

Sustainable Development Annual Monitoring Report

2008 - 2009

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1 Introduction

- 1 The London Fire Brigade is run by the London Fire and Emergency Planning Authority (LFEPA). We are part of a group of organisations operating within the framework of the Mayor of London and the Greater London Authority (GLA).
- 2 The London Fire Brigade is one of the largest firefighting and rescue organisations in the world, serving London's 7.5million residents as well as those who work in, or visit the city. We spend about £430 million every year and employ some 7,200 people, of whom about 6,000 are uniformed operational staff.
- 3 This report follows on from previous environmental monitoring reports to address our activities and progress against overarching sustainable development initiatives and the specific themes of climate change; Responsible Procurement Policy; environmental management systems; environmental compliance audits; environmental awareness training and communications; Authority Travel Plan; waste management and minimisation; and biodiversity and environmental protection. Financial information setting out the savings made as a result of our investment and good housekeeping initiatives is detailed throughout this report and summarised in Appendix A.
- 4 This forms the last report on progress against the Environment Action Plan (detailed in Appendix B), whereby all outstanding tasks will be incorporated into the sustainable development strategy.
- 5 Particular achievements for LFEPA over the past year have included:
 - Achieving the Carbon Trust standard (one of the first 6 public bodies to do so)
 - Winning the national Energy Efficiency award for Energy Management.
 - Gold Standard for the Mayors Green Procurement Code (MGPC) – one of only 3 organisations to achieve Gold;
 - Awards in both the Policy and Process categories of the MGPC awards; and
 - Shortlisting for the LGC & HSJ Sustainable Procurement award
- 6 A summary of environmental data for the Brigade covering energy in buildings, fleet, water use and recycling is provided at Appendix C.

2 Sustainable Development Initiatives

- 1 The Brigade put in place a new Sustainable Development team at the beginning of 2008/09, which incorporated the existing Environment Group. The team has been working to develop a Sustainable Development Strategy for the brigade. In producing the strategy a series of initial workshops were held with Heads of Service and Department representatives to:
 - set out a framework to demonstrate the areas of influence for LFB
 - identify progress against to date the framework strands
 - identify potential opportunities for improvement
- 2 Through these workshops it was recognised that a considerable amount of work had already been undertaken against the proposed framework strands, particularly on environmental and social aspects. The second phase of engagement planned will develop the draft objectives for the strategy and determine appropriate ownership. The draft strategy is due to go to Authority for approval in late 2009.
- 3 Following last years successful pilot of Sustainable Development Impact Assessments (SDIA's) they have been further revised and enhanced to cover the broader sustainable development agenda. A screening process similar to that used for Equalities Impact Assessments has been adopted to make the process more efficient and effective

for users, which has led to more comprehensive SDIA's being completed. 55 SDIA's were assessed in 08/09, which identified opportunities for improvements to our practices.

New Station Design

- 4 Our Standard Station Design Brief specification has been developed as the standard that all our new fire stations should be built to. It now provides for all new stations to be built to BREEAM 'excellent', taking into consideration the additional benefits of such a rating compared to the 'very good' standard (the Authority's minimum acceptable rating). This was approved by Authority in June 2009 (FEP 1349) as part of the Asset Management Plan (AMP) for Property. Officers in Property Department are now working up an assessment of the 'preferred' credits to give guidance to and advise designers in designing fire stations
- 5 We have also worked with the Building Research Establishment (BRE) on a new standard for BREEAM assessment for fire service buildings which has recently been published by the Department for Communities and Local Government (CLG - Fire and Rescue Service Circular 51/2009 - Launch of BREEAM rating system for the Construction of Fire and Rescue Buildings).

3 Climate Change

- 1 LFEPA'S Climate Change Action Plan (CCAP) was approved in 2006 and focuses on mitigation measures specifically in relation to CO₂ emissions. The two key sources of emissions for LFEPA are related to buildings and vehicles. The main opportunities for LFEPA to reduce CO₂ emissions are within the following areas: building energy efficiency; decentralised renewable energy installations; vehicle fuel efficiency; Travel Plan; and indirect emissions through contractors and suppliers. More detailed reporting on our energy use and climate change action plan can be found in Finance, Procurement and Property Committee report (FEP 1368 June 2009).
- 2 Our ongoing programme of work has achieved considerable results in reducing our CO₂ emissions. As a result of modifications undertaken in 2008/09, CO₂ emissions from our buildings were reduced by 3.47% leading to an overall reduction of 16.7% in buildings compared to 1990 levels. These figures are subject to adjustment as estimated meter readings are being corrected. The impact of this has significantly contributed to achieving CO₂ reductions whilst allowing the Authority to better manage its payments for electrical consumption to reflect actual usage rather than estimates. Buildings account for 94% of all our emissions. This is a considerable contribution towards the Mayor's target of reducing CO₂ emissions in London by 60% by 2025 from 1990 levels and establishes LFEPA as a leader in London on reducing emissions.
- 3 Although we currently have no method of measuring the carbon footprint as a result of fires in London, we know that our increased focus on prevention delivers considerable benefits in reducing London's overall carbon footprint. In 2008/09 our figures show we are continuing to see reductions over the five year average in the number of accidental primary fires and deliberate fires with an 11.5% and 44.1% reduction respectively.

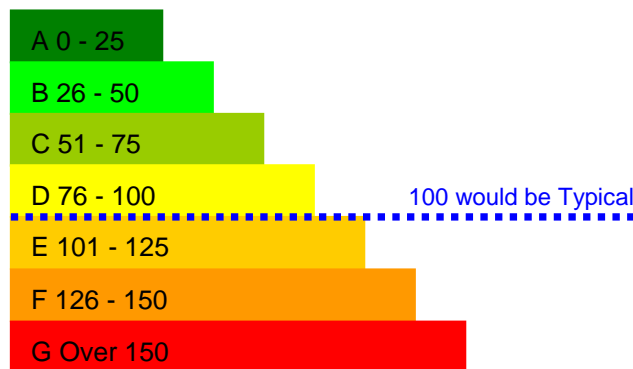
Energy Efficiency in Buildings

- 4 A number of measures were put in place in our buildings during 2008/09 to fulfil our commitments in LFEPA'S Climate Change Action Plan (CCAP) to save energy, become more energy efficient and reduce CO₂ emissions. The following capital programme of measures with a spend of £1,727,000 led to savings of £223,000 on our revenue budgets in 2008/09 and will continue to deliver savings in future years:
 - Lighting controls were installed at 25 sites, showing an average 10% saving on previous usage.
 - High efficiency light fittings have been installed at a total of 23 stations with other ongoing lighting schemes included in the refurbishment of Sidcup, Croydon and Stanmore, showing an average of 13% savings (£20,000) in electricity consumption.

- Photovoltaic (PV) installations were completed at six sites (18 installed to date), including East Ham, Erith, Hillingdon, Hornsey and Clapham, with a peak output of 54.18kWp producing 40,000 kWhr of electricity, saving 21 tonnes of CO₂ and approximately £4,000 per annum.
- Combined Heat and Power (CHP) installations were completed at 8 sites (18 installed to date), Chiswick, Hayes, Hillingdon, Southall, Wimbledon, Southgate, Finchley and Barnet. The units are running for longer hours than estimated and savings were greater than expected - 70 tonnes of CO₂ and £16,000 pa.
- Solar heating was installed at four sites (9 installed to date), providing 70% of hot water requirements.
- Thermostatic radiator valves were installed at 7 sites.
- Loft insulation was installed at 2 sites.
- Controllers for drying room dehumidifiers have been installed at 30 sites.

5 As a result of the ongoing programme since 2006 to install renewable technologies at our sites the Brigade now generates 3.2% of its electricity from on- site renewable and low carbon sources.

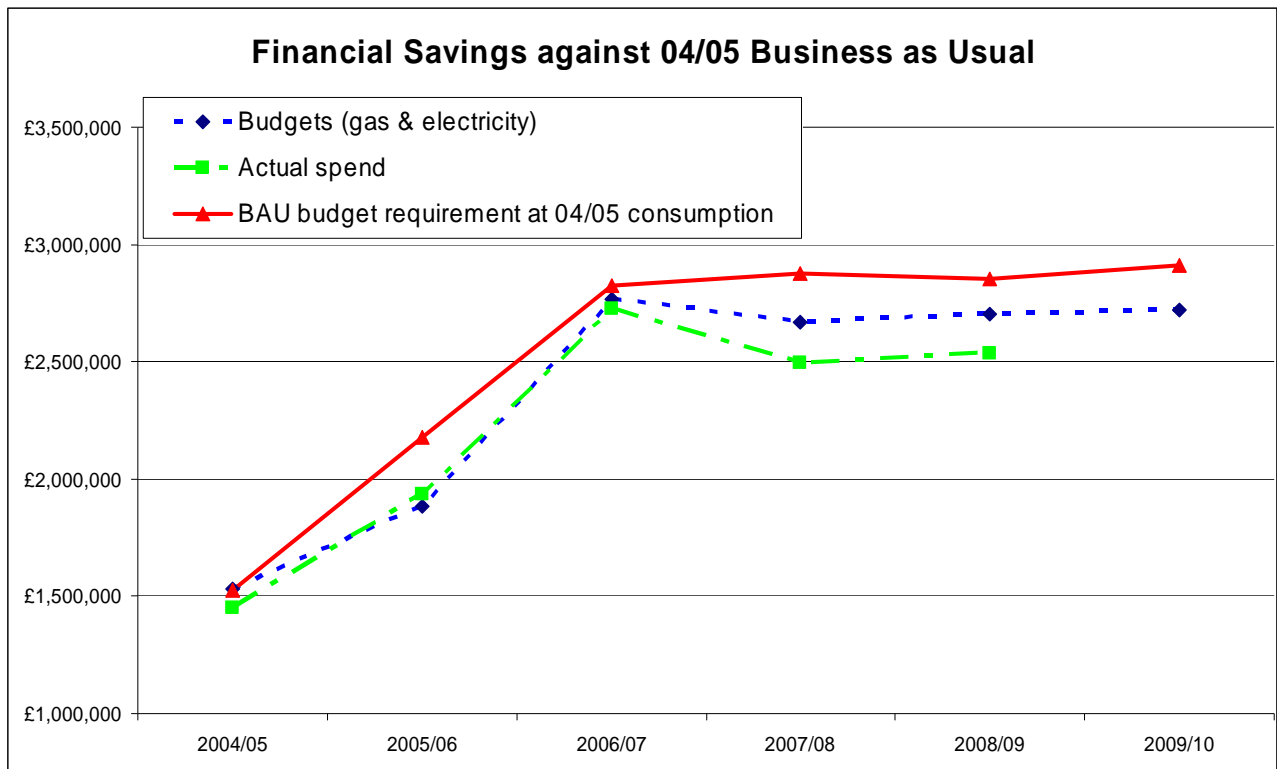
6 The Energy Performance of Buildings Directive requires that certificates (DECs) are produced to rate energy use in buildings. From 1 October 2008 all buildings over 1000m² require DECs - equating to 56 Brigade buildings for which certificates have been completed and issued in compliance with the Directive. The DEC rates the building against a national benchmark based on the actual energy used in the building and looks similar to the rating certificates applied to white goods i.e. A – highest to G - lowest. In line with the requirements the certificates are displayed in a prominent position in each building. Of the DECs issued to date 19 are rated at worse than 'Typical' and 37 at better than 'Typical' as shown in the figure detailed on the following page. The annual review of the certificates will demonstrate the ongoing improvement works the Brigades is undertaken, with poor performing sites targeted for future investment. It is planned that all remaining Brigade sites will be voluntarily added the rating scheme by the end of 2010.



Rating	Number of Premises
A	0
B	2
C	11
D	24
E	11
F	4
G	4

- 7 We have been successful in obtaining SALIX funding from the Carbon Trust for energy efficiency measures. Funding in 2008/09 was used to insulate lofts and roof spaces at 2 sites; the funding has also provided replacement thermostatic radiator valves (TRVs) at 7 sites, boiler upgrades, pipe work insulation, lighting controls and the removal of redundant heating pipes. Savings of approximately £62k p.a. were achieved from the projects completed.
- 8 LFEPA is a participant in the Mayors Building Energy Efficiency Programme (BEEP), which aims to provide cost neutral solutions to reducing carbon emissions from buildings via retrofit. Approval to the energy efficiency works under the BEEP was given by the Finance, Procurement and Property Committee in March 2009 (FEP 1327). Officers are finalising the programme with the contractor to start works on the first tranche of 10 stations, with the aim of delivering a 26% energy efficiency improvement across the 10 sites. The works are expected to start in June August 2009 and surveys for works on additional stations are planned.

- 9 In 2006 the Brigade established a Sustainable Reserve of £3m later increased to £4.4m to fund energy efficiency and renewable technologies. In February 2008 FPPC agreed (FEP 1165) to revolve financial savings from energy efficiency works into the fund, this will amount to approximately £169,000 for 2008/09 after the 2% efficiency savings are deducted from the budget. At the end of 2008/09 £3.7m of the original £4.4m had been invested, the remaining capital is earmarked for 3 x Photo Voltaic systems (Wembley, Barnet and the Pontoon at Lambeth) and the energy efficiency works at Croydon Fire Station.
- 10 Brigade funding is topped up via applications for grants with successful bids for 2008/09 from the Low Carbon Buildings - phase 2 programme securing a further £136,000 for energy efficiency works.
- 11 The graph below shows how the gas and electricity budgets would have needed to increase from the 2004/05 base year if no action to reduce energy consumption had been taken i.e. continue 'Business As Usual' (BAU). This includes for growth (and reduction) in estate and activities. The actual Authority budgets are below that which would have been required if no energy works had been carried out. The cumulative savings, of spend against the (BAU), are some £1,115,000 since 2004/05.
- 12 We have agreed to increase our annual budget reduction targets from 2% in 2008/09 to 3 % for the next year, this is an increase from £54,000 to £83,000.



Energy Efficiency of Equipment

- 13 Work continues to upgrade our IT hardware as part of the normal replacement programme which has also delivered improvements on energy efficiency. 287 monitors were updated to Energy Star compliant TFT monitors at a cost of £26,978, in many instances replacing old inefficient CRT monitors. The add on energy efficiency benefits obtained from the upgrade are estimated to have saved some 22,000 kWh based in industry standards for energy consumption, which equates to approximately £2,200 per annum.
- 14 The Brigade has been operating thin client terminals since 2000 and replaced a further 93 this year as part of the normal replacement programme at a cost of £27,921. Thin Clients offer energy savings in the range of 80-90% when compared to a standard desktop PC. For small scale IT requirements this can be at the expense of increased

energy needs for servers and their cooling requirements, however the Brigades IT requirements surpasses the minimum numbers needed to obtain the energy efficiency savings. Energy savings estimated from the 93 thin clients purchased over the use of PC's are approximately 20,000 kWh/yr, or £2,000 per annum.

- 15 Virtualisation software was first tested on a number of our servers in 2004, it allows multiple applications to be run on servers initially designed to run one application. Following network upgrades in 2007 we were able to complete our £1.34m virtualisation project in 2008/09. The range of benefits from this project included substantially improving our energy performance. The number of physical servers has been reduced from some 90 to 25, hosting 150 virtual servers between them. This has resulted in a 70% energy saving on those servers that have been virtualised, which equates to approximately £3,400 per annum.
- 16 Since November 2008 our terminal servers have been modified to automatically power down at evenings and weekends when usage requirements are minimal, particularly at our Head Quarters site. This was achieved at no cost to the Brigade and has resulted in a saving of some 21,000 kWh, which would equate to 15 tonnes of CO₂ emissions over a year or £2,100 per annum.

Water Use

- 17 Our ongoing work on water reduction projects focuses on reducing our levels of water consumption at our facilities and delivering cost savings. Our spend on water saving projects was £25,000 and included the installation of push button urinal controls, leak monitoring and low flow taps at 8 stations. Hippos water savings bags have previously been issued to all stations and continue to be provided, when requested by Green Champions and 60 were issued during the year.
- 18 Grey water recycling and rainwater harvesting have been included in the specification for works at new build fire stations at Walthamstow and Harold Hill, and at our existing station at Sidcup, with the latter costing £17,000.

LFEP Fleet

- 19 We currently have a fleet of 543 vehicles, (including 15 hire vans). This fleet of vehicles travels in the region of 4,370,874.45 miles a year and spends £2,19M gross on fuel. The nature of our service as an emergency responder means that our first priority is to minimise the risks, and social and economic costs of fire and other hazards. As a result transport options for operational requirements can be limiting, despite this we have made a number of improvements to our fleet and continue to identify further options for improvement.
- 20 Upgrades and modification work to the Brigade's fleet undertaken in 2007/08 and prior resulted in the fleet being LEZ compliant through to the 2010 requirements. Further improvements to the fleet have continued in 2008/09 including the replacement of 7 appliances (fire engines) to Euro IV emission standards.
- 21 61 of our fleet cars provided by our supplier AssetCo will be due for renewal in the near future and as a result a review was undertaken in 2008/09 for replacement options. Vehicle emission levels were a primary consideration of the replacement options proposed. As a result of a comprehensive review of vehicles available that meet our operational needs fleet cars will be replaced with vehicles falling within EU emission band B, with the first replacement vehicles expected to come into use during 2009/10. This will result in an emissions reduction of 20% at no additional cost. There are further plans to review fleet cars to consider reducing the overall fleet size further.
- 22 A review of our car schemes commenced in 2008/09 to identify improvements to the schemes with one of the key aims being to reduce the emission levels of the vehicles and reduce the fleet size. A review of the vehicles available for lease cars or those eligible to go on other schemes has been undertaken and incentives proposed for the uptake of lower emission vehicles. It is estimated that this will deliver a CO₂ reduction of 12% from the car schemes and save some £345,000 over a 3 year period as detailed in Authority report FEP 1398.
- 23 Nitrogen oxide (NO_x), and particulate matter (PM₁₀) are not reported due to the inaccuracy of figures obtainable at present; the use of recording systems that may allow for improved air quality reporting have been considered

but at present are not financially viable to fit to our fleet. CO₂ emissions are based on fuel usage, and our operational CO₂ emissions, which are now available on a quarterly basis. The figures for previous quarters are as follows:

- Q1 (April 08 – June 08) 1,421,324 Kg of CO₂
- Q2 (July 08 – Sept 08) 1,361,249 Kg of CO₂
- Q3 (Oct 08 – Dec 08) 1,237,201 Kg of CO₂
- Q4 (Jan 09 – March 09) 949,500 Kg of CO₂

Overall, we have achieved a 12% reduction from 2007/08 whilst our overall fleet has increased in size.

Climate Change Adaptation

- 24 The Mayor released his draft Climate Change Adaptation Strategy for London in August 2008. This highlighted the key risks for the Brigade as potential changes to water pressure; fluvial and surface water flooding; and water shortages. The climate projections contained in the Mayors report indicated no expected changes to the types of incident LFEPA responds to; however there is an expected increase in frequency and scale of incidents. As a result no immediate budget implications have been identified.
- 25 A Climate Change Adaptation paper was presented to the Finance, Procurement and Property Committee in November 2008 (FEP 1278). This report outlined the implications for LFB including the Brigades response to the Mayors draft London Climate Change Adaptation Strategy functional body consultation. The wide ranging effects of climate change and how they may impact upon our future activities and how prepared we are to adapt to these circumstances was detailed in the report. The report noted that the Brigade is prepared in the short term. It also noted that as longer term impacts are projections we need to build Climate Change Adaptation into our corporate risk plans to ensure we maintain our standard of preparedness. Our sustainable development strategy will identify how we take forward this objective.

4 Responsible Procurement

- 1 As a functional body of the GLA, LFEPA is a signatory to the Responsible Procurement Policy and has been working closely with the other functional bodies and the GLA Group Central Responsible Procurement Team (CRPT) on implementing this policy. The CRPT provides us with support to deliver responsible procurement, provides coordination of work across the GLA group and provides us with additional expertise. We have actively engaged with our contractors and their sub contractors to follow these responsible procurement principles.
- 2 Our procurement officers progressing the work to incorporate responsible procurement provisions into our procurement processes. This includes specifications, terms and conditions of contract where appropriate and performance management to support the implementation of the Brigade's Responsible Procurement Policy.
- 3 The Procurement Department's three year strategy adopted by Authority in November 2008 identifies a number of specific actions that support implementation of the Responsible Procurement policy, including:
 - Leading on responsible procurement across the Brigade;
 - Identifying opportunities for supported businesses;
 - Engaging our key suppliers on responsible procurement;
 - Developing and impact assessment in line with responsible procurement;
 - Increasing the number of 'green' items on our purchasing order management system;
 - Provide staff with training on our EMS and responsible procurement policy; and

- Improve opportunities for SME's and diverse suppliers.
- 4 An impact assessment process has been developed and piloted for upcoming tenders by Procurement, Property, IT and Training and Development contracts in line with the GLA Group Responsible Procurement policy. The assessment aims to help to identify early in the procurement process opportunities for including responsible procurement themes and ensuring adequate support can be provided.
 - 5 All the functional bodies of the GLA group together with the Central Responsible Procurement team, developed a vision, which sets out four priority areas for the Responsible procurement policy and the commitments of the Group in delivering the vision, in particular:
 - Encouraging a diverse base of suppliers
 - Promoting fair employment practices
 - Addressing strategic labour needs and enabling training
 - Promoting greater environmental sustainability
 - 6 Key GLA Group suppliers were invited to an introductory conference on responsible procurement in May 2008, with 4 of our top 5 suppliers attending. At the conference the brigade highlighted its efforts on responsible procurement and our future direction, including the addition of standard elements on responsible procurement in our procedures, environmental achievements in contracts, our environmental management system and a case study on our highly successful furniture disposal contract of the previous year. We have continued to engage and work with our key suppliers on our implementing our policy through contract management meetings.
 - 7 The Brigade has been a signatory to the Mayor's Green Procurement Code since 2001. Since that time the Code and the annual progress reporting systems have been revised and improved to reflect the Governments Flexible Framework on sustainable procurement. In 2008/09 for the first time we took part in an external audit of our previous year's procurement processes and activities across the Brigade as part of the annual progress report. As a result of LFB's initiatives we won the Process and Policy categories of the awards and were recognised as Gold Standard against the Code. We aim to continually improve our progress against the Flexible Framework. The MGPC helps us to verify our progress through the annual reporting, having provided us with an assessment that we are currently at level 3/4 of the 5 levels of the Framework.
 - 8 An internal working group on responsible procurement has been set up with representation from Procurement, Property, IT and Training and Development as Departments with significant procurement spend within the Brigade. This group helps to coordinate and deliver the responsible procurement policy across the Brigades activities.
 - 9 LFB's Purchase Order Management System (POMS) identifies products that support the Responsible Procurement agenda. The resulting improved awareness has led to the proportion of spend on these products increasing by 50.5% (totalling £398,973 in 2008/09).

5 Environmental Management Systems (EMS)

- 1 Following the accredited re-certification of the Procurement Department's Environmental Management System (EMS) in September 2009 to ISO 14001 standard, branch heads have been encouraged to take increased ownership of the EMS objectives and targets through a newly developed 6 monthly Action Plan process. The EMS objectives and targets have been updated and simplified to 4 objectives and 10 targets with 26 Key Performance Indicators (KPIs) and trend data reported to improve the robustness of performance measurement.
- 2 During 2008/09 we put in place a more efficient means of identifying new areas of legal compliance. This, combined with the required external audits for our EMS at a total cost of £7,350, provides greater assurance that we are effectively meeting our environmental protection requirements.

- 3 We continue to work with and encourage our suppliers to achieve accredited certification for an environmental management system. Our previous engagement led to our major vehicle supplier AssetCo and our cleaning contractor Knighton's achieving certification to the ISO14001 standard. Further engagement activities are planned and we hope to assist further suppliers to achieve EMS accredited certification.
- 4 The Property Department has been working to develop an EMS in line with our corporate Environment Policy and to ensure compliance with environmental legislation. During 2008/09 the Property Department completed a programme of measures with assistance from the Sustainable Development Team, which has progressed the department towards establishing an EMS. Key achievements included the establishment of an Implementation Team; the creation of an environmental impacts and aspects register; the drafting of a departmental Environment Policy; and the setting of key objectives and targets for the 2009/10 financial year.

6 Environmental Compliance

- 1 Our Health Safety and Environment (HSE) audits help to verify that we are maintaining good practice at our sites with regards to complying with environmental regulations. A range of improvement initiatives were implemented as a result of the 34 integrated HSE audits addressing the environmental safety concerns identified, including:
 - A Hazardous Waste Procedure was approved by Brigade Joint Commission on Health and Safety at Work Panel in 2008 and published on our intranet site Hotwire in January 2009, and includes guidance on identifying and disposing of hazardous waste. The procedure has been provided to all stations to be included in Section 7 of the Premises Log Book.
 - A programme of colour coding drains has been initiated within the Property Department following HSE audit recommendations.
- 2 We are continually working to reduce the impacts of our use of fire fighting foam, and improve the efficacy of foam use at incidents and its disposal through our "Foam Working Group", as a result:
 - We have agreed 10 sites for foam training following site surveys with a Thames Water representative. Furthermore a Local Working Agreement on discharges to sewerage systems at LFEPA sites is in development.
- 3 During 2008/09 we sought to enhance the existing process for internal review of relevant environmental legislation by extending our externally provided legal register to cover Brigade wide activities. This register was initially set up to address the requirements of the Procurement departments Environmental Management System and now provides for a more efficient means of identifying new areas of legal compliance. Details of environmental legislation changes relevant to the Brigade are detailed at Appendix D.

7 Environmental Awareness Training and Communications

- 1 Our awareness raising programme has highlighted the Fire and Rescue Services impact on the environment, our responsibilities and activities to reduce our impact through:
 - the Environment Induction presentations, which were attended by 215 operational and 126 non-operational employees;
 - providing green champions training to 165 individuals across the Authority, covering climate change and energy conservation, Brigade initiatives, recycling schemes, water conservation, transport, biodiversity, green procurement, site audits, action plans and communicating messages;
 - 36 site audits have been completed by green champions identifying actions for improvement as a result of the training provided. Water butts, dual flush toilets, lambs wool insulation, hippo toilet flush bags, lighting stickers, Bye-Bye-Standby switches and additional presentations have been provided at stations according to the needs identified by the audits;

- as a result of a suggestion from a Green Champion and the success of a short trial, controllers for drying room dehumidifiers have been installed in 30 locations and are planned for roll out to all sites over 2009/10;
- introducing a quarterly newsletter for our green champions covering issues such as walking to work, cycling and energy saving tips;
- the environmentally focussed lesson pack developed for schools across London as part of our previous participation in the "11 million takeover day" has been further developed for inclusion as a teachers online resource; and
- promotion of a number of national initiatives during 2008 including our Bikes for work Scheme was scheduled to take place during Bike Week in June combined with a series of road shows; and Sustainability Weeks events in June 2008 the national Energy Saving Week in October 2008, where staff with daily tips on saving energy at work and home; were also promoted to staff.

8 Authority Travel Plan

- 1 LFEPA's Corporate Travel Plan, including objectives and measurable targets, was approved in September 2008 by our Finance, Procurement and Property Committee (FEP 1243). The agreed travel plans objectives are:
 - a) To reduce environmental, social and business impacts associated with travel and transport and in particular to;
 - Reduce CO₂ emissions caused by LFB's travel and transport, including fleet travel, business travel and commuting emissions;
 - Promote sustainable travel and raise awareness of travel choice amongst employees and suppliers.
 - b) To ensure that LFB complies with national and local government policy on transport;
 - c) To set an example and promote best practice to other organisations in London and to other
- 2 The Guidance Note developed for the production of Travel Plans as Supplementary Planning Documents has been used to develop a site specific travel plan for Dockhead station that will be rebuilt as part of our upcoming PFI programme of 9 new stations. Planning permission was successfully granted for this site.
- 3 The Bikes 4 Work cycle scheme had 787 participants in 2008/09. Using the scheme, staff can save in the region of 35% or 45% (depending on the amount of tax they usually pay) off the retail price of the bike and cycling equipment over an 18 month period. The scheme also provides a saving to the Brigade in excess of £39,000 as a result of reduced National Insurance contributions for staff participating in the scheme and operates at nil cost to the Brigade.

9 Waste Management and Minimisation

- 1 The Brigade-wide trade waste and recycling contract with Bywaters covered 102 sites in March 2008, by July 2008 all the remaining sites were incorporated into the scheme. The Brigade has set a target to recycle at least 50% of all waste generated from our sites.
- 2 Waste is separated into three main streams: Dry Recyclables (paper, cardboard, cans, tins, plastic, cartons/tetra packs) General Waste and Glass. No individual bins are provided at Union St, which is a recognised method of increasing recycling rates. A guidance note was prepared to explain the new disposal system to staff. Average monthly recycling rates have represented 44.21% of our total waste. Presentations to cleaning staff and fire fighters were undertaken to improve understanding of what could be recycled to enhance recycling rates. The Brigades budget for waste and recycling services is £234,000 and as a result of the recycling schemes in place over £23,000 has been saved in landfill tax and an additional £23,000 from the reduced cost of recycling per tonne.

- 3 As a part of Sustainability Weeks in June 2008 the Sustainable Development Team ran a series of presentations for staff based at Union Street Headquarters to explain and feedback on the Bywaters waste collection scheme.
- 4 Working in Partnership with the Metropolitan Police Authority (MPA) on the Uniform Recycling Scheme (URS), 1.45 tonnes were recycled including shoes, boots, sportswear, station work-wear and undress uniform.
- 5 We have diverted 162 waste hoses or approximately 2.2 tonnes of hose from landfill, donating it to a social enterprise that is reusing it to produce a range of handbags, luggage, corporate gifts and belts. In return 50% of profits from the sale of products made from hose are donated to the Fire Fighters Charity. Smaller amounts of hose have been donated to community groups (e.g. scout groups) and farmers (i.e. for animal friendly fencing).
- 6 The battery-recycling scheme has been in place for four years and 2.06 tonnes of batteries were recycled in 08/09 which represents a 12.6% increase compared to the previous year.
- 7 The mobile phone recycling programme (due to a regular turn over in phone replacement) led to 81 units being recycled in 2008/09 and a donation to the fire fighters charity of £143.
- 8 In January 2009 a collection of hazardous waste and Waste Electrical and Electronic Equipment (WEEE) was carried out, collecting material from 84 sites. All WEEE collected was broken into component parts and was fully recycled.

10 Biodiversity and Environmental Protection

- 1 Work was completed on integrating GIS overlays with our Command Planning System for the 35 Sites of Special Scientific Interest (SSSIs); groundwater source protection zones; the London sewerage network, and fluvial and tidal flood plains in London. This will significantly improve our ability to identify and manage environmental impacts at incidents in these areas. The Brigade became a member of Geographical Information for Greater London (GiGL) in March 2009 to improve both the robustness and accessibility of this data.
- 2 We work closely in partnership with the Environment Agency (EA) on any incidents with an associated environmental impact to limit the effects of our own activities and those caused by others. To support this, the Brigade has fifty senior officers trained as Hazardous Materials & Environmental Protection Officers (HMEPO) who advise Incident Commanders on chemical and other polluting incidents. In 2008 LFB were called to 5716 hazardous materials incidents. Of these, 3896 turned out to involve, or threatened to involve, hazardous or polluting substances. HMEPOs attended 509 of the more serious of these. The EA also makes selected attendances and is always available to provide telephone advice. HMEPOs do not attend all types of incidents, for example minor spillages of non-hazardous materials, but will often monitor radio communications to identify problems and then attend if necessary.
- 3 Representatives from the Brigade's HMEP Team and the Sustainable Development Team attend regular local liaison meetings with the Environment Agency as well as attending the regional liaison group for all fire and rescue services (FRSs) in the Thames Region. These meetings ensure that the partnership is effective and efficient.
- 4 LFEPA has been active in providing input to the Fire and Rescue Service Environmental Protection Manual, which was published in October 2008. This manual standardises good practice in dealing with potential pollution incidents, much of which LFB has already adopted, such as the use of Grab Packs at operational incidents.
- 5 Our Crew and Watch Manager training includes hazardous materials and environmental protection. To enhance understanding of the issues amongst the target group a review of training for operational staff at other levels, in particular middle manager level is planned.

11 Environmental Crime

- 1 Following a successful pilot of a cycle scheme in Hounslow in 2007, the scheme was expanded to 12 boroughs in 2008/09. The teams operate over the summer to identify potential sites for arson and accidental fires, and other fire risks, such as abandoned vehicles, unsecured empty properties, overgrown hedges, and abandoned cylinders. These are then reported to the local council for removal via the London website 'Report IT' which is used by all London boroughs and local partners for reporting environmental crimes. The results of these reports help to reduce the environmental impacts of fire and help to improve local amenity. This can result in anywhere from around 50 reports per borough per month to some 200, whilst the number of people provided with fire safety advice and leaflets can range from some 200-800 each month.

Appendix A: Sustainable Development Financial Information

The sections below detail financial information related to work streams that have delivered sustainability benefits. In some cases the financial benefits are a spin off from an existing programme of work to deliver a service or undertake our normal upgrade works, where this is the case only the savings achieved from the project have been identified.

The Brigade has continued its investment in energy efficiency and Low and Zero Carbon systems from the Sustainable Reserve (£4.4m) that was set up to reduce the CO₂ emissions from its buildings to meet the Mayor's emission targets for London of 60% reduction from 1990 levels by 2025. Projects were chosen on the basis of CO₂ saved per £ spent to maximise the value of investment. However officers have also taken into consideration the need to maintain a varied combination of technologies and systems. A total of £1,727,000 was spent in 2008/09. Details of the projects delivered and simple payback periods are given below.

Savings

Description	2008/09 Saving Achieved	Comments
Buildings Energy Efficiency	£223,000 p.a.	Cumulative savings since 04/05 £601,096 Estimated cumulative savings against Business as usual - £1.115m
IT Equipment		
Hardware upgrades	(£4,200) p.a.	Savings on energy revenue incorporated in the figure above
Virtualisation	(£3,400) p.a.	
Server power down	(£2,100) p.a.	
Travel Plan		
Bikes for Work	£39,215.17 (minimum)	Figures are dependent on the tax bracket of staff participating and number of staff participating in any one year
Waste Management		
Waste contract	£46,142.34 p.a.	Includes avoided landfill Tax *Donations to the Fire Fighters Charity
Hose Recycling	£100*	
Mobile Phone Recycling	£143.45*	

Grant Funding Received

Description	Grants Received	Comments
Buildings Energy Efficiency	£136,000	Low Carbon Buildings Programme

2008/09 Sustainability Fund Projects

Simple payback is calculated by dividing the capital cost by the estimate annual savings (at current prices) to give a payback in years as detailed in the paragraphs below.

Six Photovoltaic (PV) systems (total installed 18) at East Ham, Erith, Hillingdon, Hornsey and Clapham, with a peak output of 54.18kWp producing 40,000 kWh of electricity, saving 21 tonnes of CO₂ and approximately £4,000 per annum. Simple payback of approximately 20 years.

Four Solar Thermal (ST) systems (total installed 9) at Peckham, Romford, Erith and Chingford, providing up to 70% of the hot water requirements at the stations where they are installed. The estimated saving to the Authority is £3,750 per annum (3.1 tonnes CO₂). Simple payback approximately 17 years

High efficiency light fittings have been installed at 23 stations (Listed below) showing an average of 13% savings (£20,000) in electricity consumption at these sites. Other ongoing lighting schemes are included in the refurbishment of Sidcup, Croydon and Stanmore. Simple payback approximately 8 years

- Addington
- Barnet
- Beckenham
- Bethnal green
- Bow
- Chingford
- Chiswick
- Clapham
- Clerkenwell
- Edmonton
- Enfield
- Fulham
- Hayes
- Hornsey
- Leytonstone
- Northolt
- Plaistow
- Romford
- Southall
- Southgate
- Stoke Newington
- Tottenham
- Wennington

A total of Eight CHP (total installed 18) has been installed at Chiswick, Hayes, Hillingdon, Southall, Wimbledon, Southgate, Finchley and Barnet. The units are running for longer hours than estimated and savings were greater than expected - 70 tonnes of CO₂ and £16,000 pa. Simple payback of approximately 9 years.

Appendix B: Environment Action Plan

Priority	Deliverable	Key Tasks	Lead Officer	Target date	Monitoring Position Q1 April – June 2008/09
1	Monitoring and reviewing the certified EMS for Procurement	<ol style="list-style-type: none"> 1. Work with Procurement representatives to review and revise EMS 2. Carry out Management Audit 3. Conduct Management Review of EMS 4. Sustainable Development team to co-ordinate and support interdepartmental EMS audits 	Head of Procurement	Renew Certification, March 2008	<p>Ongoing management and review procedures are in place including an internal and external audit programme to maintain certification.</p> <p>Specific actions detailed in section 5 of this report.</p>
1	Adoption of EMS comparable standard for Property Services Department	<ol style="list-style-type: none"> 1. Assess Property Department environmental aspects and impacts including risk from CFCs. 2. Identify roles and responsibilities 3. Develop the relevant documentation. CHSES* will co-ordinate documentation between Procurements and Property departments. 4. Establish integrated objectives, targets, programmes, training and management structure. 	Head of Property	<p>December 2007</p> <p>May 2008</p> <p>October 2008</p> <p>December 2008</p>	<p>Implementation plan agreed to develop an EMS without proceeding to certification at this time.</p> <p>Specific actions detailed in section 5 of this report.</p>
1	Develop an Authority-wide EMS to ISO14001:2004 standard	<ol style="list-style-type: none"> 1. Validate and update environmental aspects and impacts. 2. Update ON 275 in line with FRS Pollution Control Manual. 3. Develop the relevant documentation. Sustainable Development Group will co-ordinate documentation across the Authority. 4. Establish integrated objectives, targets, programmes, training and management structure. 	Head of Procurement	<p>December 2007</p> <p>December 2008</p> <p>October 2009</p> <p>December 2009</p>	<p>The FRS Environmental Protection Manual was published in November 2008 and is being reviewed for any gaps in our current practices.</p> <p>The Procurement Departments environment legal register has been expanded to cover brigade wide activities. Guidance is provided as appropriate to departments in line with the legal register.</p>

		5. Audit EMS for compliance with ISO 14001:2004.		March 2010	
1	Conduct environmental compliance audits	1. CHSES will undertake systematic and recorded environmental compliance audits as part of integrated Health, Safety & Environmental Audit system.	AC (Op)	Implementation from 4 th quarter 2006/2007	Environmental compliance audit questions are reviewed annually in consultation with the sustainable development team, and team members attend a percentage of audits with HSS auditors. Bulk foam storage units are in place across the Brigade. Hazardous Waste Procedure has been approved and included in all sites premises log books. Specific actions are detailed in section 6 of this report.
		2. Carry out risk assessments across the Authority and feedback to relevant departments.		Ongoing March 2008	
		3. Where appropriate, recommend programmes to address identified non-compliance.		Ongoing	
		4. Publish procedure on Hazardous Waste disposal		June 2008	
		5. Publish Chemical Storage and Spillage procedures		September 2008	
		6. Review Environmental Noise issues and policy		March 2008	
1	Communications	<ol style="list-style-type: none"> 1. Support the Authority requirements under the Environmental Information Regulations. 2. Create an internet/intranet website to support environmental training. 3. Promote the Environment Policy. 4. Support Authority-wide environmental awareness campaigns. 	Head of Procurement	Ongoing	<p>Green Zone available on intranet and Green Initiatives section included on our website.</p> <p>Specific actions are detailed in section 7 of this report.</p>
1	Environmental awareness training.	<ol style="list-style-type: none"> 1. Continue to deliver an induction presentation 2. Generate induction support information for new members of staff. 3. Develop and support an "Green Champions" programme including a training package. 	Head of Procurement	<p>Ongoing</p> <p>March 2008</p> <p>March 2007</p>	<p>Induction training is an ongoing mandatory requirement for new personnel.</p> <p>Green Champions programme is ongoing.</p> <p>Specific actions are detailed in section 7 of this report.</p>

1	GLA Mayoral Strategies	<ol style="list-style-type: none"> 1. Review consultation documents 2. Consider Authority implications 3. Integrate into the Environment Strategy 4. Monitor and communicate progress against targets. 	Head of Procurement	<p>Ongoing</p> <p>March 2008</p> <p>March 2008</p> <p>March 2008</p>	<p>Consultation response provided on the draft Climate Change Adaptation Strategy for London (November 2008).</p> <p>Jointly developed the Mayors vision on responsible procurement with the other GLA Group functional bodies in February 2009.</p> <p>Further strategies on transport, energy and climate change are due in the coming year.</p>
2	Authority Travel Plan	<ol style="list-style-type: none"> 1. Undertake Travel Survey, site assessments and all background work 2. Collate and assess information 3. Draft Travel Plan with Objectives, Targets and programmes. 4. Implementation 5. Monitor progress of programmes. 6. Management review of Travel Plan. 	Head of Procurement	<p>June 2007</p> <p>December 2007</p> <p>January 2008</p> <p>March 2008</p>	<p>Corporate travel plan was approved by committee in 2008.</p> <p>Guidance on travel plans is in place for developing site specific plans in line with planning requirements.</p> <p>Specific actions are detailed in section 8 of this report.</p>
2	Waste Management and Minimisation	<ol style="list-style-type: none"> 1. Establish current waste practices and develop clean technology and waste minimisation programmes in line with Waste Strategy. 2. Develop recycling options for used cooking oil. 3. Promote recycling schemes. 4. Monitor KPIs 5. Management Review of programmes. 	Head of Procurement	<p>January 2007</p> <p>October 2007</p> <p>June 2008</p> <p>September 2008</p> <p>Ongoing</p>	<p>Co-mingled recycling is in place at all sites.</p> <p>Annual service measures with targets for waste are in place and reported at Corporate Management Board.</p> <p>Specific actions are detailed in section 9 of this report.</p>
2	Sustainable Development Initiatives.	<ol style="list-style-type: none"> 1. Implementation of Sustainable Development Impact Assessment for all major projects. 2. Support the use of BREEAM or similar schemes to assess all new and refurbishment projects and develop recommendations. 3. Integrate GLA Sustainable Development indicators into Authority KPIs. 	Head of Procurement	<p>June 2007</p> <p>October 2007</p> <p>January 2008</p> <p>September 2008</p> <p>September 2008</p>	<p>SDIA process rolled out Authority-wide.</p> <p>Specific actions detailed in section 2 of this report.</p>

3	Biodiversity and Environmental Protection	<ol style="list-style-type: none"> 1. Undertake biodiversity and ecology studies of LFEPA-owned or leased property and land. 2. Develop and expand the availability of environmental data on the command system 3. Ensure necessary environmental protection equipment and expertise is available at incidents as appropriate 4. Develop an Authority wide Biodiversity Strategy and Action Plan 	AC (Op)	<p>March 2008</p> <p>On-going</p> <p>March 2007</p>	<p>SSSI/SMI data is available on our Command Planning System.</p> <p>Partnerships work with Natural England, and London's Wildlife Trust is ongoing.</p> <p>Environmental grab packs are available for response to spillage or pollution incidents. 6 fully equipped larger spill kits have been strategically located across the Authority.</p> <p>Specific actions are detailed in section 10 of this report.</p>
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Appendix C: Environmental Data Summary

Table 1: Buildings Energy Use Data

	2004/05	2005/06	2006/07	2007/08	2008/9
Actual cost of energy (£ million)	1.48	1.95	2.69	2.5	2.3
Total energy consumption (kWh x10 ⁶)	57.9	56.8	53.7	55.0	50.6
Annual % change in total energy consumption	-5.91	-1.85	-5.65	2.44%	-3.47%
Total floor area (m ²)	-	159,778	#180,005	180956	175389
Total energy consumption (kWh/m ²)	-	355.7	298	304.0	288.4
Electricity (kWh x10 ⁶)	15.9	15.8	15.6	16.2	15.6
Gas (kWh x10 ⁶)	42	41	38.1	38.0	35
Oil (kWh)	73	0	0	0.0	0
CO ₂ (kg)	14,830,448	14,590,446	13,926,309	15,899,307	14,829,221
CO ₂ reduction from 1990				16.4%	16.7%
CO ₂ change from pervious yr				3.64%	3.47%*

Includes Union St

* corrected figure to account for colder weather in 2008/09

Table2: Fleet Data

	2004/05	2005/06	2006/07	2007/08	2008/09
Total No. LFEPAs vehicles	488	500	495	535*	543
Total No. Of LGV's	332	341	333	359	357
Total Diesel Fuel used by LFEPAs Fleet	1705296	1672740	1712281.8	1996728	1823529
No. LFEPAs N ₃ /N ₂ /M ₃	332	341	333	354	357
%Pre Euro compliant N ₃ /N ₂ /M ₃	29.0	17.0	7.4	3.18	2.03
%Euro I compliant N ₃ /N ₂ /M ₃	18.8	18.5	2.2	3.92	3.87
%Euro II compliant N ₃ /N ₂ /M ₃	22.2	23.5	28.4	3.18	2.95
%Euro III compliant N ₃ /N ₂ /M ₃	32.4	46.3	64.8	52.7	52.3
%Euro IV compliant N ₃ /N ₂ /M ₃				4.7	4.6
CO ₂ Emissions (Kg)	4721777.6	4667540.8	4770998.1	5502091.41	4969274.18

* Total number of LFEPAs vehicles (currently ACTIVE , RESERVE or TEST) including the CLG vehicles

Table 3: Water use in LFEPA buildings

	2004/05	2005/06	2006/07	2007/08	2008/09*
Water Consumption (m³)	147,146	127,983	124,907	11,317	130,805
% Annual Change	0.93	-13.02	-2.40	11.38	15.6

*Includes estimated data for the last three months of the fiscal year.

Table 4: Recycling in LFEPA buildings

Recycling Rates	2007/08*	2008/09
Dry Recycling %	42.87	42.19
Glass Recycled %	1.28	2.02
Landfill %	55.84	55.78

* Contract commenced October 2007, increasing from 55 sites on commencement to 111 sites by the end of the year

Table 5: Product Recycling Schemes

	2004/05	2005/06	2006/07	2007/08	2008/09
Batteries recycled (tonnes)	0.63	1.11	1.48	1.83	2.06
Uniforms recycled (tonnes)	0.32	0.49	1.08	0.36	1.45
Number of mobile phones recycled		500	95	208	81

Appendix D: Environmental Legislation Changes 2008/09

Below are details of the changes to environmental legislation for 2008/09 with relevance to the Brigade.

Climate Change Act 2008

- The Climate Change Act received Royal Assent on 26 November 2008 and establishes a framework for the UK to reduce greenhouse gas emissions by 80 per cent by 2050 on 1990 levels.
- The Act introduces a system of five-yearly carbon budgets (the first three will be between 2008-2012, 2013-2017, and 2018-2022) – carbon budgets place legally binding ceilings on the level of allowed UK greenhouse emissions over a five-year period.

The Environmental Damage (Prevention and Remediation) Regulations 2009

- The Environmental Damage Regulations implement the European Directive on Environmental Liability. They are based on the 'polluter pays principle' so those responsible prevent and remedy environmental damage, rather than the taxpayer paying.
- 'Environmental damage' has a specific meaning in the Regulations, covering only the most serious cases.
- Existing legislation with provisions for environmental liability remains in place.

The Hazardous Waste (England and Wales) (Amendment) Regulations 2009

- Define hazardous wastes and set out the requirements for disposal of hazardous waste.
- The 2009 amendment increases the limit for amount of hazardous weight a company can produce in a year without having to register with the Environment Agency from 200kg to 500kg for exempt activities.

The Fluorinated Greenhouse Gases Regulations 2009

- Revokes and amends Fluorinated Greenhouse Gas Regulations 2008.
- Creates offences and penalties for not complying with recovery of f-gases legislation, labelling, qualifications and certificates required to work with products or equipment containing them.

The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009

- CHIP refers to the Chemicals (Hazard Information and Packaging for Supply) Regulations 2009. These regulations are also known as CHIP 4.
- The CHIP Regulations have been amended because of the adoption and entry into force of the European Regulation on the Classification, Labelling and Packaging of Substances and Mixtures, known as the CLP Regulation.
- The CLP Regulation adopts the internationally agreed Global Harmonised System on the classification and labelling of chemicals, known as the 'GHS' in the European Union.

The Waste Batteries and Accumulators Regulations 2009

- These Regulations set out requirements for waste battery collection, treatment, recycling and disposal for all battery types including arrangements by which the UK intends to meet waste portable battery separate collection targets of 25% by 2012 and 45% by 2016.
- Waste portable, industrial and vehicle batteries in the UK must be separately collected, treated and recycled. These rules came into force on 5 May 2009.