013

**Figure 3: London's energy use in 2013 by fuel**



Source: Interim London Energy and Greenhouse Gas Inventory, 2013

**Drivers of changes in London's CO<sub>2</sub> emissions in 2013**

A number of factors account for the change in London CO<sub>2</sub> emissions in 2013<sup>4</sup>.

*Electricity use and carbon intensity*

Total electricity use fell by one percent from 2012 to 2013, and per capita it fell by nearly three percent. It is assumed that this reduction is due to improving efficiency of lighting, appliances and building controls. Total CO<sub>2</sub> emissions from electricity reduced by four percent or 0.77 MtCO<sub>2</sub>. The reduction in CO<sub>2</sub> from electricity was due largely to the lower carbon intensity of grid electricity caused by lower levels of coal combustion for power and reduced losses from transmission. This resulted in reductions of 0.52 MtCO<sub>2</sub>.

<sup>4</sup> As transport figures are currently reported as interim figures, analysis is not undertaken here. Full transport figures are due by the end of 2015.



*Gas use and carbon intensity*

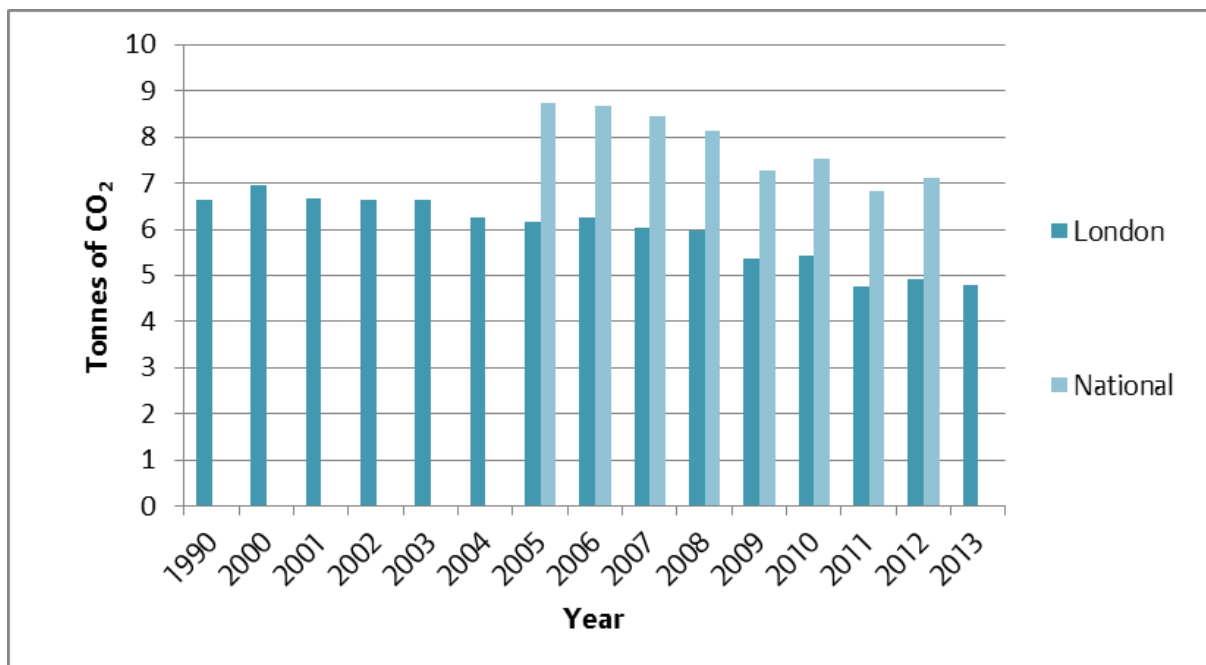
Total gas use increased by nearly two percent from 2012 to 2013 from 66,611 Giga Watt Hours (GWh) to 67,679 GWh. The start of 2013 was a particularly cold winter, with unseasonably cold weather lasting into late spring, and is estimated to be the main driver of this increased energy use. When this is taken into account, had 2013 and 2012 has the average number of heating degree days, gas use would have fallen by two percent from 2012 to 2013, or a three percent reduction per capita. It is assumed that the reduction in gas use for the average number of heating degree days is due to improved efficiency of boilers and increasing levels of insulation in the domestic sector. In the non-domestic sector it is assumed the reduction is due to improved efficiency of boilers and buildings controls.

Total CO<sub>2</sub> emissions from gas use increased by one percent or 0.12 MtCO<sub>2</sub> from 2012 to 2013. The increased gas use due to cold weather is estimated to be responsible for an increase of 1.02 MtCO<sub>2</sub> compared to an average year. This was partly offset by a reduced emission factor for domestic gas combustion estimated to be around 0.85 MtCO<sub>2</sub>.

*Population growth*

London's mid-year estimate of population for 2013 was 8.4 million. This is an eight percent increase on 2008 population figures. However, London's per capita emissions have continued to fall to their some of their lowest levels in 2013 of 4.8 tCO<sub>2</sub>e per capita, a 20 percent reduction on 2008 levels.

**Figure 3: London and national per capita CO<sub>2</sub> emissions 1990 to 2013**



Source: Interim London Energy and Greenhouse Gas Inventory, 2013 and the Department of Energy and Climate Change Local and Regional CO<sub>2</sub> Emissions Estimates for 2005-2012

## Mayoral activity

It is estimated that in 2013<sup>5</sup> Mayoral activity reduced London's CO<sub>2</sub> emissions by nearly 62,000 tCO<sub>2</sub> in homes<sup>6</sup>, over 190,000 tCO<sub>2</sub> in workplaces<sup>7</sup> and over 177,000 tCO<sub>2</sub> from energy supply measures<sup>8</sup>. Mayoral activity on retrofitting accounted for a reduction of an estimated 202,000 tCO<sub>2</sub>, activity on avoidance of CO<sub>2</sub> from new development (not including decentralised energy) accounted for a reduction of an estimated 50,000 tCO<sub>2</sub>, and Mayoral activity on transport account for a reduction estimated at over 50,000 tCO<sub>2</sub>.

---

<sup>5</sup> The GLA reports programme activity according to financial year. Therefore, data from the financial year has been allocated to the calendar year for which the majority of it falls into for reporting of CO<sub>2</sub>. This means programme activity for 2013-14 is reported against the 2013 inventory.

<sup>6</sup> This includes emissions avoided in new development of homes.

<sup>7</sup> This includes emissions avoided in new development of workplaces.

<sup>8</sup> It should be noted that for new development, CO<sub>2</sub> emissions and energy supply data are calculated when new development is granted permission.

# 3. MAKING LONDON ONE OF THE WORLD'S LEADING LOW CARBON CAPITALS

The Mayor's environmental programmes are continuing to help drive demand for environmental goods and services in London, and the sector was worth an estimated £25.4 billion to London's economy in 2011-12<sup>9</sup>. The Mayor has two policies to promote the low carbon economy in London. These are:

- Policy 1: Combining London's existing economic strengths with its influence and capacity to drive demand for, and attract inward investment in, the low carbon economy
- Policy 2: Helping Londoners to gain the skills and experience needed to participate in the low carbon economy

### **Mayoral activity: 2013-2014**

#### *The London Green Fund*

The London Green Fund has been set up to invest in schemes that will cut London's CO<sub>2</sub> emissions. The fund was the first JESSICA Holding fund in the UK, and the £110 million invested in the fund is expected to leverage up to £1 billion of investment in CO<sub>2</sub> reduction and wider 'green' programmes in London. The London Green Fund provides funding for three Urban Development Funds (UDFs) which are 'revolving' investment funds, where monies invested in one project are repaid and then re-invested in other projects. The three UDFs are:

- The London Energy Efficiency Fund (LEEF), managed by Amber Infrastructure Ltd, which primarily provides debt financing to buildings retrofit projects installing energy efficiency measures and decentralised energy systems.
- The Greener Social Housing UDF which invests in the refurbishment of social housing, primarily in the form of loans to registered social housing providers.
- The Foresight Environmental Fund (FEF), which provides equity finance for waste-to-energy and recycling facilities.

During 2013, the London Green Fund invested £56 million with forecasted savings of approximately 150,000 tCO<sub>2</sub> per annum. To date the London Green Fund has invested approximately £106 million and expects to see savings of 218,000 tCO<sub>2</sub> per annum once construction works are completed.

#### *The Mayor's Low Carbon Entrepreneur*

In 2011 the Mayor launched the first Low Carbon Prize for students. Every year since then ideas for reducing London's CO<sub>2</sub> emissions have been submitted by students and recent graduates from across London. These are then judged by experts and high profile judges with the winning ideas awarded a share of a corporately sponsored development fund. The 2014 Dragon's Den style judging panel included Deborah Meaden, co-founder of Innocent Drinks, Richard Reed, and Zac Goldsmith MP.

In 2013-14, the Mayor's Low Carbon Entrepreneur, sponsored by Siemens, was shared by Crowd Power Plant and solarbox. Crowd Power Plant was submitted by masters students James Winfield and Dominic Jacobson from Imperial College London and won £15,000. They are using this money to develop their aim to provide an alternative way for community generated renewable energy to be purchased by local consumers. Kirsty Kenney and Harold Craston from the London School of

---

<sup>9</sup> Figures from 2011-12. The sector has not been assessed since the publishing of The London Low Carbon Market Snapshot, 2013 so there are no new estimates for the size of the sector.

Economics and Political Science won £5,000 to develop and install the first solarbox, a free public charging point for mobile phones powered by solar energy and housed in a repurposed red telephone box. The first box was launched on Tottenham Court Road in October 2014 and a further six are planned for 2015.

**Mayoral activity: 2014 onwards**

- In November 2014 the London Sustainable Development Commission published its 'Green Means Business' report that aims to help transform the green economy in London by identifying opportunities to support green businesses and entrepreneurs. In 2014 the Mayor also appointed a new Chair and Deputy Chair to focus on growing this sector (with a target to increase predicted annual growth from six percent to a growth ambition of nine percent) and supporting London's development as a global centre for clean technology.

# 4. SECURING A LOW CARBON ENERGY SUPPLY FOR LONDON

To reduce London's CO<sub>2</sub> emissions from energy supply and secure it for the future, activity is required by the Mayor, Government and the wider energy market to decarbonise the grid, and create the market conditions to deliver more efficient low carbon decentralised energy.

This activity has delivered a reduction in the carbon intensity of the grid from 0.50kg CO<sub>2</sub>e/kwh in 2012 to 0.48kg CO<sub>2</sub> per kwh in 2013<sup>10</sup>. By the end of 2013, London had 12,800 sites generating 820 GWh of electricity from renewable sources<sup>11</sup>. This is over double the amount of generation compared to 2008 and a six percent increase on 2012. In addition, in 2013, London had 275 combined heat and power (CHP) schemes, generating over 1,700 Gwh of heat and power. In total it is estimated that in 2013, 3.5 percent of London's electricity demand in buildings was met by decentralised energy, and 1.8 percent of London's heat demand in buildings was met by decentralised energy. It is estimated that a minimum of 2.4 percent of London energy use in buildings was supplied by decentralised energy<sup>12</sup>. It was a particularly cold winter in 2013 which increased gas use, so this minimum percentage is lower than we would expect in a year with an average number of heating degree days. In addition, further decentralised energy has been secured in new development which will be built over the coming years (please see chapter 7).

Contributing to this activity, the Mayor's policies and programmes on energy supply have the primary objective of unlocking the market for decentralised energy so that 25 percent of London's energy is supplied locally by 2025. The Mayor has three policies to support this:

- Policy 3: Enabling the identification and development of decentralised energy opportunities, and building capacity to deliver decentralised energy projects
- Policy 4: Delivering decentralised energy through the planning system
- Policy 5: Enabling the commercialisation of the decentralised energy market

### **Mayoral activity: 2013-2014**

#### *The Decentralised Energy Project Delivery Unit (DEPDU)*

DEPDU was established in August 2011 to help others deliver larger-scale decentralised energy projects where the market was failing to do so. The £2.7 million, three year programme, 90 percent of which was funded by the European Commission through the European Investment Bank's European Local Energy Assistance (ELENA) technical assistance facility, provided technical, commercial and financial advisory support. Eleven projects were supported in 2013-14 including those in Lakeside/Heathrow, Hackbridge, the Embassy Quarter, Enfield's Ladderswood, White City, Kew Gardens and the London Sustainable Industries Park.

DEPDU also undertook feasibility work in relation to a new heat network connected to Greenwich Power Station to be served by two new proposed 4.3MW CHP engines. Anticipated total CAPEX is £28 million.

---

<sup>10</sup> UK Government conversion factors for Company Reporting, 2012 and 2013. Please note this includes CO<sub>2</sub> emissions associated with transmission and distribution.

<sup>11</sup> Department of Energy and Climate Change, Regional Renewable Statistics (RESTATS), 2003-2013

<sup>12</sup> A number of combined heat and power schemes in London may not currently be reported under government statistics. This percentage therefore represents a minimum.

DEPDU is supporting the development of a further nine projects with a combined value of £65.2 million. Of these, five projects are considered strong prospects for delivery in 2015 and potentially represent a £46 million investment.

#### *The London Heat Map*

Borough-wide heat maps have been produced for all London boroughs and incorporated into the London Heat Map available at [www.londonheatmap.org.uk](http://www.londonheatmap.org.uk). The website has become the portal for information about London's decentralised energy and heat network activities and is used extensively by developers and consultants. In addition to heat mapping, it contains other useful information such as Energy Masterplan reports, the results of study work, news and the London Heat Network Manual. The site receives the equivalent of 175 visits every day, which amounts to almost 64,000 visits per year.

#### *Licence Lite*

The Mayor is working closely with Ofgem and the Department of Energy and Climate Change (DECC) to develop a new licensing system to make it easier for small energy suppliers to buy and sell electricity. In 2013 the Greater London Authority (GLA) became the first authority in the country to apply to Ofgem for the new licence allowing it to buy excess electricity produced by London's boroughs and public bodies before selling it to other organisations, such as Transport for London, the Metropolitan Police Service and NHS hospitals. The scheme will give smaller scale decentralised energy generators in London the opportunity to gain a better price for the electricity they produce and support the growth of decentralised energy in London. The GLA has mapped out the regulatory issues with Ofgem, delivered business and financial models to the regulator and has had a very positive response to inviting the electricity market to provide the specialised services required to make the GLA's business model work. The GLA aims to begin operations in 2015.

#### *London Electricity High-Level Working Group*

In November 2012, the Mayor convened a group of CEOs and high-level representatives of the electricity industry to discuss the energy systems needed by London over the coming decades and how challenges to these systems can be overcome. This marked the starting point of a commitment to ongoing, closer co-operation through a High-Level Working Group, chaired by the Mayor's Senior Advisor on Environment and Energy, Matthew Pencharz. The membership of the Group is drawn from officer representatives from the Distribution Network Operators (DNOs), National Grid, the regulator Ofgem, the business and development sector, local authorities and Government. The first meeting was held in January 2013, and two further meetings were held in 2013. Since then the GLA has taken the lead in developing solutions to enabling London's electricity distribution infrastructure to keep up with London's dynamic growth as a world city, working with UK Power Networks, Ofgem, HM Treasury, the Policy Unit at No 10 Downing Street and the Core Cities to provide novel investment arrangements to respond to the challenge.

#### *CELSIUS project*

This project formally started in April 2013. The first year of activity saw the first CELSIUS demonstrator go live in Cologne. This demonstrator is using two types of innovative heat exchangers to collect waste heat from the sewerage system at three sites, supplying heat to six schools with a



total floor space of 62,000 m<sup>2</sup> and a total heat demand of 4,200 MWh per annum. London will be following the project closely to understand the opportunity for deployment of this technology and approach in London.

The London demonstrator is Phase 2 of Islington Council's Bunhill Heat and Power Network and is being delivered by Islington Council. The work has progressed and is feeding into the detailed design and specification being developed for the demonstrator.

#### *Secondary Heat Study*

In 2013 the Mayor commissioned a study into the potential for secondary heat supplies, such as recoverable heat from industrial and commercial processes and from the environment, to heat London's buildings. It found that under forecast market and regulatory conditions, about 38 percent of London's heat demand could be met by these sources when distributed via heat networks. This study is informing future work, including the CELSIUS project.

# 5. REDUCING CO<sub>2</sub> EMISSIONS AND ENERGY BILLS FOR LONDON'S HOMES

It is estimated that 80 percent of London's buildings will still be standing in 2050. Retrofitting existing homes with energy efficiency and energy supply measures is therefore essential to reducing Londoners' energy bills and the associated CO<sub>2</sub> emissions. Retrofitting London's homes requires activity by a range of bodies including the Mayor, Government, energy suppliers, private sector and social landlords, homeowners and the wider energy efficiency market. From 2008 to 2013, over 500,000 homes were visited and retrofitted in London through Mayoral and wider market schemes, exceeding the Mayor's target to retrofit 200,000 homes by the end of 2012. The Mayor's contribution to this activity is delivered through two policies:

- Policy 6: Retrofitting existing homes with energy efficiency measures, water efficiency measures and low and zero carbon microgeneration technologies
- Policy 7: Tackling fuel poverty in London

The Mayor has invested an unprecedented amount in retrofitting London's homes through his energy efficiency programmes including RE:NEW. By April 2014, the Mayor's RE:NEW programme had reduced Londoners' energy bills over £4.7 million per year, and his income maximisation services had increased incomes by an estimated £1.9 million.

### **Mayoral activity: 2013-2014**

#### *RE:NEW*

RE:NEW is the Mayor's pan-London energy efficiency retrofitting scheme aimed at reducing CO<sub>2</sub> emissions and water use within the domestic sector.

#### **RE:NEW Phase II**

RE:NEW Phase II began in March 2012 and ran to March 2014. This phase saw RE:NEW delivery within every London borough. The Mayor invested £2.5 million and, in partnership with 18 boroughs and three delivery agents, levered in nearly £10.8 million from energy and water suppliers, Government and boroughs. This comprised around £5.5 million from the Carbon Emissions Reduction Target (CERT), (Energy Company Obligation), a number of water companies and borough contributions, alongside £5.3 million from the DECC Fuel Poverty Fund. By the end of 2013-14, RE:NEW Phase II had installed measures in over 27,000 homes and saved approximately 5,800 tCO<sub>2</sub> per annum.

#### **RE:NEW Phase III**

In 2013-14 the Mayor invested £340,000 in an interim RE:NEW Support Team to test a technical support model designed to work with social housing providers, local authorities and the private sector to support the development and delivery of retrofit projects. In parallel, the GLA submitted a bid for European Investment Bank (EIB) ELENA funding, and committed GLA programme funding to a total of £2.8 million for a three year RE:NEW Support Team. By the end of 2013-14 the interim team supported retrofit to over 6,000 homes, over 3,400 tCO<sub>2</sub> savings per annum and investment of over £17.8 million.

### *Know Your Rights*

The Mayor's annual Know Your Rights benefit take-up campaign aims to tackle pensioner poverty and in doing so, supports the GLA to deliver initiatives aimed at addressing fuel poverty among vulnerable groups. The Know Your Rights campaign helps pensioners eligible to claim benefits to maximise their incomes so they are more able to afford their energy bills. Claiming the benefits they are entitled to means pensioners may also be able to claim free or subsidised measures such as home insulation and new boilers.

Since 2013, the campaign has focused specifically on helping older people claim Pension Credit and other benefits. The most recent Know Your Rights campaign, launched in January 2014, targeted older people in 12 London boroughs and generated over 1,500 enquiries and an estimated £557,000 in benefit income.

### *London Living Wage*

To reflect higher living costs in London, especially for housing and childcare, the Mayor encourages London employers to pay staff the London Living Wage. This can help people living in fuel poverty by increasing their incomes so they are more able to afford their energy bills. In November 2013, the London Living Wage was increased to £8.80, at which point nearly 19,000 London workers were benefiting. Continued outreach to employers from the GLA and Living Wage Foundation has resulted in the number of London Living Wage employers doubling to over 400 (as at October 2014).

### *Other activities*

Through consultation responses and involvement in government stakeholder groups, the Mayor and GLA officers have continued to encourage Government to increase support for retrofitting in London and to ensure that opportunities for retrofitting remaining cavity wall properties and solid wall properties in London continue.

### **Mayoral activity: 2014 onwards**

- With confirmation of funding for the full three year RE:NEW Support Team in 2014-15, the team will be tasked with supporting project development and delivery of a pipeline worth £352 million, supporting the retrofit of 175,000 homes and delivering carbon savings of 93,000 tCO<sub>2</sub> per annum.

# 6. REDUCING CO<sub>2</sub> EMISSIONS AND ENERGY BILLS FOR LONDON'S WORKPLACES

Retrofitting London's workplaces reduces energy bills and contributes to business and public sector efficiency. Since 2008, CO<sub>2</sub> emissions from London's workplaces have fallen by 15 percent. This is a result of activity by Government, through schemes such as the CRC energy efficiency scheme and Climate Change Agreements, and work undertaken by businesses and the public sector. The Mayor has contributed to this activity through programmes delivered under the following policy:

- Policy 8: Retrofitting London's existing workplaces with energy efficiency measures and low and zero carbon micro generation technologies

Mayoral programmes to retrofit London's workplaces include RE:FIT which is estimated to have saved £5 million per annum from the energy bills of London's public sector.

### **Mayoral activity: 2013-2014**

#### *RE:FIT*

RE:FIT is the Mayor of London's innovative scheme to reduce carbon emissions from London's public sector buildings by installing energy efficiency and energy supply measures. Measures are delivered by an Energy Service Company (ESCo) which guarantees the level of energy savings, offering a secure financial saving over the period of the agreement.

There are two strands to RE:FIT. The first is the RE:FIT framework, which assists public sector organisations to retrofit their existing buildings and to avoid lengthy and complex procurement processes by providing pre-negotiated, EU-regulation-compliant contracts. The second strand of RE:FIT is the Programme Delivery Unit (PDU) which proactively recruits building owners into the programme and supports them to identify buildings and energy conservation measures, write project briefs and run mini-competitions to select an ESCo supplier that will retrofit their buildings and guarantee savings.

In 2013-14 the RE:FIT programme worked with 18 organisations and retrofitted 185 buildings, resulting in annual reductions of over 16,000 tCO<sub>2</sub>. To date, over 180 London public sector organisations have engaged with RE:FIT, and more than 400 buildings have or are being retrofitted, generating estimated CO<sub>2</sub> savings of over 30,000 tonnes per annum and realising energy savings of around £5 million per annum from investment of around £63 million. This includes 81 schools retrofitted through the RE:FIT Schools energy efficiency programme which is supported by the Department for Education (DfE), DECC and Salix Finance.

The GLA is aiming to retrofit 600 buildings and generate savings of 45,000 tonnes of CO<sub>2</sub> by end 2015. Plans are underway for a new and enhanced phase of RE:FIT, following the end of the current phase in September 2015.

#### *London European Regional Development Fund (ERDF) programme*

The London ERDF Programme supports regional development through actions such as business innovation, business support, and regeneration. This includes providing advice and guidance to small and medium enterprises (SMEs) to reduce their CO<sub>2</sub> emissions as well as financial support to the

London Green Fund. By 2014, projects supported by the programme (excluding the London Green Fund) reduced emissions by over 7,500 tonnes CO<sub>2</sub> per annum.

### **Mayoral activity: 2014 onwards**

#### *SMEs*

The GLA has investigated an energy efficiency retrofit project for SMEs comprising a sector-based approach involving theatres and an area-based approach, working with boroughs to target SME businesses predominantly on industrial estates. A RE:FIT project has been developed to enable works to a number of smaller organisations in 2014-15. The learnings from this exercise will inform feasibility for the GLA to deliver, enable or support any future programme.

#### *Business Energy Challenge*

In November 2014, the Mayor held his first Business Energy Challenge Awards. The challenge aims to encourage businesses to reduce their energy use, and to enable the GLA to measure some of the contributions that businesses are making to the Mayor's CO<sub>2</sub> emissions reduction targets. Fifty-eight of London's leading businesses submitted energy use data for over 1,000 London locations for 2010 and 2014. The reception event was attended by over 180 business representatives where six gold award winners were announced. These were the companies who had achieved the greatest relative reduction in their carbon emissions per square metre over the last four years.

# 7. REDUCING CO<sub>2</sub> EMISSIONS FROM NEW DEVELOPMENT



In order to meet a growing population, a significant amount of new development in London is required. This has the potential to increase London's CO<sub>2</sub> emissions and energy demands, and avoiding these emissions requires action by the Mayor, Government, local authorities and developers. The Mayor is contributing to this through the following policy:

- Policy 9: Minimising CO<sub>2</sub> emissions and energy use from London's new buildings

### **Mayoral activity: 2013-14**

#### *Reviewing planning applications*

The Mayor resources a specialist team at the GLA to ensure that planning applications for new developments referred to him meet or exceed the CO<sub>2</sub> emissions reduction targets set out in Policy 5.2 of the London Plan<sup>13</sup>. From 1 October 2013 the target increased from a 25 percent reduction compared to the 2010 Building Regulations baseline, to a 40 percent reduction. The Mayor publishes annual monitoring reports (available at [www.london.gov.uk](http://www.london.gov.uk)) detailing the projected CO<sub>2</sub> savings and investments in energy efficiency and energy infrastructure secured through implementation of these policies.

In 2013, 174 applications were assessed at Stage II (though with a lower total number of dwellings than in 2012). Overall, these represented a reduction in regulated CO<sub>2</sub> emissions of 36 percent more than 2010 Building Regulations, equivalent to a reduction of approximately 50,000 tonnes CO<sub>2</sub> per annum. This is significantly higher than the 25 percent London Plan target, and approaching the new 40 percent target that applied to many applications in 2014.

Significant positive additional energy outcomes continued to be secured in 2013. These included around £103 million of investment in heat network infrastructure for around 41,000 communally heated dwellings; including seven very large mixed-use developments, each of which is likely to contribute to the development of an area-wide network. There was substantial investment committed to new CHP plant, with a combined output of 25MWe (and a similar amount of heat). This is broadly equivalent to the amount required to supply 50,000 homes and represents 16 percent of the total CHP electrical capacity installed in London in 2012.

In line with the priorities in the Mayor's energy hierarchy, there was significant investment in energy efficiency measures to deliver improvements beyond Building Regulations and reduce residential energy bills by around £580,000 per annum. Finally, there was significant investment in renewable energy equipment, including around £14 million to provide approximately 71,000m<sup>2</sup> of photovoltaic panels. This equates to approximately 7MW of new electrical capacity, equivalent to the average demand of around 14,000 homes.

#### *Carbon offsetting*

Where it is not possible to fully achieve the targets in Policy 5.2 of the London Plan on-site, the developer is required to make a cash-in-lieu contribution to account for the shortfall in CO<sub>2</sub> emission reductions. In 2013 only a small number of developments did not meet the London Plan target, and

---

<sup>13</sup> The energy team also support the implementation of other London Plan energy policies (for example Policy 5.6 on Decentralised Energy and Policy 5.7 on Renewable Energy) through the planning system.

the value of the combined CO<sub>2</sub> shortfall was only £400,000 (compared to a combined shortfall of approximately £5 million in 2012). It should be noted that not all local authorities currently have mechanisms in place for collecting contributions from developers.

**Mayoral activity: Post 2014**

- The 2013 changes to Part L of the Building Regulations came into effect from 6 April 2014 – from this date the Mayor will apply a 35 percent carbon reduction target beyond Part L 2013, deemed to be broadly equivalent to the 40 percent target specified in the London Plan. Updated Energy Planning Guidance was published in April 2014 on [www.london.gov.uk](http://www.london.gov.uk), detailing transition arrangements and the impact of this on energy strategies for new development.
- An updated version of the Mayor's Sustainable Design and Construction Supplementary Planning Guidance (SPG) was published in April 2014. The SPG included an update to the energy targets in Policy 5.2 of the London Plan to take account of the changes to Part L 2013 of the Building Regulations.
- Throughout 2014, the Mayor's energy team held discussions with the Department for Communities and Local Government (DCLG) to determine the impact of the Government's Housing Standards Review on London Plan energy policies.

# 8. REDUCING CO<sub>2</sub> EMISSIONS FROM TRANSPORT

Interim figures show emissions from transport were 8.67 MtCO<sub>2</sub><sup>14</sup> in 2013 and accounted for 22 percent of London's CO<sub>2</sub> emissions, which is low when compared to the national average of 27 percent in 2012<sup>15</sup>.

Continuous investment in public transport, walking and cycling has ensured that the percentage of travellers using more sustainable modes of transport has increased whilst the share of car journeys has decreased. The use of public transport has risen from 42 percent in 2010 to 45 percent in 2013, continuing the trend in growth since 2000. Over the same period car use has continued to decline from 35 to 33 percent.

Increased investment in the public transport network, combined with improvements to energy efficiency, means that grams of CO<sub>2</sub> per passenger per km (gCO<sub>2</sub> ppkm) continues to drop from 63g CO<sub>2</sub> ppkm in 2012-13 to 60g CO<sub>2</sub> ppkm in 2013-14.

Reducing emissions further requires action by the Mayor, Government, local authorities and the wider market. Mayoral initiatives to reduce emissions from the transport sector are delivered by Transport for London and Hydrogen London. The Mayor has three policies to reduce emissions from transport:

- Policy 10: Minimising CO<sub>2</sub> emissions through a shift to more carbon efficient modes of transport
- Policy 11: Minimising CO<sub>2</sub> emissions through more efficient operation of transport
- Policy 12: Minimising CO<sub>2</sub> emissions from transport through the use of low carbon vehicles, technologies and fuels

### Mayoral Activity: 2013-14

#### *Minimising CO<sub>2</sub> emissions through a shift to more carbon efficient modes of transport*

- **Investment in rail and underground networks** - Upgrades on the Victoria and Jubilee lines have allowed an additional 10,000 customers per hour to travel on the Victoria Line and 12,500 per hour on the Jubilee Line. The Circle Line has upgraded all of its trains to walkthrough trains which allow for more space for passengers, and in September 2013 the Waterloo and City Line extended its opening hours to half past midnight. Upgrade work continued on the Northern Line and was completed at the end of 2014.
- **Cycling** - Cycle Hire was expanded to southwest London, with an additional 2,000 bicycles and 5,000 docking points. Over eight million hires were made in 2013-14, bringing the total to more than 28 million cycle hires overall at the end of March 2014.
- **Walking** - Investment in walking continues with Pedestrian Countdown at traffic signals now available at 550 crossings at over 200 locations. There are now around 1,500 Legible London signs, which are an easy to use street-level signage system to help way-finding across the capital.

#### *Minimising CO<sub>2</sub> emissions through more efficient operation of transport*

- **Cutting unnecessary delays** - The lane rental scheme continues to be successful with over 90 percent of utilities works taking place outside of peak hours, and an agreement amongst

<sup>14</sup> The methodology for accounting for CO<sub>2</sub> emissions from transport changed from 2010 to 2013. It is therefore not advised that emissions figures are compared directly between these years or intermediately.

<sup>15</sup> Department of Energy and Climate Change, Local and Regional CO<sub>2</sub> Emissions Estimates for 2005-2012

companies to use quick drying materials, reducing the amount of time roads need to shut. The Roads Task Force report, which sets out an ambitious framework for the future of London's roads, was launched in July 2013. In response to the report additional investment in the road network has been set aside to reduce congestion and improve the network for all road users.

- **More energy efficient tube** - The Victoria and Jubilee line upgrades have introduced automatic operation and regenerative braking to these lines. Regenerative braking has also been introduced on the metropolitan line. This helps to reduce energy usage per km on the network. TfL's energy modelling indicates that regenerative braking has saved over 32,000 tCO<sub>2</sub> in 2013-14 and approximately 77,000 tCO<sub>2</sub> since 2010-2011.
- **Freight Consolidation** - The London Boroughs Consolidation Centre, a tri-borough initiative for the London boroughs of Camden, Enfield and Waltham Forest opened in January 2014. The facility serves over 200 council buildings across the three boroughs in Central and North London. Prior to the trial, over 60 separate delivery trips were required per week to service the three boroughs. Camden and Waltham Forest now each receive three deliveries per week and Enfield receives two. A detailed evaluation of the effectiveness of the centre will be produced in 2015.

#### *Minimising CO<sub>2</sub> emissions from transport through the use of low carbon vehicles, technologies and fuels*

- **Buses** - TfL have met the target for hybrid buses set in the Mayor's Climate Change Mitigation and Energy Strategy and are introducing additional hybrid buses into the fleet. As of March 2014 there were 834 hybrid buses, including 168 New Routemasters, eight hydrogen fuel cell buses and a trial of two fully electric buses. In 2013-14 this saved an estimated 17,200 tCO<sub>2</sub>. TfL are also running 120 buses on a biofuel blend derived from used cooking oil. This has saved an estimated 1,000 tCO<sub>2</sub> in 2013-14.
- **LED technology** - As of March 2014, 277 new LED traffic signal controllers have been installed, reducing energy consumption by around 70 percent. Two thousand streetlights were replaced with LED technology, saving approximately 430 tCO<sub>2</sub>.
- **Ultra Low Emission Discount** - TfL introduced the Ultra Low Emission Discount for congestion charging in July 2013, which replaced the Green Vehicle Discount and the Electric Vehicle Discount. The discount lowered the CO<sub>2</sub> threshold for exempt vehicles and effectively limited the discount to pure electric and plug-in hybrid vehicles. Vehicles need to emit less than 75g/km of CO<sub>2</sub> and meet Euro 5 engine standards to be exempt. As of March 2014 around 1,800 vehicles were registered for this discount.
- **Hydrogen** - The Mayor has initiated and taken on the coordination of the largest European-funded transport and infrastructure project to date. The HyFIVE (Hydrogen For Innovative Vehicles) project aims to deploy 110 vehicles and six new refuelling stations in three EU regions including London, whilst integrating 12 existing stations in the project. The vehicles are being delivered by five of the top vehicle manufacturers in the world: BMW, Daimler, Honda, Hyundai and Toyota.

#### **Mayoral activity: 2014 onwards**

The Transport Emissions Roadmap was published in September 2014 and outlines future plans to reduce CO<sub>2</sub> from transport, including the following.

- **Taxis** – In response to the announcement that all newly licensed taxis would need to be zero emission capable by 2018, manufacturers have demonstrated prototypes of their new taxis. The Mayor and TfL are working on a support package to encourage early adoption of the new vehicles
- **Ultra Low Emission Zone** - TfL have been developing proposals for an Ultra Low Emission Zone (ULEZ) in London that will be in effect from 2020. This will introduce a vehicle emissions charging scheme in central London, alongside revised taxi and Private Hire Vehicle licensing requirements. Whilst the emissions standards will be based on NO<sub>x</sub>, there will be associated CO<sub>2</sub> benefits as there will be increased uptake of newer, more CO<sub>2</sub> efficient vehicles. The full ULEZ package will reduce total vehicle CO<sub>2</sub> emissions by 15 percent in central London.
- **Buses** – To complement the ULEZ, TfL will be further increasing the number of low emission buses, setting a standard that all double decker buses in central London from 2020 will be hybrid and all single deck buses in central London will be zero emission at point of use. In addition, 600 more buses are planned to run on biodiesel this year, with four biodiesel production projects being scoped for London. The GLA is also working with London boroughs to rollout out biodiesel in their fleets.

In addition to the actions in the Transport Emissions Roadmap, The Mayor and TfL are also undertaking the following:

- **Energy procurement** - TfL are working towards meeting the Mayor's target of generating 25 percent of the capital's energy from local sources by 2025 by purchasing electricity sourced from London's low and zero carbon electricity generators, so long as there is no extra cost to London's tax and fare payers. The aspiration is to achieve 20 percent of annual demand from these sources by 2016 and 40 percent by 2020. The intention is to use low carbon energy to power some TfL trains connecting directly to 30 MW of local London sourced electricity by 2016. This will reduce TfL's energy costs and support its environmental strategy. TfL will look to source an increasing proportion of its low-voltage electricity demand, supplying stations, depots and traffic lighting from local low and zero carbon generators by means of the Mayor's Licence Lite initiative. This would mean that by 2020 all of TfL's low-voltage demand would be met by low and zero carbon generators located in London. TfL are also looking to redevelop their power station at Greenwich, which could enable an even greater percentage of their power to come from low carbon sources in the capital.
- **Rail and underground** - Upgrade work on the Northern Line was completed in 2014, leading to a 20 percent increase in capacity through the central section at the busiest times. Work has begun to increase the capacity of London Overground by 25 percent through providing extra carriages, with longer trains delivered on the busier East London Line sections in November 2014. Longer trains on the Richmond–Stratford branch will be completed by the end of 2015.
- **Cycling** – Designs for segregated cycle superhighways, including the N-S and E-W routes have been approved with construction due by 2016. Funding has been awarded to three outer London boroughs for "mini-Holland" schemes. Work is also underway to deliver the Quietways and Central London Grid, quieter but still direct routes for cyclists who would prefer not to ride on busy roads.
- **Hydrogen** - A third hydrogen refuelling station became operational in March 2015. Located on the Hendon Sainsbury's site, this is the first refuelling station at a UK supermarket. Three more stations will be operational by autumn 2015, delivered through the London-coordinated HyFIVE project.

# 9. REDUCING CO<sub>2</sub> EMISSIONS AND ENERGY BILLS IN THE GLA GROUP

The GLA Group consists of City Hall, the London Fire and Emergency Planning Authority, the London Legacy Development Corporation, the Metropolitan Police Service and Transport for London. In 2013-14 the GLA group emitted 185,000 tCO<sub>2</sub>, around 0.5 percent of London's total CO<sub>2</sub> emissions. In the same year the GLA Group achieved an estimated reduction in CO<sub>2</sub> emissions of over 20 percent on 2008-09 levels<sup>16</sup>. Although the GLA Group's CO<sub>2</sub> emissions may be small in comparison to London's total emissions, the group can play a role in taking a lead in reducing CO<sub>2</sub> emissions and cutting its energy bills. The Mayor has four policies to support this:

- Policy 13: Setting challenging CO<sub>2</sub> emissions reduction targets, and measuring and publicly reporting CO<sub>2</sub> emissions
- Policy 14: Minimising energy use and CO<sub>2</sub> emissions from GLA group buildings
- Policy 15: Minimising CO<sub>2</sub> emissions from transport in the GLA Group
- Policy 16: Minimising indirect emissions and stimulating markets for low carbon goods and services

### GLA group activity: 2013-14

*London Fire and Emergency Planning Authority (LFEPA) activity*

#### Minimising energy use and CO<sub>2</sub> emissions from buildings

- **Targets** - In 2014 LFEPA achieved a 36.9 percent reduction against a target of a 32 percent reduction in CO<sub>2</sub> emissions by 2015 compared to a 1990 baseline. LFEPA has set a new target of a 45 percent reduction in CO<sub>2</sub> emissions by 2020. Display Energy Certificates (DECs) are now in place for all 111 buildings.
- **Retrofitting buildings** - Work began on a further 16 buildings during 2013-14 with expected carbon savings of 400 tonnes. In total 20 stations have completed works through the RE:FIT programme. A range of other energy efficiency works have also been completed, delivering cumulative savings of £4.8 million since the energy efficiency works began in 2004-5.
- **Employee engagement** - LFEPA's internal Green Champions programme supports around 175 staff to engage colleagues on environmental issues. In 2013-14 LFEPA held its first Green Champion of the year award.
- **Energy supply** - LFEPA installed a further four solar PV systems and two CHP units, having installed some 84 micro generation units previously. LFEPA also procured 97 percent of its electricity from green sources.

#### Minimising CO<sub>2</sub> emissions from travel

- **Minimising car and air mileage** - LFEPA travel policies continue to discourage air travel and air travel emissions are offset where they cannot be avoided. Travel policies also limit car journeys to 50 miles wherever possible. Climate Week was promoted to employees to encourage more sustainable travel choices such as cycling, and information on more sustainable travel choices was made available on the Green Zone on LFEPA's intranet.
- **Low emission vehicles** - LFEPA's vehicle emissions policy has led to 78 percent of its salary sacrifice leased vehicles having emissions of 120g CO<sub>2</sub>/km or less including five hybrid vehicles. LFEPA's participation in the Plugged in Fleets Initiative identified the installation of electric vehicle charge points as the next step for introducing electric vehicle technology to its fleet. Grant funding was awarded from the Office of Low Emission Vehicles to install electric vehicle charge points at up

<sup>16</sup> Draft Climate Change Mitigation and Energy Strategy, 2010



to 79 of their premises. The European funded FIRED-uP project is planning to pilot innovative technology in the form of enhanced vehicle telemetry and equipment tagging. This aims to deliver emissions reductions from fire vehicles through improved understanding of vehicle activity and fuel usage to improve maintenance, driving and future design.

- **Travel Plan** – LFEPA published a revised Travel Plan for 2013-2018 which included specific eco-driving measures and measures that reduce the need for travel such as phone and video conferencing. Its staff travel survey also showed 19.5 percent of staff cycle to work, and a Bikes 4 Work scheme was supported, helping staff to obtain bicycles and equipment for commuting at substantially reduced rates.

#### *Metropolitan Police Service (MPS) activity*

##### Minimising energy use and CO<sub>2</sub> emissions from buildings

- **Targets** – The MPS has a well-established programme to monitor and manage carbon emissions from the estate, transport fleet and from business air travel. At the end of the 2013-14 financial year, overall carbon emissions had reduced by 15.5 percent from the 2005-06 baseline year while carbon emissions from the estate (the largest single source of emissions) had reduced by 17.2 percent over the same period.
- **Retrofitting buildings** – The MPS's focus has been to target major energy efficiency upgrades as part of a programme of major refurbishments and upgrades across the estate. This included undertaking energy feasibility studies and installing energy efficient and low carbon technologies including PV arrays. In addition, the MPS has developed a building management systems (BMS) strategy and updated the BMS design guide, recognising the opportunities for energy efficiency through better building control.
- **Employee engagement** – The 'Think Green' employee awareness campaign is an integral part of the MPS's environmental communications strategy. During 2013-14, environmental awareness was delivered at ten key sites and was focussed on engaging building users. In addition, there are now over eighty environmental champions working across the organisation to promote key environmental messages through local environmental communications.
- **New development** – The MPS continues to use its Sustainable Design Guide on all building projects, and during 2013-14, applied the Guide to four major projects. The guide was updated to include a project checklist tool. The checklist enables project teams to monitor the environment and sustainability performance of projects throughout the project gateway stages. In addition, training was provided to construction staff and the supply chain to ensure building projects apply the Guide appropriately and provide an evidence base in terms of project performance and the sustainability standards.
- **Energy supply** – Four solar PV systems were installed with a total installed capacity of over 100 kW bringing the total number of PV arrays installed across the MPS estate to 19. By the end of the 2013-14 financial year, output from these installations had offset over one million kWh of National Grid electricity demand. In addition, the MPS benefits from Feed-in Tariff (FiT) payments for the renewable energy generation and 13 of the arrays have generated revenues of over £180,000 since their installation.

### Minimising CO<sub>2</sub> emissions from travel

- **Minimising car and air travel** – The MPS has a policy that recommends MPS officers and staff avoid air travel wherever practical and consider using rail for short haul destinations. Carbon emissions from MPS business air travel are offset by investment into energy efficient or low carbon projects such as installation of renewable energy. During 2013-14, business air travel generated over £41,000 for carbon offsetting schemes.
- **Low emission vehicles** – The MPS vehicle fleet average carbon emissions has decreased year-on-year to the current level of 147g CO<sub>2</sub>/km. This represents a 4.7 percent reduction from the previous year and a 20 percent reduction from the 2005-06 baseline value of 184 g CO<sub>2</sub>/km. The MPS currently has over 50 low carbon technology vehicles in its fleet.

### *Transport for London (TfL) activity*

#### Minimising energy use and CO<sub>2</sub> emissions from buildings

- **Targets** – TfL sets CO<sub>2</sub> reduction targets and reviews them annually. Its target is to reduce CO<sub>2</sub> emissions per passenger kilometre by 20 percent by 2017-18 from 2005 levels. In 2013-14, TfL's public transport services reported a fall in normalised emissions to 60g CO<sub>2</sub>e per passenger kilometre, just over 20 percent below the baseline (77g CO<sub>2</sub>e per passenger km). TfL's Corporate Environment Framework sets a target to 2031 for reducing CO<sub>2</sub> emissions per passenger kilometre by 40 percent from a 2013 baseline.
- **Retrofitting buildings** – TfL has continued its annual investment of around £3 million to make improvements across the office portfolio. It has retrofitted 22 office buildings through the RE:FIT programme to date and is planning to retrofit a further ten office buildings, surface transport and London Underground locations.
- **Measurement and reporting** – TfL has DEC's for 31 Head Office buildings, equivalent to 94 percent of the whole portfolio's energy consumption. DEC's are also in place for three London Transport Museum sites and Victoria Coach Station. In addition, London Underground has delivered a programme of Automatic Meter Reading (AMR) installations at 200 of its locations, identifying opportunities for more efficient operation.
- **Employee engagement** – TfL has an ongoing employee engagement programme, Destination Green, which includes annual awards. TfL's Head Offices currently have 200 environment volunteers and TfL has launched a new energy league making use of AMR data.
- **Energy supply** – TfL has installed solar PVs at Paddington station during 2013-14. TfL's low carbon generation now includes gas CHP installations at one site, solar PV at ten sites and solar thermal at one site. TfL is also working with the GLA on its proposal to become a Licence Lite supplier. TfL is proposing to be the customer for the first tranche of low carbon decentralised energy supplied under this scheme.

#### Minimising CO<sub>2</sub> emissions from travel

- **Low emission vehicles** – TfL has environmental vehicle emission standards which have been included in key contracts, for example the franchise to operate the Docklands Light Railway. During 2013-14, TfL had 12 electric vehicles in its support fleet and had 16 charging points around its business locations.

*City Hall and the London Legacy Development Corporation (LLDC) activity<sup>17</sup>*

- **Retrofitting buildings** - City Hall has recently funded more lighting improvement works to reduce CO<sub>2</sub> emissions and improve City Hall's Display Energy Certificate rating.
- **Energy supply** - The LLDC has connected development to the Queen Elizabeth Olympic Park District Energy Network, which is powered by CHP engines, biomass and gas fired boilers.
- **Avoiding unnecessary air travel and offsetting** - The LLDC is developing a carbon offset programme to invest in local communities for the purposes of carbon reduction.
- **New development** - The LLDC has set zero carbon targets for 25 homes in Chobham Manor. The first phase, incorporating 12 zero carbon homes, were granted planning consent in 2014.
- **Supply chain emissions** - The LLDC has been promoting the reduction of energy consumption and CO<sub>2</sub> emissions amongst the Tier 1 contractors working on the Queen Elizabeth Olympic Park, requiring an environmental management system to be in place with controls for energy consumption. The LLDC requires regular reporting on energy consumption and active identification of opportunities to reduce it.

---

<sup>17</sup> As City Hall is only one building, it is reported together with the LLDC.

