



London Underground Environment Report 2007



Environment Report 2007

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A brick pillar stands in the foreground, featuring a circular logo with a red outer ring and a white inner circle. Below the logo is a dark blue rectangular sign with the text 'THEYDON BOIS' in white capital letters. The background shows a grassy field and bare trees under a cloudy sky.

THEYDON BOIS

About London Underground

At over 144 years of age, London Underground (LU) is the oldest transport system in the world. It began as a six kilometre stretch between Paddington and Baker St in January 1863 providing a small steam train service connecting mainline overground stations to the city. Today London Underground runs over 408 kilometres of track and serves 275 stations over 12 different lines. With a land property portfolio of over 4,000 hectares, LU covers most of London as well as parts of Buckinghamshire, Hertfordshire and Essex.

In 2006-07 we transported over a billion passengers for the first time, including 4 million people on 8 December 2006 alone. We employ almost 14,000 employees.



In 2002 and 2003, LU entered into Public Private Partnership (PPP) contracts with Tube Lines and Metronet, respectively. Under the PPP contract, LU remains a public operating company retaining operation and ownership of all railway assets, while Metronet and Tube Lines are responsible for the majority of the maintenance and enhancement of assets. Four years into the PPP contract, 59 stations have been upgraded and 115 km of track has been renewed. Line upgrades have also improved journey times across the network. LU also has a number of PFI contracts related to the power network (Power PFI), the communications system (Connect PFI) and the revenue collection system (Prestige PFI).

In 2003 LU also became part of Transport for London (TfL). TfL is the public body responsible for managing transport across the capital.

Managing Director's Statement

I am pleased to introduce our annual Environment Report which sets out our performance and achievements for 2006-07.



London Underground plays an important role in managing the environmental impacts of a major city such as London by providing a transport service which reduces road congestion and, as a result,

carbon emissions and other air pollutants. However, while we improve the quality of the urban environment, we recognise that we must also manage the impact of our operations on the environment. We consider good environmental performance to be integral to our business performance and we are committed to improving our performance each year.

Over the past year, we have taken strides towards improving the environmental performance of the Underground and of London as a whole. We continue to work closely with our PPP suppliers to ensure that proactive measures are taken to reduce our environmental impact and to remediate any environmental harm from our activities.

This year we report our environmental performance in three broad categories: our efforts in tackling the challenge of climate change, our impact on the local environment and making better use of resources. I am pleased that we, once again, beat our targets for recycling station and depot waste and energy use in stations. We also published our first Biodiversity Action Plan which sets out how we plan to conserve wildlife and habitats on our sizeable property portfolio.

Our vision is to provide London with a truly world class transport system. This year we compared our environmental performance against that of 12 other leading metros from around the world. This benchmarking study showed that our monitoring and reporting system reflects best practice and that we lead the way in a number of areas, such as recycling of construction and demolition waste and biodiversity management.

Environmental issues, particularly climate change, are higher profile than ever before. We are fully committed to playing our part in tackling these challenges. This report sets out our plans for delivering improved environmental performance during 2007-2008.

Tim O'Toole

Our performance, our commitments

During 2006-07, we focused our attention in areas where we feel we have the greatest environmental impact:

- our efforts in tackling the challenge of climate change
- our impact on the local environment
- making better use of resources

The diagram below outlines some of the highlights from 2006-07 and describes some of the key actions we will carry out during 2007-08. While this report focuses on performance during 2006-07, our Environment Scorecard at the end of the report shows our environmental performance over a longer timescale.

THE CHALLENGES

Facing the global challenge of climate change

Managing our impact on the local environment

Making better use of resources

HOW WE DID IN 2006-07

Operated with a greater energy efficiency than the previous three years

Reduced our total electricity consumption

Successfully implemented the innovative groundwater cooling trial at Victoria Station

Published the first LU Biodiversity Action Plan which will help us conserve and protect wildlife and habitats in London

Recorded a drop in noise complaints for the second year in a row

Reduced our total water consumption

Introduced new paper recycling initiatives across the network

Beat our station and depot waste recycling target

WHAT WE WILL DO IN 2007-08

Produce a Carbon Emission Reduction Plan for LU

Deliver a comprehensive assessment of our overall carbon footprint

Trial an environmentally friendly cooling system using naturally cooled water from London's underground aquifer

Publish a LU Biodiversity Communications Plan which will increase staff and customers awareness of biodiversity in London

Trial new low carbon fuels in our road fleet

Increase the amount of drinking water we source directly from the mains

Recycle greater amounts of station, depot and office waste

Carry out a composting trial at our head office



UNDERGROUND

CROSS ST. PANCRAS STATION

PANCRAS STATION

Facing the global challenge of climate change

Climate change has been described as probably the greatest challenge facing the world. During the past year, both the influential Stern Review and the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report highlighted the importance of immediate action to limit the degree of climate change across the globe. In February 2007, the Mayor of London published a Climate Change Action Plan which sets a goal of reducing London's greenhouse gas emissions to 60% of 1990 levels by 2025.

We believe London Underground has a major role to play by providing a low carbon transport system for London. We are making major investments to

meet London's growing demand for transport, but these essential line upgrades and increased train frequencies will result in increased energy demand. Therefore, we are also exploring how to be as efficient as possible with the energy we use and how renewable technology can help us power our operations.

To ensure we continue to provide a good transport service into the future, we are also examining how we can ensure our assets are protected against the climate of the future.

Managing carbon and energy

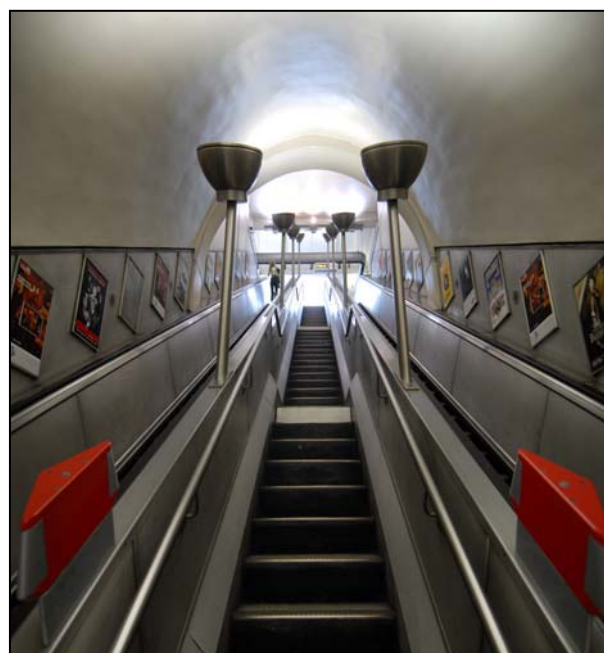
Achievements in 2006-07:

- Reduction in total electricity usage despite increases in service provision and passenger numbers
- 14% saving in energy used in stations compared to 2000/01
- Continued to power all non-traction energy use from renewable energy
- Electricity contract tender documents reviewed to include "a green supplier questionnaire" with a view to improving the carbon profile of our power supply

The majority of our carbon emissions are associated with the electricity we use. We are the single biggest consumer of electricity in London and in the top ten electricity users in the UK. Our primary source of CO₂ emissions is associated with fossil fuel combustion during electricity generation. We procure all of our energy from the national grid, of which approximately 85% is energy used to power our trains. As part of the safety mechanism in case of a national grid failure, we have a back-up gas turbine power plant which can be powered up within 15 minutes to supply us with emergency power. Our road fleet also produces CO₂ during fuel combustion.

Our Key Performance Indicators:

CO₂ emissions/passenger kilometre: 68.9 grams/km
Percentage of renewable energy: 16.1%
Energy saved through the Station Energy Challenge: 14% since 2000/01



Our performance in 2006-07

In 2006-07, we used just over 1% less electricity (1,139 GWh)¹ than the previous year (1,144 GWh). We continued to source all of our non-traction electricity from renewable sources in 2006-07. This accounted for 16.1% of our total electricity demand. This has increased slightly compared to the proportion of renewable electricity sourced in 2005-06². We also made improvements in our energy efficiency. In 2006-07 we managed to operate with greater energy efficiency than in the previous 3 years.

The majority of our CO₂ emissions were related to electricity used in stations, depots and powering our trains. Other CO₂ emissions were associated with our power station in Greenwich and the road fleet. The road fleet we report on includes road fleet directly under LU's control and road vehicles operated by our PPP Suppliers in delivering the PPP contract.

New Government greenhouse gas reporting guidelines came into force in June 2007 which increased the CO₂ conversion factor for grid electricity from 0.43 g CO₂/kWh to 0.523 CO₂/kWh. The 2006-07 CO₂ emissions associated with our electricity use were calculated using the new, and higher, conversion factor. This has meant that our CO₂ emissions for 2006-07 have increased significantly – by 91,500 tonnes CO₂.

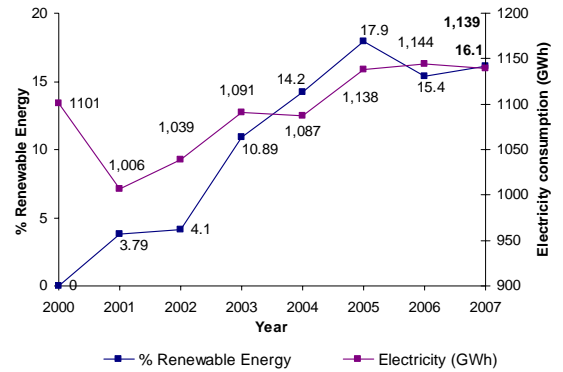
The emissions reported in last year's report were calculated using the old Government conversion factor (0.43 g CO₂/kWh). If figures reported last year used the current conversion factor, overall CO₂ emissions from electricity consumption in 2006-07 would have decreased by 5% compared to last year. In 2006-07, the number of passengers we carried on our network grew by 4.4% (43 million journeys).

¹ Electricity usage for 2006-07 includes station, depot, traction and office electricity consumption. Electricity usage for 2005-06 is inclusive of station, depot and traction demand only.

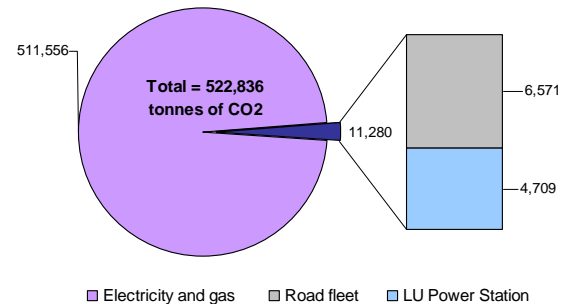
² Last year's Environment Report reported that 16.8% of LU's electricity supply was sourced from renewable sources. Further validation of last year's data determined that the true proportion was 15.4%.

³ The total electricity consumption for 2005-06 was reassessed since the publication of last year's Environment Report. The new 2005-06 verified value reported improved energy efficiency – from 155 Watt hours per passenger km to 151 Watt hours per passenger km.

Electricity use and renewable energy



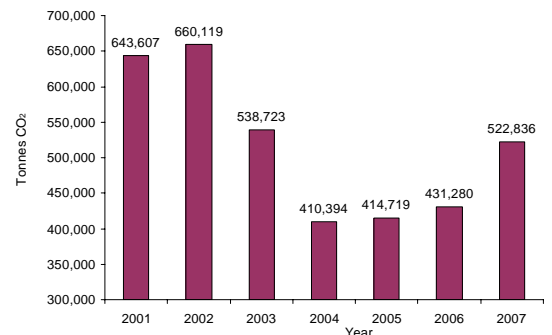
LU CO₂ emissions (2006-07)



Energy efficiency and g CO₂/passenger km

Year	Energy efficiency (Watt hours/passenger km)	Grams CO ₂ per passenger km
2007	150	68.9
2006	151	56.3
2005	151	54.5
2004	160	55.9
2003	148	n/a
2002	139	n/a
2001	135	n/a

LU CO₂ emissions (tonnes)



Nov. 2002: Lots Road Power station decommissioned.
June 2007: New CO₂ conversion factors for grid electricity.

How we will deliver further improvements

During 2007, we will develop a Carbon Emission Reduction Plan which will set out how we plan to tackle carbon emissions across our operations. We plan to do this by adopting a three pronged approach:

1. Embedding energy conscious behaviour

Our Station Energy Challenge continues to achieve challenging energy targets. The competition has successfully highlighted practical energy saving techniques and raised awareness throughout our frontline operations. We feel there is even further potential to bring even more savings to the business, and therefore during 2007-08, we will undertake a review of the challenge to involve other areas such as depots.

We are also working to embed a greater understanding of energy demand in all our activities - from project development to individual behaviours.

2. Energy efficient and renewable technology and systems

LU offices have been completely powered by renewable energy since 2001 and all non traction energy has been procured from renewable sources since 2005-06.

We are currently investigating other technologies and systems which could reduce energy demand. Regenerative braking is a mechanism that takes heat energy that would normally be lost in the process of train braking and returns a large percentage of it back into the network for reuse as traction current. All of our new trains employ this technique resulting in energy savings across the network. We plan to trial inverting substation technology during 2007-08, which aims to allow a greater proportion of the energy recaptured during regenerative braking to be used over a wider range of the network.

3. Influencing the supply chain

As part of our energy contracts, we stipulate that a proportion of the energy we buy is procured from renewable sources. We have reviewed our electricity contract tender documents to include "a green supplier questionnaire" with a view to improving the carbon profile of our power demands. This will enable us to develop and agree low carbon requirements within LU long-term power supply contracts.

STATION ENERGY CHALLENGE 2006/07

LU's Station Energy Challenge delivers significant energy savings each year. Since the creation of the challenge in April 2000, nearly two thirds of stations have managed to reduce their energy consumption. This has resulted in a 14% saving in energy usage since 2000/01.

Premiership winner - Charing Cross
Championship winner - Elephant & Castle
Division 1 winner - Chalk Farm
Division 2 winner - Plaistow
Overall Line winner - Bakerloo Line

John Poole - Energy Champion at Charing Cross station

"We've found the most important things are: Perseverance, it takes time to get other team members on board and Patience, when your scores do not increase quickly enough. Lead by example and try to get local management on your side."

In 2007-08 we will:

- Publish and implement a Carbon Emissions Reduction Plan for LU
- Revamp and re-launch Stations Energy Challenge
- Work with The Carbon Trust on carbon management
- Establish targets for energy use for LU
- Maintain 100% renewable energy supplies for non-traction energy demand
- Trial inverted substation technology at a specific network location
- Work with TfL to reduce energy demand at LU head office buildings by 12% against a 2005-06 baseline
- Develop an understanding of LU's carbon footprint
- Work with Tube Lines, London Hydrogen Partnership and other partners to improve the carbon profile of the LU road fleet
- Put processes in place for the future reporting of carbon emissions on a quarterly basis

Adapting to climate change

Achievements in 2006-07:

- Developed an outline LU Adaptation to Climate Change strategy
- Audited our management of flooding risk
- Trialled a groundwater cooling system at Victoria station

In 2005-2006 the London Climate Change Partnership (LCCP) published a study into climate change and London's transport system. The study noted that, while climate change mitigation is important in order to avoid the more severe effects of climate change, some degree of climate change is inevitable. The twelve-month period from May 2006 to April 2007 has been the warmest twelve-month period on record. The LCCP study suggested that likely increases in incidents of flooding and summer temperatures would have a detrimental effect to both the level of service London Underground provides and on customer comfort, unless safeguards and adaptation measures are established.

What we did in 2006-07

During 2006-07 we developed an outline Adaptation to Climate Change strategy. The strategy sets out how we, working with our PPP Suppliers, will ensure that our network and activities are prepared, as much as possible, to face the challenge posed by unpredictable climate change. As part of the strategy, we will

1. Identify the potential impacts of climate change on our assets and operations
2. Take actions necessary to protect our assets from the impacts of climate changes
3. Identify, establish and use operational processes to minimise service disruption to our operations
4. Establish, maintain and use processes to minimise passenger and staff discomfort and ill-health from higher temperatures and humidity
5. Maintain an up-to-date position on our progress towards adaptation measures and processes
6. Identify and regularly review the climate change knowledge base and the potential impact on our operations and assets and ensure the risks are fully factored into business decisions

We joined the LCCP Transport Working Group in March 2007. This Group brings representatives from all modes of transport in London together to ensure that the transport system in London is adequately prepared for climate change.

We also reviewed our current state of preparation against flooding risk and have taken action to ensure our stations are protected against flooding.

Cooling the Tube

Minimising passenger and staff discomfort is central to how we handle the challenges of higher temperatures on our network. Increases in energy consumption and passenger numbers as a result of growth in service levels will result in more heat being generated within the network. Over the past 100 years, excess heat generated in the Underground has been absorbed into the tunnels and the natural clay surrounding them. However, with the earth around the deep-lying tunnels reaching their capacity to absorb heat, temperatures on the deep-level line levels are slowly getting warmer. We established the Tunnel Cooling Programme in 2005 to identify and implement solutions to the problems of rising temperatures within the Underground.

Where possible, we are trying to adopt a sustainable approach to the Tunnel Cooling challenge. This means finding solutions that will not require significant energy inputs and which make best use of the natural systems around us. During the summer of 2006 we initiated the trial of our award winning groundwater cooling system at Victoria Station (see Case Study: Cooling the Tube).

In partnership with Metronet and Tube Lines, we are also installing new ventilation shafts and reconditioning and upgrading existing ventilation systems. Before the Tunnel Cooling Programme began only 30% of 126 fans were operational. This has now risen to 63%, with further increases expected over the next year.

How we will deliver further improvements

During 2007-08, we will begin to deliver the first stages of our Adaptation to Climate Change strategy.

We will also deliver the 2007-08 aspects of the Tunnel Cooling Programme. This will include a trial at Stockwell station involving the extraction of naturally cooled water from the chalk aquifer below London. The water will be used to cool our operations before being returned to the aquifer.

The Mayor of London is in the process of developing an Adaptation to Climate Change Strategy for London. We have input to the strategy and will support its delivery.

In 2007-08 we will:

- Deliver 2007-08 aspects of our Adaptation to Climate Change strategy
- Deliver 2007-08 aspects of the Tunnel Cooling Programme
- Support the London Climate Change Partnership's transport work programme
- Input to and support the Mayor's Climate Change Adaptation Strategy
- Continue to monitor and mitigate LU's flood and ambient temperature risks in the context of climate change

Case Study: Cooling the Tube

In 2007, the Railway Industry Innovation Award for Sustainable Development was won by our Victoria groundwater cooling project. This innovative trial uses groundwater, which is already pumped out of the station to prevent structural damage, to cool the station. The water, naturally at a temperature of 12°C, is carried through pipes to heat exchange units on the platform concourse. These units have fans which draw in warm air, transferring the heat to the water, and therefore cooling the concourse temperature. The movement of trains in and out then spreads the cooled air to the platform. The trial is still ongoing, but if it continues to produce good results, there is potential for it to be introduced on other sites on the network.



UNDERGROUND

UNDERGROUND

ST. JOHN'S WOOD STATION

ST. JOHN'S WOOD STATION

Managing our impact on the local environment

While climate change is the environmental issue that is attracting most of the world's attention, and we continue to focus our efforts here, we also have a responsibility to deal with the other environmental effects of running, maintaining and upgrading our service.

The sheer scale of our activities means that LU is one of the biggest land owners in London. With our PPP suppliers, we operate a support fleet of over 1,100 road vehicles which allow us to continue the essential maintenance and upgrade work of the network.

Noise Management

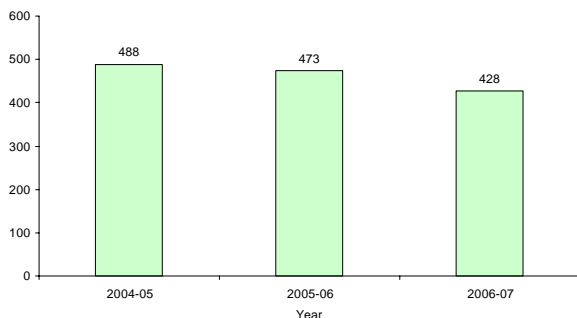
Achievements in 2006-07:

- Noise complaints fell for the second year in succession
- Percentage of continuously welded track more than doubled to 24.3%

Our Key Performance Indicator:

Number of noise and vibration complaints: 428

Noise and vibration complaints



Operating a railway can result in noise and vibration which may be a nuisance to people living or working near our railway lines, stations or depots. Certain activities, such as construction works or PA announcements, are essential elements of upgrading and operating a railway. However, we want to ensure that noise nuisance is minimised where possible.

Our performance in 2006-07

Noise generated from the activities of LU and our suppliers continues to be the greatest source of environmental complaint that we receive. In 2006-07, noise accounted for 48% of all of our environmental complaints. Although the number of noise complaints has fallen to a three year low compared with recent years, we, and our PPP suppliers, strive to take measures that will reduce the noise impact of our activities.

The noise that we generate in our activities is from three main sources: (i) contractor activity in engineering works and asset maintenance through our investment programme; (ii) public address (PA) systems and tannoy announcements; and (iii) track and asset based noise such as from wheel-rail interfaces.

In 2006-07 the number of complaints associated with contractor activities decreased compared to the previous year as improved management systems and systems of working were established. This was despite an increase in the amount of contractor activity. Metronet and Tube Lines both actively engage with local authorities to identify best-practice measures and have jointly

agreed how work should be undertaken at specific sites. Unfortunately, one Section 60 noise abatement order was served on construction work being undertaken at Earl's Court.

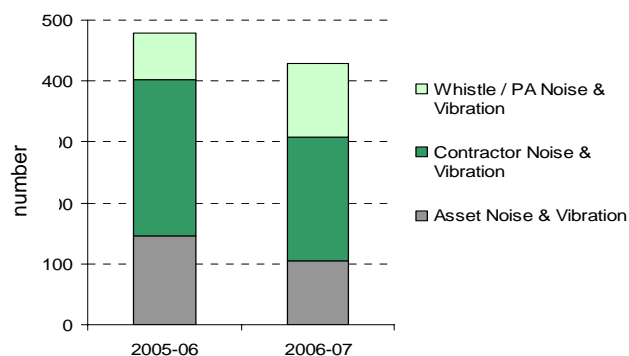
The number of complaints associated with asset noise decreased significantly (by 28.1%) in 2006-07. The percentage of continuously welded track has more than doubled to 24.3% from last year and this will continue to rise over the next year. Continuously welded track manages the thermal stresses in rails without requiring rail joints which are a potential source of rail and wheel noise and vibration.

The number of complaints associated with Public Address systems received increased during 2006-07. As part of our plans for a fully accessible London Underground, the number of PA announcements has increased to provide necessary information to all customers, including those with hearing or visual impairments. We are currently drafting guidelines for managing noise associated with PA systems which we hope will resolve any issues associated with PA noise.

Case Study: Managing asset related noise

We work with our PPP suppliers to reduce asset based noise. The Metronet rail grinding programme, restoring the original profile of track, continues reducing noise from the wheel to track interface by up to 10 decibels (dB). Tube Lines track renewal works is also bringing about a reduction in noise. Noise monitoring identified a 10dB reduction in noise immediately after an enhanced track replacement on the Northern line. After 12 months, an 8dB reduction in noise has been maintained.

Noise and vibration complaints



How we will deliver further improvements

Our focus in 2007-08 will be to manage noise associated with PA systems and we will evaluate our strategies and practices for delivering information to customers. We will also continue to work with our PPP suppliers and our stakeholders across London to ensure that noise nuisance is minimised where possible.

In 2007-08 we will:

- Publish guidelines for managing noise associated with PA systems
- Support Defra activities in managing noise across London

Air Quality

Achievements in 2006-07:

- Made progress towards procuring hydrogen powered vehicles with the London Hydrogen Partnership, Tube Lines and other partners
- Implemented TfL Travel at Work policy
- Published a study into Air Quality Monitoring for Respirable Dust

The level of air pollutants in London can be high due to the incomplete combustion of fuels during transport. This releases substances such as sulphur dioxides (SO₂), nitrogen oxides (NO_x) and particulate matter (PM₁₀) which impact on human health and well-being, as well as affecting animal and plant life within London.

The main source of emissions in London is road transport vehicles. The Mayor of London's Air Quality Strategy sets out policies and proposals to improve London's air quality. LU contributes to these efforts by providing road users with a transport alternative that has no direct effect on London's air quality as our trains do not emit pollutants. The sources of direct emissions to air from the operation of our service are:

- NO_x, PM₁₀ and CO₂ from our road fleet
- NO_x, SO₂ and CO₂ from power generation at our Power Station
- Dust from network operations and maintenance

Our performance in 2006-07

Pollutant emissions from our road fleet increased compared to 2005-06 levels. This is due to an increase in the overall fleet number by 131 vehicles, mainly as this year we have included vehicles operated jointly by LU and the British Transport Police. This resulted in an increase in the total distance travelled and amount of fuel used, and therefore, the levels of CO₂ emitted. Data on NO_x and PM₁₀ emissions from the road fleet was not available this year but will be included next year as improved reporting and recording systems are implemented. An increase in the amount of contractor activity and the number of dedicated recycling and waste collections has also resulted in an increase in the number of PPP supplier vehicles.

We continue to measure dust levels across the Underground network with special regard for train operators and platform staff. Our latest study on Air Quality Monitoring for Respirable Dust concluded that dust levels are well below the HSE workplace exposure limit.

All emissions from our backup power station in Greenwich decreased from 2005-06 levels and continue to be monitored and managed onsite.

LU Power Station (Greenwich)

Air Quality	2004/05	2005/06	2006/07
NO _x (tonnes)	10.5	13.08	7.22
SO ₂ (tonnes)	1.05	1.31	0.66
CO ₂ (tonnes)	5,944	7,402	4,709

Emissions from the road fleet

Road fleet	PPP Suppliers	LU	Total
Number of vehicles	1,020	156	1,176
Fuel consumed (litres)	2,352,593	269,631	2,622,224
CO ₂ (tonnes)	5,916	655	6,571

We are committed to making sure that the vehicles we use are operated in an environmentally considerate manner. All our vehicles, including the waste management fleet, are supplied by our PPP supplier Tube Lines through their affiliate company Distribution Services. At present all new and replaced LU vehicles are Euro IV compliant (meeting the highest European exhaust emission standards), and we are also investigating the procurement of hybrid vans for LU.

Improving our performance

Although the road fleet for which we are directly responsible is small, we aim to improve the carbon profile of this fleet through improving procurement systems and trialling alternative fuels, such as hydrogen powered vehicles. In 2007-08 we will also input into the development of TfL guidelines on vehicle procurement.

In 2007-08 we will:

- Work with TfL to develop guidelines on vehicle procurement and fuelling
- Work with the London Hydrogen Partnership and Tube Lines to trial a hydrogen powered vehicle
- With Tube Lines, make sure all of our fleet meet the new London Low Emission Zone requirements

Biodiversity

Achievements in 2006-07:

- Published LU's first Biodiversity Action Plan

We have a duty to protect London's vast range of species and habitats not only for our own economical, social, and environmental benefits but also in order that future generations can enjoy the same benefits we enjoy now. The nature of our organisation means that this is especially important for LU:

- With over 50% of our network above ground and our ownership of over 4,000 hectares across London and parts of surrounding counties, we manage approximately 10% of London's wildlife habitat, on and around our property.
- Over 800 acres of LU trackside at 200 sites across our network have been identified as Sites of Importance for Nature Conservation.
- The lack of public access and rich diversity that our overground trackside offers creates a haven for many of inner London's flora and fauna.

Most of our trackside habitats are semi natural, but cover a range of habitats from ancient woodlands to open grasslands and tall herbs. We have clear standards for the management of all our property and we work with our PPP suppliers to ensure that conservation of biodiversity is integral to our processes.

Recorded on London Underground since 1999

Foxes, badgers, bats, voles, woodpeckers, grass snakes, song thrushes, herons, Muntjac deer, frogs, newts, kestrels, swifts, sparrow hawks, moorhens, starlings and over 550 plant species.

What we achieved in 2006-07

In March 2007 we produced our first Biodiversity Action Plan (BAP). This plan sets out a series of actions whereby we will conserve, and enhance the biodiversity value of our property and increase awareness amongst staff and the travelling public of biodiversity in London. This involved a full review of all biodiversity on LU properties in conjunction with our PPP suppliers and the London Biodiversity Partnership (LBP). The Action Plan identifies plants and species on a line by line basis, and what action we will take to protect them.

Our Key Performance Indicator:

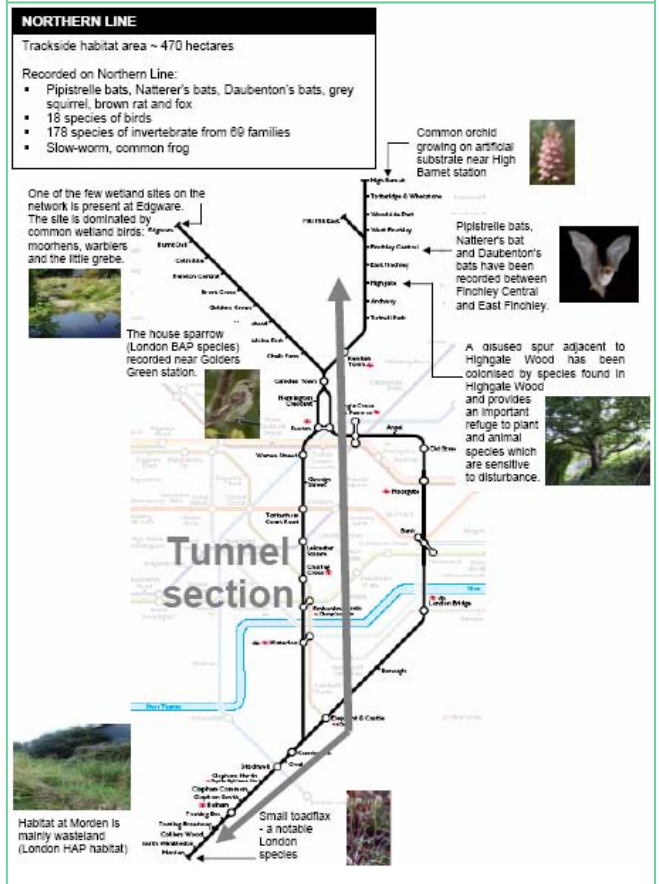
Percentage of area where biodiversity surveys have been conducted: 100%

Highlights of the LU BAP

The LU Biodiversity Action Plan identifies individual action plans for habitats and species on the LU network. These are species that fall under national legislative protection or those which are important to London including bats, badgers, reptiles, stag beetles and water voles. Woodland and grassland habitats were also identified as priority habitats in a London context.

The plans set out defined actions for the protection and conservation of each species or habitat listed with clear deadlines for the delivery of these actions. Although the plans are focused on particular species, it is hoped that the measures outlined will have wider benefits to London's biodiversity as a whole.

Biodiversity highlights on the Northern line



As part of our investment programme, LU facilities are being upgraded across the network. Our PPP Suppliers are currently developing plans which will set out how they will manage wildlife and habitats on the land which they manage on our behalf.

Case Study: London's largest green roof

In 2006 Tube Lines installed the largest green roof of its type in London on the Northern line control centre in Highgate (below). The roof, planted with various species of drought resistant sedums and local indigenous cuttings underlain by recycled rubber matting, was installed to blend in with its surroundings and promote local biodiversity. Additional benefits include water retention and insulation. The roof has bedded in so well that Tube Lines will install a second green roof on the new Stratford train crew accommodation building.



Case Study: Embankment stabilisation

Metronet is undertaking a £7.5 million scheme to stabilise embankments and cut slopes on the section of track between Hillingdon and Uxbridge stations, shared by the Metropolitan and Piccadilly lines. Measures have been employed to protect biodiversity at this location and minimise the environmental impacts of the works, including on legally protected species such as the great crested newt and the stag beetle. Necessary vegetation clearance was carried out over the winter months to avoid disturbance during the bird nesting season and where possible a vegetation corridor along the slopes was maintained. Ecological checks were used to ensure birds, bats and reptiles were not adversely affected by the works.

How we will delivery further improvements

Our Biodiversity Action Plan is the first step in a three year programme to improve the wildlife and habitat value of our property and to increase awareness of biodiversity across London.

In 2008 we will:

- Develop a Biodiversity Communications Plan which will
 - provide LU staff with information on wildlife and habitats on the LU network using a range of media
 - increase awareness amongst the public of the biodiversity value of LU property and the access we provide to habitats and species across London
- Develop and maintain a process which will allow staff to report the presence of plant or animal species observed on LU property
- Develop and maintain a process to record information provided to LU by third parties
- Integrate biodiversity elements into the Station Gardens Competition
- Investigate the potential for plants on walls and roofs of our buildings
- Develop and maintain records of all LU BAP species and habitats on LU property

The full LU Biodiversity Action Plan is available on our web site:

<http://www.tfl.gov.uk/assets/downloads/LU-Biodiversity-Action-Plan-final.pdf>

Land and Water Pollution

Achievements in 2006-07:

- No major incidents due to land and water pollution reported

We seek to prevent pollutants from contaminating land or water. LU standards set out requirements for the safe use and storage of materials on our network and our PPP suppliers monitor the control of potential pollutants during construction and maintenance activities. To further prevent the pollution of land and water, we require contractors working on the LU network to comply with environmental contract conditions laid down in QUENSH, which entails the assessment of all environmental impacts and the production of clear and detailed environmental plans.

Our performance in 2006-07

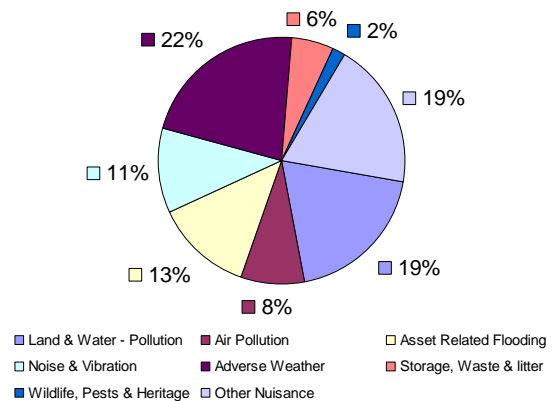
In 2006-07, there were no major land or water pollution incidents associated with our activities. No regulatory action associated with land or water pollution was taken. The total number of environmental incidents reported in 2006-07 (523 incidents) fell by 17% compared to 2005-06 (432 incidents). A reduction of the number of incidents was noted in all categories of environmental incidents apart from land and water pollution and noise and vibration.

To prevent infrastructure damage from underground water seeping into our systems, we pump out over 30 million litres of water from our system at specific sites daily. In 2006-07 we continued to test all of our water pumping sites, finding no significant level of contamination. A high level of maintenance at these sites is also well established with specialist teams continuing regular cleaning, emptying and "scraping" of gullies and drains.

Our Key Performance Indicator:

Major environmental incidents: 0

Environmental incidents in 2006-07



How we will deliver further improvements

We will continue to work with our PPP suppliers and other contractors to monitor potential pollution and prevent pollutants contaminating land or water.

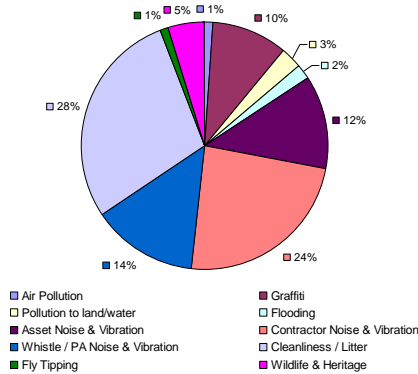
In 2007-08 we will:

- Continue to identify and monitor possible land and water pollution from LU, PPP Supplier and other sources

Environmental Complaints

Our operations cover a diverse range of activities which stretch across almost all parts of London. We encourage our customers to comment on our operations and activities – good and bad.

Environmental complaints in 2006-07



Our performance in 2006-07

The total number of environmental complaints received in 2006-07 (857) fell by 3% compared to the previous year (886). An increase in the number of complaints associated with PA noise and flooding was recorded. Cleanliness and litter complaints also increased which may be due to the increased volume of waste on our network, in part as a result of the introduction of two new free afternoon newspapers in London.

How we will deliver further improvements

We will continue to work to improve our environmental performance and hope that this will be reflected in fewer environmental complaints in future.

Local Ambience

Achievements in 2006-07:

- Exceeded Mystery Shopper Survey targets for cleanliness and graffiti
- Produced Manual of Good Practice for heritage matters
- Produced technical briefing on concrete and concrete repairs

Local ambience is an important aspect of providing the level of service we are aiming for. The cleanliness and condition of trains and stations is a statement from us about our concern over the care and safety of the service we provide, and our commitment to continually improving the service. We also have a duty to our staff to provide a pleasant and clean environment in which to work. We have standards on the ambience aspect of our service, establishing requirements for the cleanliness of stations and trains, levels of litter, and levels of graffiti. We regularly measure our performance through mystery shopper surveys (MSS) and customer satisfaction surveys (CSS).

Over the past 144 years, our buildings have incorporated the history and characteristics of London. Due to their particular importance, special interest value or outstanding features, a total of 49 buildings are Grade II listed by English Heritage.

We also record and identify features that we feel are of strong historical or design merit to make sure that these are also given the protection they deserve, whether contractually or in compliance with legislation. A “world class tube” demands “world class” facilities and ambience. We have a responsibility to continue to meet the challenge of delivering this, while respecting the rich heritage of London and the world’s oldest underground railway system.

Our performance in 2006-07

In 2006-07 we met and surpassed all of our MSS targets.

We also published a technical briefing on concrete and concrete repairs and a Manual of Good Practice for heritage matters.

Environmental complaints in 2006-07

	Target	Achieved
Station Cleanliness (MSS Score)	70	70
Train Cleanliness (MSS Score)	65	67
Graffiti LU Trains (MSS Score)	66	74
Graffiti LU Stations (MSS Score)	79	81



UP

DOWN

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Making better use of resources

The 2005 Millennium Ecosystem Assessment set out a stark warning of the dangers of uncontrolled resource use on the world we live in. It found that nearly two thirds of the services provided by nature to humanity are in a state of decline. The use of natural materials such as food, fresh water, timber and fuel, means that many natural services such as fresh water, are at a state where they are struggling to maintain their own productivity, putting real strain on the Earth's ability to sustain future generations.

This results in a pressing need for a more sustainable approach to consumption and sound management of ecosystems to restore and maintain the ecological balance. We believe that it is important to improve the sustainability of the materials we use, to reduce the amount of waste we produce and to recycle more materials.

Recycling and waste management

Achievements in 2006-07:

- 31% recycling rate achieved for Commercial & Industrial waste (target 30%)
- 82% recycling rate achieved for Commercial & Demolition waste (target 85%)
- Introduced range of new recycling initiatives
- Roll out of dedicated paper recycling at all terminus stations

LU's waste management strategy has two clear objectives: (1) Reduce the amount of waste and (2) Increase the proportion of waste that is reused or recycled. The operation, maintenance, and improvement of London Underground generate a large amount of annual waste. This results from our customers' waste, our activities and our PPP suppliers activities.

The main sources of our waste are:

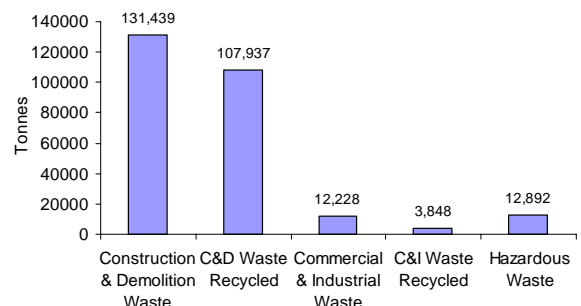
- Customers
- Stations (including offices and maintenance)
- Office buildings
- Depots
- Construction and Demolition activities (associated with station refurbishments, ballast replacement, etc.)

The end process of non-recycled waste is either landfilling or incineration. Landfilling waste is associated with the production of the greenhouse gas methane. Our aim is to reduce the amount of waste sent to landfill from our operations.

Our Key Performance Indicators:

Percentage of Commercial and Industrial Waste Recycled: 31%

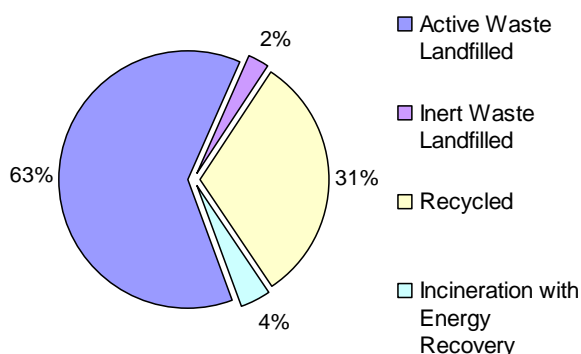
Waste generated and recycled (2006-07)



Recycling and waste management

	2004-05	2005-06	2006-07
Commercial & Industrial Waste (tonnes)	10,147	9,052	12,228
% Commercial & Industrial Waste Recycled	20%	27%	31%
Construction & Demolition Waste (tonnes)	64,332	134,204	131,439
% Construction & Demolition Waste Recycled	87%	85%	82%
Hazardous Waste (tonnes)	247	2,306	12,892

Commercial and industrial (C&I) waste management



Case Study: A million pages of paper

Each year, over 13,000 people attend LU in-house training courses. This year, LU's Operational Learning reprographics team took steps to reduce the amount of paper used during the printing of training course handouts. The team found 45% of our courses could be changed immediately from A4 single sided to A5 booklets which saved over a million pages of paper. The team is now looking at extending this initiative and is aiming to have up to 80% of our course material printed in A5 booklet form.



Case Study: Any Old Iron

Working with the charity Village Underground, Tube Lines have recycled obsolete LU Tube carriages which were no longer required. Rather than be broken into scrap metal and be partly disposed of in landfill, the Tube trains were used to provide creative workspaces and play spaces, to the benefit of both local communities and the environment.



Our performance in 2006-07

Working with our PPP partners, LU has steadily increased the amount of paper recycled in recent years. In 2006-07, 31% of commercial and industrial waste, primarily station and depot waste was recycled, beating our target of 30%.

Paper waste is collected either via dedicated recycling routes or is collected in separate bags from general waste and then separated at a waste transfer station. Both PPP Suppliers support charities with funds raised from recycling paper.

For the first time, this year we have reported on recycling at our head office buildings. Figures show that at these buildings, we recycled 32% of waste collected. Data was available for approximately 67% of our head office buildings during 2006/07. We are establishing processes to improve this information.

In 2006-07 we recycled 82% of construction and demolition waste. This was slightly less than that reported in 2005-06 (85%). The amount of construction and demolition waste generated in 2006-07 was less than that generated in 2005-06.

How we will improve performance

In 2007-08 we hope to recycle at least 35% of all commercial and industrial waste and 90% of construction and demolition waste. We will investigate opportunities where we can improve our recycling capabilities to accomplish this.

We plan to improve monitoring of our head office waste management performance. We, in conjunction with TfL, plan to trial a compost recycling scheme at our head office at 55 Broadway. This will reduce the amount of food waste sent to landfill and, if successful, could be expanded to include other staff restaurants.

In 2007-08 we will:

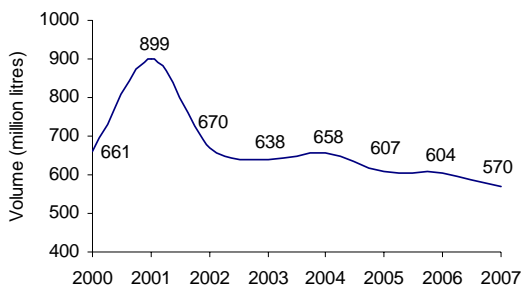
- Expand the range of recycling facilities available to LU employees
- Work with Metronet and Tube Lines to increase the amount of LU customer paper waste which is recycled (Target: recycle 35% of C&I waste)
- Maximise station participation in our station office paper recycling scheme across the network (Target: at least 90% of stations participating)
- Work with Metronet and Tube Lines to increase the amount of LU related construction and demolition waste which is recycled (Target: recycle 90% C&D waste)

Water Consumption

Achievements in 2006-07:

- Reduction in the amount of operational water used from 2005-06

Operational water consumption 2006-07



Case Study: Train washing

Both Tube Lines and Metronet use recycled water at a number of train washes. 70% of the water used to wash trains on the Jubilee line and 65% on the Piccadilly line is recycled. Recycled water is also used at the Metronet train wash in Hainault depot, but use at other Metronet depots has been limited due to limitations of the existing system.

Following the drought in 2006, Tube Lines reviewed the efficiency of their train washes and is looking at ways to further reduce mains water consumption including rain water harvesting at depots.

The serious water shortages experienced in London and the South-East of England during 2006-07 demonstrated the importance of water conservation and the impacts of water scarcity on LU and its operations. Due to two consecutive winters with low rainfall, groundwater levels in the southeast aquifers fell below long term averages, leading to emergency water procedures and restrictions in the region. Although above average rainfall over last winter have helped restore groundwater levels, the effects of climate change and an increased consumer demand for water mean that repeated rainfall and temperature patterns could bring London's water supply levels to critical levels.

Our performance in 2006-07

In 2006-2007, water use at our operational sites decreased by 5.6% compared to the previous year (from 604 million litres to 570 million litres).

Approximately a third of our head office buildings achieved our target of 11 cubic metres (m³) of water per employee per year. Our total head office water consumption per person remained consistent with 2005-06 usage at 16 m³ per employee each year.

How we will improve performance

We consider that there is potential to improve our office water use efficiency and will be increasing our efforts on this next year. We will also be increasing the proportion of drinking water sourced and filtered from mains supply, and decreasing the amount of bottled water and chilled water machines throughout head offices (see Procurement section). Working with TfL Group Property Services, we will target some of our poorer performing buildings with new technology to reduce usage, such as dual flushing and advanced sensors in toilet facilities, where feasible.

In 2007-08 we will:

- Work with TfL Facilities to improve management of water resources in LU offices, including changing drinking water supplies to water directly from the mains

Procurement

Achievements in 2006-07:

- Moved to procurement of locally manufactured recycled A4 and A3 office paper
- Increased the range of recycled office products available for purchase
- Increased spend on recycled products and material
- Limited printer procurement to double-sided capable printers

TfL and LU have adopted the GLA Sustainable Procurement Policy and in March 2006 became signatories to the highest level of the Mayor's Green Procurement Code. This gives a framework for purchasing that ensures wherever possible recycled/reused material are bought and the environmental and social effects of purchases are taken into consideration in procurement activity. Since its implementation we have made a number of steps to promote the purchase of products according to their environmental credentials.

Our performance in 2006-07

Since January 2006, non recycled paper consumption has been gradually phased out. Now only A4 or A3 recycled copier paper can be ordered through our procurement system. As well as delivering savings associated with manufacturing processes and transport emissions, it has been estimated that purchasing recycled paper will save approximately 1,500 trees each year.

Case Study: Environmentally friendly drinking water

As well as a mains water supply, we procure cooled, bottled water which are dispensed in stand alone units across head offices and the LU network. This amounts to 200 bottled units across our head offices. The annual transportation, electricity usage, and bottle production of these units could potentially be responsible for up to 21 tonnes of CO₂ each year. Over the course of the next year LU will reducing the number of bottled water units at head office locations, initially by over 36%, and replace these with the plumbed-in units which draw water from the mains supply. This will present a less environmentally damaging and more sustainable alternative to sourcing of water.

We have changed our procurement system to ensure that all printers purchased are duplex capable. Duplex printers allow printing on both sides of paper which reduces paper use. Over the course of next year we aim to increase the number of "Duplex capable" printers across our network.

Recently, stationery items regularly purchased by TfL were reviewed for their green credentials and alternative green options were selected for the catalogue wherever possible. Our online office products catalogue has also been enhanced to make sure "green options" are easily recognised.

Case Study: Ethically sourced uniforms

As well as the environmental effects, we also considered social aspects during procurement. In January 2007 we became the first public company to join the Ethical Trading Initiative (ETI) which works to improve workers' conditions in factories worldwide. The majority of our staff uniforms are made in factories abroad in countries such as China, Hungary, India, and Sri Lanka, where employment conditions and labour standards may be weakly enforced. Under the ETI all LU clothing suppliers will now have to demonstrate efforts to comply with strict standards to cover health and safety, wages discrimination, and other labour issues.

How we will improve performance

We are always looking for new opportunities to reduce our environmental impact. We will continue to increase the range of environmentally friendly products and materials that are available to our staff and that are incorporated into our infrastructure upgrades.

In 2007-08 we will:

- Replace bottled water units with plumbed-in units
- Work with TfL to improve availability of recycled and "green" office materials



A world class Tube?

We are committed to managing our environmental impact and improving of our environmental performance. We continuously seek ways to evaluate and improve our environmental performance.

We have well established environmental performance monitoring and reporting mechanisms and have produced annual environment reports for a number of years. There are few similar systems in the UK against which we can compare our performance, so in 2007 we

carried out a Community of Metros (CoMET) environmental benchmarking study comparing our monitoring, reporting and performance with twelve other metros from around the world. This included Berlin's BVG, the New York Transit, both the Hong Kong MTRC and KCRC, Metro de Madrid, Singapore SMRT, Glasgow SPT, Rio De Janeiro metro, Sao Paulo metro, Naples' Metronapoli, Milan's ATM and Taipei's TRTC. The study compared 2005 or 2005-06 data from the various metros.

CoMET Environmental Benchmarking study

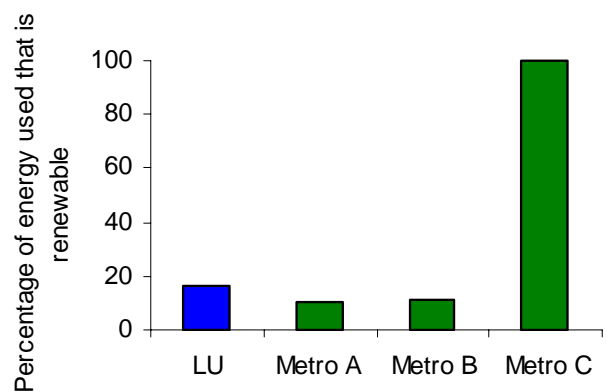
The study looked at a wide range of environmental criteria and had three key objectives:

1. To compare LU's environmental performance monitoring and reporting tools against other metro systems.
2. To benchmark environmental performance of metro systems.
3. To identify where potential existed to improve LU's environmental performance.

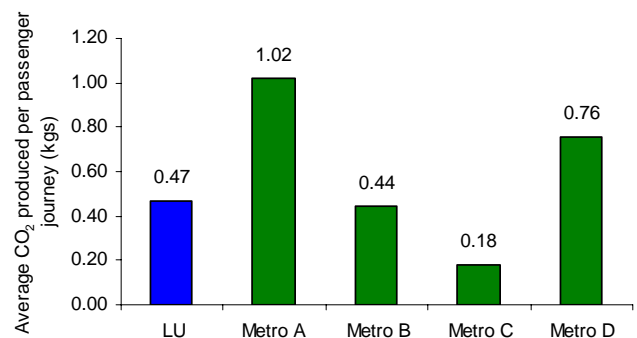
The study concluded that:

- LU's monitoring and reporting system is comprehensive and reflects best practice. Key areas of strength were the monitoring and reporting of energy use, CO₂ emissions and waste management/recycling performance. Just over half of the metro systems which took part in the study report publicly on their environmental performance. LU was one of the few metro systems that reported CO₂ emissions in terms of passenger journeys. We also sourced the second highest proportion of renewable energy (16%) of all the metros which took part in the study.
- LU's construction and demolition waste recycling rate (2005-06: 85%) was significantly higher than that reported by any other metro.
- Our use of recycled water in train washing compared favourably with other metros.
- LU was one of the few metro systems with a specific plan for managing wildlife and habitats on its property.

Proportion of Renewable Energy used by metros



Average CO₂ (g)/passenger km



Potential areas for improvement

The study identified a number of areas where we could improve our environmental performance:

- On-site renewable energy generation: at present, three other metros produce small amounts of energy for their own use.
- Use of energy efficient technology in stations, depots and for traction. Although LU requires our suppliers to provide energy efficient technology where possible, there is potential to improve our energy efficiency across our network.
- Recycling station waste: a number of metros had higher industrial and commercial waste recycling rates than London Underground. This may be due in part to different ways of classifying waste. However, we are exploring opportunities for expanding recycling systems across the network.

Energy efficient technologies employed by LU and other metros:

Stations: Station lighting, cooling systems, automatic variable speed escalators, high efficiency transformers and compressors.

Trains: regenerative braking, power factor correction equipment, train route and timetable optimisation.

Case Study: Recycling water

9 out of 13 metros use recycled water for train washing including LU. A number are also in the process of considering, or have implemented, water collection and re-use systems. This is an area currently being considered for LU operations. Other metros have active rainwater harvesting and grey water recycling programmes in operation. One metro has a specific well built to collect rain water for metro use, while another is currently developing a project to use runoffs from tunnels for watering and industrial washing.

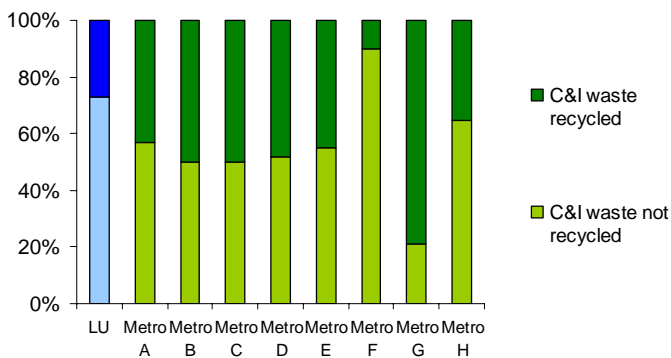
Case Study: Escalators and walkways

New energy saving automatic variable speed escalators and moving walkways have been installed on some metros. One metro system has a process whereby, when no passenger movement is detected, the escalators and moving walkways will be automatically slowed down to about 1/3 of their normal speed. It is estimated about 50% of the power consumption can be saved. Operating hours of escalators, lifts and lighting as well as train frequency have all been optimised.

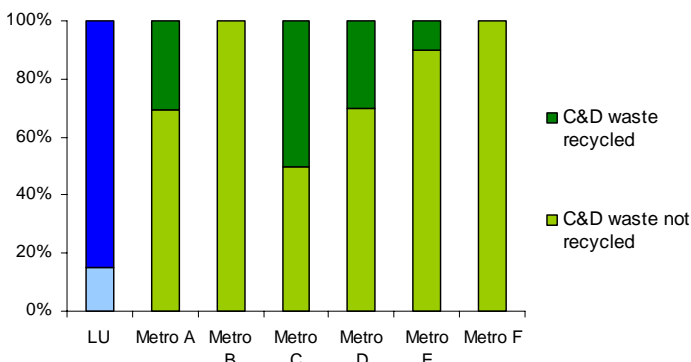
Overall

The CoMET study demonstrated that LU's current environment management and reporting system is both comprehensive and reflects best practice. We identified key strengths but also areas for improvement and we will work to explore opportunities to improve performance in the future.

Commercial and industrial (C&I) waste management



Construction and demolition (C&D) waste management





Our Environmental Management System

We operate a well developed Health, Safety, and Environmental Management System (HSEMS) to ensure that our environmental impacts and performance are both controlled and managed. At the heart of the environmental element of the HSEMS is our HSE Policy. The HSEMS system is regularly reviewed to take into account changes in business activities, responsibilities, and legislation. Our PPP Suppliers are also accredited to ISO 140001.

Achievements in 2006-07:

- Implementation of new HSE policy
- Updated environmental standards as part of the 3-yearly review of HSEMS
- Introduced new performance reporting systems

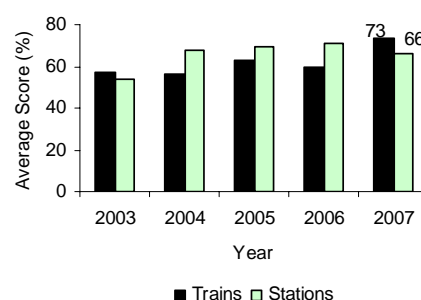
What we did in 2006-07

During 2006-07 we delivered actions which had been identified during the recent review of HSEMS. This included publishing a new Health, Safety and Environment Policy which replaced our Environment and Energy policy. The aims to deliver greater alignment with the TfL HSE Policy and demonstrates our commitment to managing our risks effectively and continuing to improve our environmental performance.

We also implemented new quarterly and annual reporting systems which improves the quality of data we receive from within our business, from our PPP Suppliers and others. This gives a clear communication of LU's environmental priorities and means that detailed information on our environmental impacts will be more readily accessible.

We have standards on the ambience aspect of our service, establishing requirements for the cleanliness of stations and trains, levels of litter, and levels of graffiti. We carry out internal audits of the environmental performance of our stations and trains to see that these standards are met.

Trains and stations audit scores



We reviewed a number of our environment standards, including those related to managing the local environment and how we assess and manage environmental aspects and risks.

The average environmental score for our train audits also rose from 2005-06. However, there was a slight drop in the overall station environmental audit score.

How we plan to improve performance

Good environmental performance relies on an understanding of the environmental implications of our operations and projects being built into our business. This allows us to ensure that issues are identified at an early stage and we can plan how to eliminate the issue or manage it appropriately.

We recognise that we can only deliver this by giving our staff the necessary skills so that they can contribute to good environmental performance for LU. These skills range from awareness of environmental issues at a project development stage to awareness of the role that each person can play in their day-to-day job.

In 2007-08 we will:

- Further embed environmental issues in our project planning system, particularly investment in projects outside the PPP contract
- Develop and implement targeted environmental communications plan to LU staff aimed reducing energy, improving resource use and managing waste

Health, Safety & Environment Policy



The TfL Board, Commissioner and Managing Directors are committed to having health, safety and environmental (HSE) performance that we can be proud of.

By implementing this policy through HSE management systems, we shall:

Plan improvements in HSE management by:

- Complying with the spirit and the letter of HSE legislation, Approved Codes of Practice, internal HSE management systems and external HSE standards.
- Ensuring the risks to the health and safety of employees, customers, contractors and 3rd parties are systematically managed to as low as is reasonably practicable.
- Setting progressive objectives and targets to improve HSE management and performance in keeping with stakeholder expectations and Mayoral strategies.
- Taking due account of HSE risks and benefits in decision-making and as an integral part of the business planning process including procurement and major projects.
- Striving to realise environmental benefits, in addition to pollution prevention, with a focus on managing emissions and mitigating the effects of, and adapting to climate change.
- Actively supporting the Mayor in delivering the environmental strategies on air quality, ambient noise, biodiversity, energy and municipal waste.

Implement and operate effective risk control systems by:

- Ensuring employees have the competence and resources to discharge their personal responsibilities for HSE matters and encouraging a positive HSE culture.
- Providing employees with access to services to promote health and wellbeing.
- Providing premises, plant and equipment and systems of work that contribute to a safe and healthy work place and minimise harm to the environment.
- Securing the commitment and involvement of our employees in improving HSE management through effective communication and consultation mechanisms.
- Ensuring arrangements with contractors promote and actively support the implementation of this policy.
- Planning for foreseeable emergency conditions to ensure effective risk controls and resilience arrangements are in place.

Monitor HSE performance, taking corrective action where required by:

- Monitoring HSE management system indicators to improve performance.
- Ensuring that root causes are identified in the investigation of incidents.
- Effective auditing arrangements are in place to provide assurance and to identify and ensure appropriate corrective action where required.

Undertake regular management reviews:

- Regularly review the suitability and effectiveness of HSE management, including this policy, and undertake improvement action where appropriate.

This policy shall be communicated to all employees and be publicly available.

Managing Director London Underground

File ref: health_and_safety.pdf

LU Owner: SQE

Policy No: 1-01102-001

MAYOR OF LONDON

Effective Date January 2007; Amended: January 2007

LU Custodian: SQE Risk and Systems Manager

Issue No: A2

Our Environment Scorecard

	2003-04	2004-05	2005-06	2006-07
Total electricity consumed (GWh) ¹	1,087	1,148	1,144	1,139
Total renewable energy (GWh) ²	154	175	176	184
Percentage of renewable energy ²	14.2%	17.9%	15.4%	16.1%
Total CO ₂ produced (tonnes) ³	410,394	414,719	431,280	522,836
CO ₂ emissions per passenger kilometre (grams/km)	55.9	54.5	56.3	68.9
Commercial & Industrial Waste (tonnes)	9,210	10,147	9,052	11,691
Commercial & Industrial Waste Recycled (tonnes)	1,105	2,029	2,421	3,680
Percentage of Commercial & Industrial waste recycled	12%	20%	27%	32%
Construction & Demolition Waste (tonnes)	n/a	64,332	134,204	131,439
Construction & Demolition Waste Recycled (tonnes)	n/a	55,969	114,505	107,937
Percentage of Construction and Demolition waste recycled	n/a	87%	85%	82%
Hazardous Waste (tonnes)	n/a	247	2,306	12,892
Major environmental incidents	n/a	n/a	0	0
Total environmental incidents	373	238	523	432
Total environmental complaints	n/a	897	886	857
Noise and vibration related complaints	280	488	473	428
Proportion of track continuously welded	n/a	n/a	11%	24%
Area where biodiversity surveys conducted	100%	100%	100%	100%
Station Cleanliness (MSS Score) (Top possible score = 100)	70	67	67	70
Train Cleanliness (MSS Score) (Top possible score = 100)	63	64	66	67
Graffiti LU Trains (MSS Score) (Top possible score = 100)	64	70	72	74
Graffiti LU Stations (MSS Score) (Top possible score = 100)	81	77	78	81
Environmental Audit Score - Trains	56	63	60	73
Environmental Audit Score - Stations	68	69	71	66
Volume of water consumed (million litres) ⁴	658	635	604	570
Water consumed at offices (m ³ per employee)	14	18	16	16

¹ In 2005-06 the total electricity consumed was 1,144 GWh as opposed to the previously reported figure of 1,173 GWh. An incorrectly high figure for 2005-06 non-half hourly metered electricity usage was reported in our 2006 Environment Report. This has now been reassessed and verified.

² Last year's Environment Report reported that 16.8% of LU's electricity supply was sourced from renewable sources. Further validation of last year's data has determined that the true proportion was 15.4%. This amounts to 176 GWh of renewable energy procured in 2005-06, as opposed to the previously reported figure of 197 GWh. This year's figure includes electricity used to power head office buildings – all of which is sourced from renewable sources.

³ LU 2006-07 CO₂ emissions as a result of electricity use were calculated using a conversion factor of 0.523 CO₂/kWh. LU 2005-06 CO₂ emissions as a result of electricity use were calculated using a conversion factor of 0.43 g CO₂/kWh in line with Government guidelines (June 2007).

⁴ Water usage reported in our 2006 Environment Report has been found to be incorrectly high after utility bills were reconsolidated. Therefore the 2005-06 figure has been adjusted from 634 million litres to 604 million litres. Figure for 2006-07 may also change during verification of data during billing process.

Acronyms

BAP	Biodiversity Action Plan
CO ₂	Carbon dioxide
CoMET	Community of Metros
CSS	Customer Satisfaction Surveys
Defra	Department for Environment, Food and Rural Affairs
EMS	Environmental Management System
ETI	Ethical Trading Initiative
GIGL	Greenspace Information for Greater London
GLA	Greater London Authority
GPS	Global Positioning System
HSE	Health, Safety and Environment
HSEMS	Health, Safety and Environmental Management Systems
IPCC	Intergovernmental Panel on Climate Change
KPI	Key Performance Indicator
LBP	London Biodiversity Partnership
LCCP	London Climate Change Partnership
LU	London Underground
MSS	Mystery Shoppers Survey
NO _x	Nitrogen oxides
PA	Public Address
PM ₁₀	Particulate matter measuring 10µm or less
PPP	Public Private Partnership
QUENSH	Quality, Environmental, Safety and Health
SO _x	Sulphur oxides
TfL	Transport for London

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