



Public Health  
England

Protecting and improving the nation's health

# Sustainability in Public Health England 2016

# About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. It does this through world-class science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. PHE is an operationally autonomous executive agency of the Department of Health.

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Published October 2016

PHE publications gateway number: 2016325

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## Foreword

I am very pleased to introduce PHE's third annual report on sustainability, describing the work that PHE has undertaken over the last year.

We continue to make gains in reducing our carbon impact across the PHE estate, with a number of projects helping to reduce our gas and electricity usage. There has been an increase in the amount of sub-metering being installed at our larger sites, allowing the site teams to identify excess energy usage and introduce further reduction measures.

Our business travel has risen over the last year and continues to be an area where we need to focus our attention; to address this we have upgraded our videoconferencing facilities across the estate and are rolling out a new commercial version of Skype™ which is replacing the Lync system we currently use. It is hoped that this new technology, which is available for all staff, will help reduce our need to travel for face-to-face meetings.

When we must travel on business, we will use public transport wherever possible, rather than our own cars. We continue to encourage staff to cycle and walk to work, where practical, through a number of health and wellbeing initiatives. This work helps staff understand the associated health benefits that this activity can bring.

Our work continues to provide the scientific evidence on the health impacts of climate change and extreme events, for local and national government. Providing local authorities with data on how to improve their housing stock so that it can be retrofitted to make it warmer in the winter months and cooler in summer is just one aspect of this work. This work is known to have helped save lives, providing vital health advice to those who are most in need. We also continue to advise other countries on the health impacts of devastating natural disasters.

We have an active sustainable development communication programme, with a number of guidance documents being written to help improve the sustainability of PHE and the wider health system. Also, in the last year we have produced a blogosphere for staff where we aim to share the benefits from a healthy environment.

**Prof Paul Cosford C.B.**

PHE Executive Lead for Sustainability

## Executive summary

This is PHE's third year of operation and sustainability has continued to be an important part of our work going forward. Our Sustainable Development Management Plan continues to help embed sustainability into the organisation's policies and strategy and will further develop over time.

We believe it is important to lead by example and this report gives an in-depth analysis of our carbon footprint – particularly in relation to the use of energy and water, the production and management of waste and the business travel we undertake. It also highlights the progress we are making on sustainability internally, with some of our partner organisations, and by some of our specialist teams.

Our total carbon emissions for 2015/16, inclusive of business travel and water usage, were 24,963 tCO<sub>2</sub>e, compared with 26,274 tCO<sub>2</sub>e for 2013/14. This represents a reduction of almost 5% on the baseline year and a 2.6% reduction on the 2014/15 figure. PHE's carbon footprint comprises scope one, two and three carbon emissions, as defined by government. It comprises data relating to our reportable (owned) estate and our non-reportable sites (that is, those facilities where PHE is a tenant and emissions are reported separately by a landlord). In April 2015, the PHE's Porton site saw a major change, with its manufacturing infrastructure being separated as a new government enterprise, Porton Biopharma Limited (PBL). PBL is a company wholly owned by the Secretary of State for Health. PHE will cease to report data for PBL in future but for completeness this year, its 2015/16 carbon emissions have been included as non-reportable data.

We continue to report on our carbon emissions to the Department of Health on a quarterly basis, in line with the Greening Government Commitment. We have also introduced an interactive dashboard which allows members of staff to access quarterly sustainability data for business travel, utility usage (electricity, gas and water), total waste produced and training. This dashboard has been very effective in keeping staff informed about carbon emissions, as well as the associated financial cost to the organisation.

The reportable usage of water for the whole estate was 114,318 m<sup>3</sup>, with a further estimated 95,636 m<sup>3</sup> being used by our non-reportable sites. For our reportable sites, this represents a 36% reduction in consumption from last year and a 34% reduction on our baseline year, in part, due to PBL now being included as a non-reportable facility. PHE-owned sites continue to have a mixture of office and non-office facilities making it difficult to differentiate their water usage into any meaningful datasets.

PHE has set a total waste reduction target of 2% annually to March 2020, in line with the Greening Government initiative. Analysis indicates that PHE's total waste figure for 2015/16 was 830 tonnes, a 21% reduction in total waste compared with 2014/15 and a 12% decrease on the baseline figure.

A number of initiatives have been introduced to reduce waste at all PHE locations, covering both offices and laboratories. Contractors working at PHE sites are regularly reminded about their obligation to reduce their waste wherever possible, in line with PHE's waste policy and its associated management arrangements.

Non-hazardous waste sent to landfill decreased by 16 tonnes over the year. This is a 20% reduction compared with last year's figures.

Due to the nature of the work carried out at a number of our sites, a significant quantity of hazardous waste is produced and the majority of such waste was sent for incineration in compliance with government guidelines. Various controls have been put in place to manage this and we have reduced the hazardous waste sent to landfill in 2015/16 by 20 tonnes compared with 2014/15 and by four tonnes compared with the baseline year.

The contractor CDL has been engaged to recycle and reuse, wherever possible, all redundant ICT equipment. ICT waste is collected and disposed of at no cost to PHE, mostly as part of our government contract with CDL. This approach continues to be an effective method of disposal for this waste stream, which is supported by government policy. A total of 13 tonnes of ICT waste has been processed in this manner in the last financial year.

In 2015/16, PHE used 26,353 reams of A4 paper, a reduction of 2.7% on the previous year's figure.

In order to facilitate a comparison of travel emissions across the various parts of the organisation, PHE uses the measure of tCO<sub>2</sub>e per whole time equivalent (wte) staff. The key changes to our travel footprint compared with last year were:

- emissions per wte from UK (domestic) flights are up by 73.7%
- emissions per wte from international flights are up by 72.9%
- emissions per wte train use per wte are up by 10.13%
- emissions per wte from personal car use are down by 22.32%
- emissions per wte from taxi use are down by 2.84%
- emissions (tCO<sub>2</sub>e) from use of PHE owned/leased vehicles are down by 34%

We accept that our members of staff sometimes need to travel to deliver the business objectives of the organisation. However, to meet our travel commitments,

members of staff are encouraged to travel only when necessary and, when they must travel, to use the most sustainable modes of transport. This has led to a reduction in members of staff using their own vehicles, with an increase in the use of more sustainable public transport such as the train. Despite this, business travel rose by 14% during 2015/16. There was a significant increase in the amount of travel internationally last year, partly due to the continued PHE response to the Ebola crisis in West Africa, but also PHE's commitments to provide public health advice to other government organisations.

PHE's drive to reduce travel to meetings was supported by the installation of Microsoft Lync on all corporate laptops to encourage more video conferencing. The organisation recognises that less business travel will benefit public health by preventing air pollution, support PHE's plans to reduce carbon and save money.

Sustainability is an important factor in our purchases. Our procurement category managers ensure that all of our tender documents contain relevant questions to confirm that the successful suppliers adhere to given environmental and sustainability standards.

To help staff understand their obligations concerning sustainability and the importance of reducing our carbon impact, we continue to promote our sustainability e-learning training course. This training is mandatory, with a refresh every three years. In the last year, over 1,250 members of staff undertook the training.

A sustainable health system recognises that unhealthy behaviours can cause more damage to the environment than healthier ones. Driving versus walking or cycling, eating carbon-intensive processed foods and cold homes can all have adverse health effects. We work with other health-related bodies to inform the community about effective, practical actions that can be taken on a range of social determinants of health that are relevant to sustainability.

# Introduction

## PHE's ambition on sustainability and climate change

The health and wellbeing of the public, now and in the future, depends on us living within limits and developing all sustainable assets – environmentally, economically and socially. This includes the natural and built environment, public spaces, transport, physical activity, diet and food supply. This also extends to energy, education, employment, diversity, social capital and community resilience – all of which are fundamental to health and wellbeing. Addressing our unsustainable patterns of living offers a wide range of benefits, from operating within safe financial and environmental limits to developing life-saving resilience and life-enhancing assets.

Achieving our goals in sustainable and low carbon ways is critical to turning the biggest strategic health threat we face into the greatest opportunity for collective action and health improvement. This is why in the last year PHE established its Sustainability and Climate Change Programme Board. There are big challenges, as well as opportunities, in addressing these issues but there are some areas where PHE can play a very distinctive role, for example providing scientific expertise, leadership for local public health systems and as an exemplar employer.

Our future physical and mental health, as individuals and as communities, depends on embedding mitigation, adaptation, and the principles of sustainable development into all that PHE does. There is clear and widely accepted evidence that inaction is not an option; the legal and implementation frameworks are becoming aligned;<sup>1</sup> a national cross system strategy exists;<sup>2</sup> the multiple benefits for health are significant; and time is running out.

No one part of PHE has the capacity or the expertise to deliver this alone. However, co-ordination across PHE will make it a leading organisation on the local, national, and global stage in advocating, aligning, and implementing the social, economic, environmental, legal and cultural conditions for good health.

There are many such opportunities for PHE to fulfil this role; from the way we do business, to our role in co-ordinating science, policy, actions and advocacy:

- by reducing risks and vulnerability (eg extreme events and disaster reduction, improved air quality, safer roads, reduced emissions, smarter ways of preventing the preventable)



- by improving resilience and developing sustainable assets (eg education, good housing, life-enhancing public spaces, empowered communities and people, vibrant cultures)
- by ensuring safe, sustainable, and resilient public health and care services (eg transformative models of prevention and care, where every opportunity, plan, policy, and contact contributes to healthy lives, healthy communities and healthy environments – now and in the future)

PHE has an important role in all three areas to research and publish the evidence base and monitor progress through its scientific and information functions. However, ensuring all such opportunities are exploited and all progress is monitored, depends on well-led and clear co-ordination. An effective Programme Board is well placed to deliver these roles efficiently through well-governed and well-communicated processes. PHE is making progress in getting its own house in order with clearer and well-monitored corporate policies. Members of staff are committed to making the very best use of available resources, and a well-consulted national cross system strategy and group exist for the entire health and care system of which PHE is a leading member.

PHE is committed to sustainable development in all its activities, as illustrated above. Our Sustainable Development Management Plan sets out the organisation's aims for future work to help it to operate in more sustainable ways.

PHE continues to embed sustainability into its contracts which has helped to highlight risks to the organisation arising from its procurement activities. PHE also continues to utilise the tools developed by the Government Procurement Service, ensuring we maintain a robust approach to sustainability throughout the supply chain.

PHE engages its staff through its mandatory sustainable development e-learning programme. This training provides staff with a good understanding of sustainable development and encourages them to act in a sustainable manner, taking account of their impact on the environment.

This report illustrates the work that PHE has undertaken on sustainable development over the last year. It includes details of our ongoing commitment to reduce our carbon footprint as well as other activities where sustainability is a key driver, such as climate change and extreme events.

As this is our third year of operation, we are able to compare our carbon performance across scope one, two and three emission sources from last year and our baseline year of 2013/14. This allows us to focus on areas where our energy use or other carbon emissions may have changed and identify where improvements can be made.

We continue to report our carbon emissions to the Department of Health on a quarterly basis, in line with the GGC.

Department for Environment, Food and Rural Affairs (Defra) has indicated that new GGC targets will be in place shortly and these will be set until 2020. It is envisaged that some of the target areas will remain in place, while others may be more challenging. When the new targets have been approved by ministers and issued to government departments, PHE will undertake a review of its current position and put measures in place to respond to any forthcoming targets.

# Our carbon footprint

PHE has set a target to reduce its carbon emissions by 3% annually for the period to March 2020, compared to a baseline year of 2013/14, which is in line with the GGC.

To achieve this, PHE has agreed a number of carbon-related reduction targets for its estate, which include utility use, business travel, water consumption and total waste. During 2015/16, several capital projects were undertaken to help us meet our reduction targets and where possible exceed them. These projects will be highlighted in more detail later in this report.

We are pleased to report another year where we have seen our overall carbon footprint fall. Our total reportable carbon emissions, inclusive of business travel and water use, for 2015/16 were 24,967 tCO<sub>2</sub>e, compared with 26,274 tCO<sub>2</sub>e for 2013/14. This represents a reduction of 4.98% on the baseline year and a 2.59% reduction on the 2014/15 figure of 25,896 tCO<sub>2</sub>e.

This figure includes the carbon emissions from business travel as well as water usage from PHE's reportable and non-reportable sites. (Non-reportable sites are those offices or laboratories that are being reported separately by the premises' landlord.)

In April 2015, the PHE's Porton site in Wiltshire saw a major change, with its manufacturing infrastructure being separated as a new government enterprise, Porton Biopharma Limited (PBL). PBL is a company wholly owned by the Secretary of State for Health. PHE will cease to report data for PBL in future but for completeness this year, its 2015/16 carbon emissions have been included as non-reportable data.

PHE owns six of its premises and has a direct relationship with the utility provider at a further six. It also has shared facilities embedded in government-owned property (including hospitals) and in other tenanted accommodation. There is no direct relationship with the utility provider in these premises and no sub-metering has been undertaken. To avoid double accounting of carbon emissions from these properties, they have been identified separately for reporting purposes. PHE has no properties within SSSI or AONB boundaries.

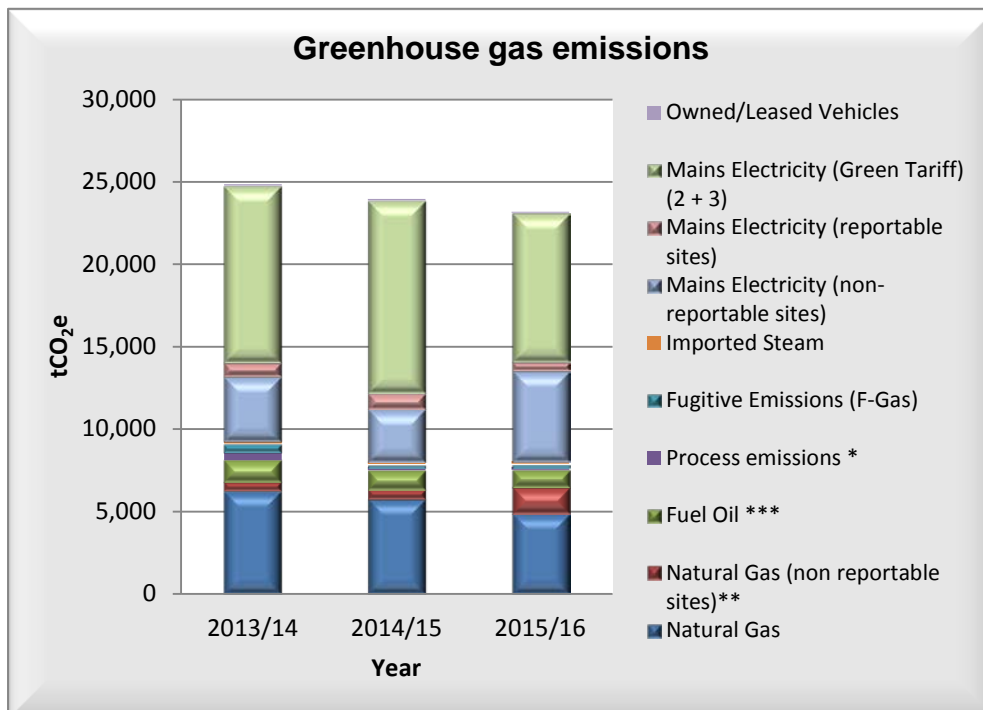
## Greenhouse gas emissions

The major impact on the environment from PHE's activities continues to come from electricity and gas consumption at its main sites at Colindale, Porton and Chilton. PHE reports its greenhouse gas emissions on a quarterly basis to the Department of Health which correlates data from all of its arms-length bodies and executive agencies, in line with the GGC guidelines.

GGC reporting requires PHE to report its scope one, two and three emissions for its owned estate only, as it is assumed that other parts of the estate where PHE has a presence are already reporting to their sponsoring body. This is to prevent double accounting of the data. Waste water is not reported under the GGC requirements.

In Q4 of last year, two large Photo Voltaic (PV) projects were completed at our Porton and Colindale sites. Early indications of the savings, both financial and in terms of carbon footprint reduction, have been very favourable and PHE expects to make significant savings in the future. While the financial payback is estimated to be approximately nine years, the carbon savings are immediate.

Our total greenhouse gas emissions are summarised below – this data includes both reportable and non-reportable sites.



\* Process emissions from Porton Incinerator Waste

\*\* Porton Biopharma Limited included from 2015/16 as breakdown of data from main site is an estimate

\*\*\* Fuel oil only calculated for reportable sites

GREENHOUSE GAS EMISSIONS		2013/14	2014/15	2015/16
SCOPE 1 + 2				
Non-financial indicators (tCO <sub>2</sub> )	Natural gas	6,229	5,757	4,873
	Natural gas (non-reportable sites)*	577	603	1,572
	Fuel oil**	1,290	1,131	1,026
	Process emissions***	342	362	365
	Fugitive emissions (F-Gas)	504	192	184
	Imported steam	161	140	150
	Mains electricity (non-reportable sites)*	3,924	3,215	5,503
	Mains electricity (reportable sites)	847	966	544
	Mains electricity (green tariff) (2 + 3)	10,723	11,670	9,028
	Owned/leased vehicles	92	88	58
Related energy consumption (kWh)	Natural gas	34,087,464	31,122,541	26,418,276
	Natural gas (non-reportable sites)*	3,133,382	3,301,240	8,811,147
	Fuel oil**	4,747,646	5,758,424	1,328,909
	Process emissions***	1,858,695	1,967,390	1,983,696
	Imported steam	874,444	756,667	812,223
	Electricity (non-reportable sites)*	7,790,559	5,768,624	10,663,221
	Electricity (reportable sites non green tariff)	2,075,589	2,010,903	1,086,342
	Electricity (green tariff)	22,174,537	21,712,905	18,043,598
<b>Related consumption (kg) Fugitive emissions (F-Gas)</b>		<b>504,038</b>	<b>192,424</b>	<b>184,186</b>
<b>Related Scope 1 travel (km) Owned/leased vehicles</b>		<b>433,108</b>	<b>442,976</b>	<b>301,851</b>
Financial indicators (£)	Natural gas	1,353,637	1,332,346	1,043,937
	Fuel oil***	326,155	305,699	63,309
	Owned/lease vehicles (fuel/i-expenses)	18,551	18,271	19,923
	Fugitive emissions (F-Gas)****	32,682	2,669	58,407
	Imported steam	70,124	51,057	17,115
	Mains electricity (reportable)	2,576,149	2,642,677	1,986,886
<b>Total Emissions Scope 1 + 2 (tCO<sub>2</sub>)</b>		<b>20,188</b>	<b>20,305</b>	<b>16,225</b>
<b>Total gross emissions from non-reportable sites Scope 1 + 2 (tCO<sub>2</sub>)</b>		<b>4,501</b>	<b>3,818</b>	<b>7,122</b>

\* Porton Biopharma Limited included for 2015/16, as breakdown of data is an estimate

\*\* Fuel oil only calculated for reportable sites

\*\*\* Process emissions from the Porton incinerator waste (kWh x 0.184 conversion factor)

\*\*\*\* F-Gas costs from PHE's major owned sites are absorbed as part of the service contract

## Energy consumption

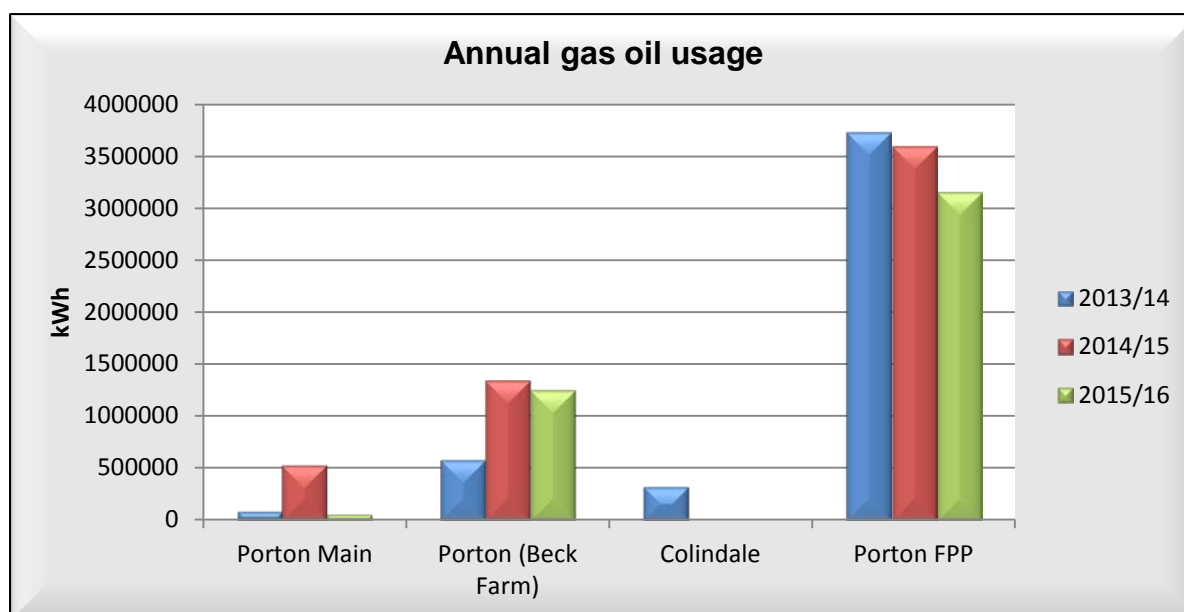
PHE's energy consumption for 2015/16 for our reportable and non-reportable estate, is given below.

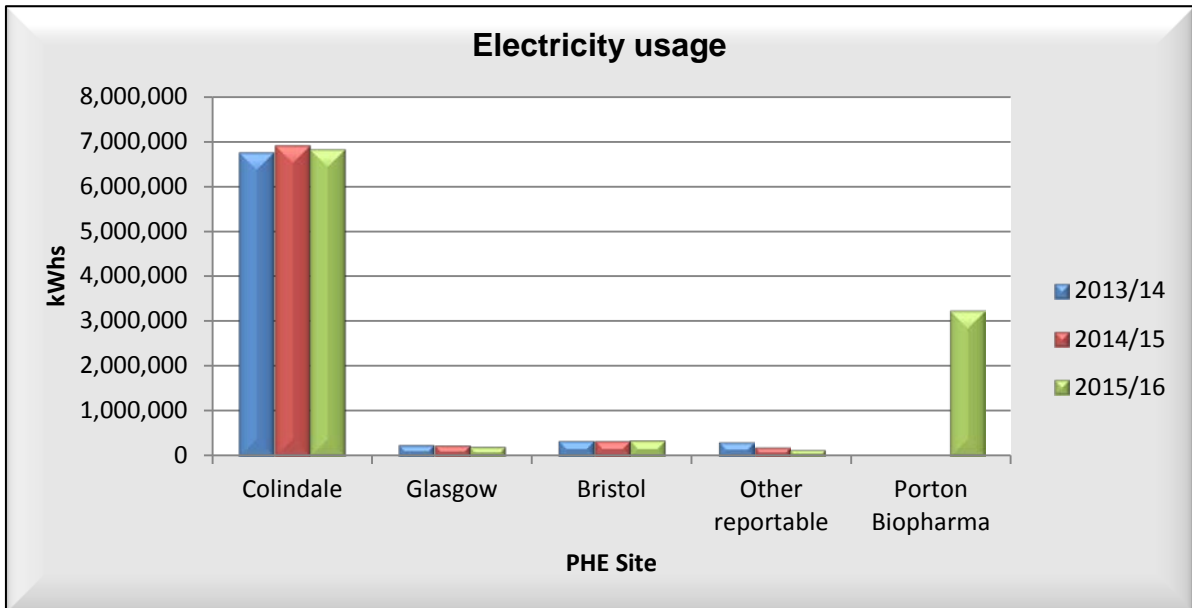
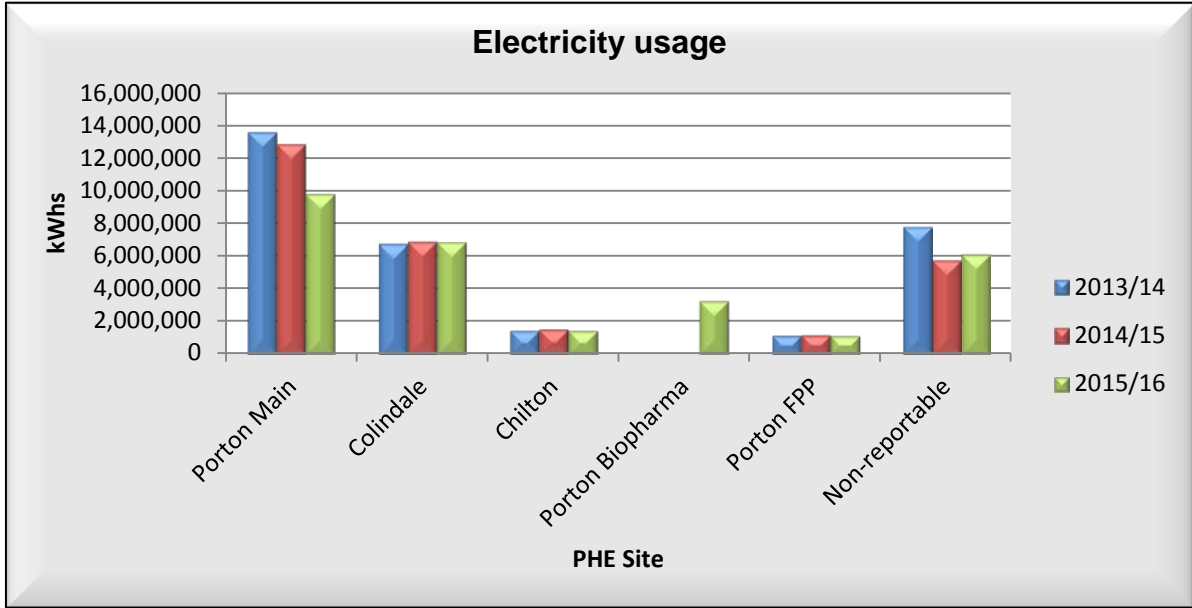
kWh	Electricity	Natural Gas	Gas Oil
<b>Porton Main</b>	9,758,329	15,682,978	56,541
<b>Porton (Beck Farm)</b>	260,100	0	1,258,076
<b>Colindale</b>	6,843,742	8,322,246	
<b>Chilton</b>	1,441,527	1,916,288	655
<b>Leeds</b>	95,659	166,023	
<b>Glasgow</b>	218,718	270,617	
<b>Bristol</b>	359,735	0	
<b>Other reportable*</b>	152,130	39,146	
<b>Porton Biopharma**</b>	3,252,776	5,227,660	
<b>Porton Biopharma FPP**</b>	1,120,916	18,031	3,160,245
<b>Non-reportable</b>	6,101,843	3,528,812	
<b>Total</b>	<b>29,605,474</b>	<b>35,208,445</b>	<b>4,475,517</b>

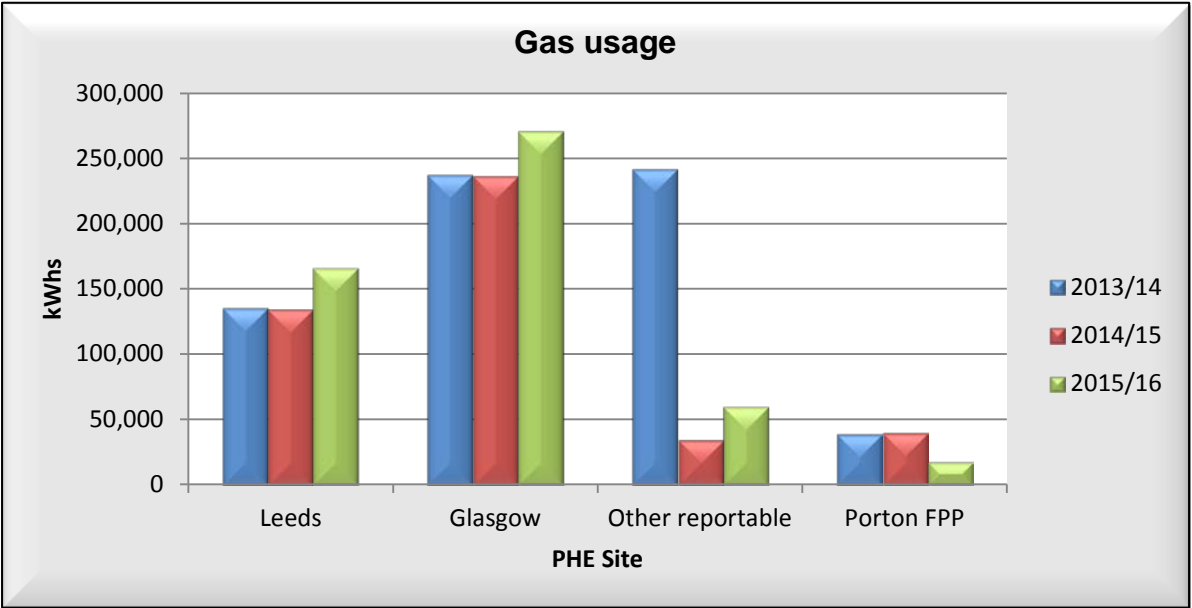
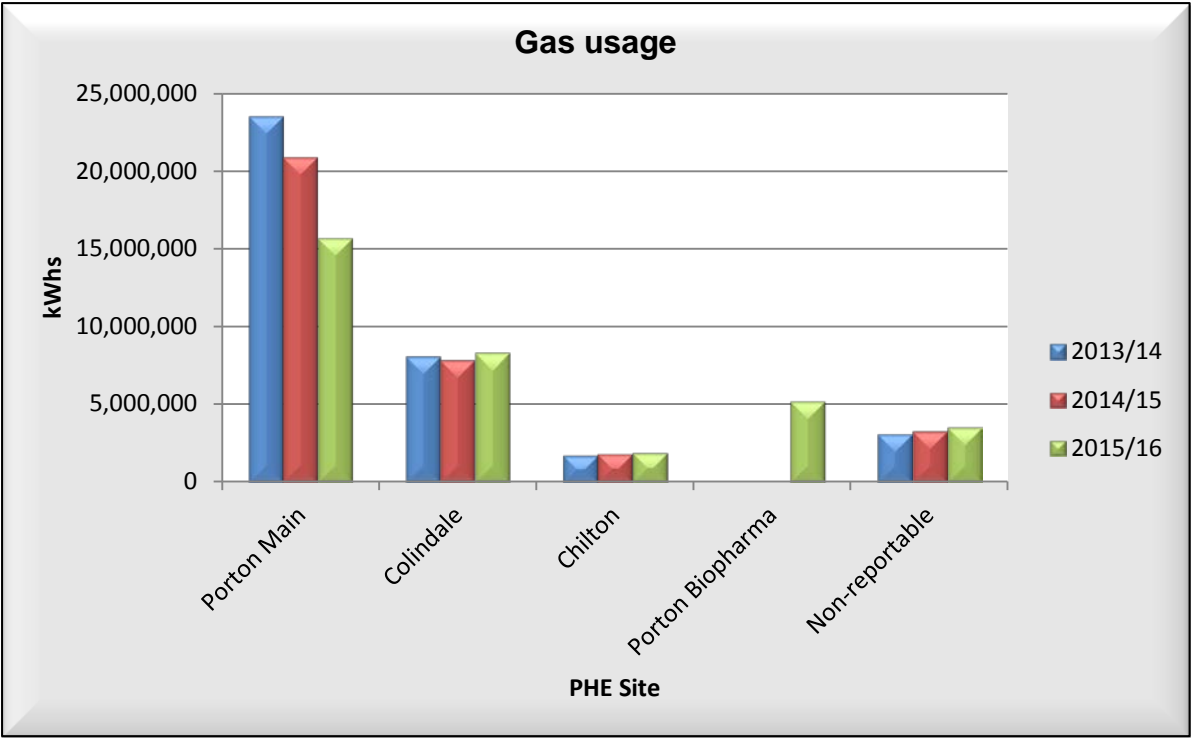
\*Other reportable sites are those that we occupy and pay directly to the utility provider for services.

\*\* These sites make up Porton Biopharma Limited (PBL) which separated from PHE in April 2015

The following graphs illustrate utility usage over the last three years .









## Carbon emissions: Chief Operating Officer directorate

Chief Operating Officer directorate		Porton (Main)	Porton (PBL)	Porton (FPP)	Beck Farm	Colindale
Emissions	Emissions Source	tCO <sub>2</sub> e	tCO <sub>2</sub> e	tCO <sub>2</sub> e	tCO <sub>2</sub> e	tCO <sub>2</sub> e
Emissions from our properties and the operations carried out therein	Natural gas	2893.000	964.000	3.300	0.000	1535.000
	Gas oil	5.300	0.000	776.000	244.000	0.000
	Emissions from electricity use	4883.000	1628.000	561.000	130.000	3424.000
	Emissions from import of heat or steam	0.000	0.000	0.000	0.000	0.000
	Process emissions (refrigeration)	32.700	1.040	0.000	0.000	135.300
	Water supply	23.780	7.93**	14.730	0.430	12.360
	Water (waste)*	45.960	15.500	0.820	0.840	24.730
	<b>Sub total</b>	<b>7883.740</b>	<b>2608.540</b>	<b>1355.850</b>	<b>375.270</b>	<b>5131.390</b>

\*Waste water is not reported as part of our Greening Government Commitment

\*\* Water supplied to Porton's PBL facilities is currently estimated from the main Porton site

Chief Operating Officer directorate		Exeter	Fareham	Letchworth	Sheffield	Other <sup>1</sup>	Wellington House	Total
Emissions	Emissions Source	tCO <sub>2</sub> e	tCO <sub>2</sub> e	tCO <sub>2</sub> e	tCO <sub>2</sub> e	tCO <sub>2</sub> e	tCO <sub>2</sub> e	tCO <sub>2</sub> e
Emissions from our properties and the operations carried out therein	Natural gas	4.200	0.000	20.900	0.000	411.330	38.100	5863.030
	Gas oil	0.000	0.000	0.000	0.000	0.000	0.000	1025.300
	Emissions from electricity use	7.850	17.790	18.780	6.018	1807.310	206.800	12746.548
	Emissions from import of heat or steam	0.000	0.000	0.000	0.000	0.000	0.000	150.000
	Process emissions (refrigeration)	0.000	0.000	0.000	0.000	0.000	0.000	169.040
	Water supply	0.030	0.020	0.030	0.016	4.650	0.490	56.686
	Water (waste)*	0.062	0.041	0.051	0.031	9.097	0.950	98.382
	<b>Sub Total</b>	<b>12.142</b>	<b>17.851</b>	<b>39.761</b>	<b>6.065</b>	<b>2232.889</b>	<b>246.340</b>	<b>20108.906</b>

\*Waste water is not reported as part of our Greening Government Commitment

## Carbon emissions: Chief Knowledge Officer and Health & Wellbeing directorates

		Chief Knowledge Officer				Total	Health and Wellbeing			Total
		Oxford	Salisbury	York	Other <sup>3</sup>		Battle	Skipton House	Other	
Emissions Type	Emissions Source	tCO <sub>2</sub> e	tCO <sub>2</sub> e	tCO <sub>2</sub> e	tCO <sub>2</sub> e	tCO <sub>2</sub> e	tCO <sub>2</sub> e	tCO <sub>2</sub> e	tCO <sub>2</sub> e	tCO <sub>2</sub> e
Emissions from our properties and the operations carried out therein	Natural gas	0.000	6.600	3.400	41.220	51.22	0.000	61.08	49.100	110.180
	Gas oil	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Emissions from electricity use	20.740	23.820	12.170	147.560	204.29	4.950	391.200	175.500	571.650
	Emissions from import of heat or steam	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Process emissions (refrigeration)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Water supply	0.070	0.040	0.048	0.270	0.428	0.020	0.180	0.430	0.630
	Water (waste)*	0.145	0.079	0.093	0.535	0.852	0.031	0.352	0.832	1.215
	<b>Sub Total</b>	<b>20.955</b>	<b>30.539</b>	<b>15.711</b>	<b>189.585</b>	<b>256.79</b>	<b>5.001</b>	<b>399.182</b>	<b>225.862</b>	<b>940.465</b>

\*Waste water is not reported as part of our Greening Government Commitment

## Carbon emissions: Health Protection & Medical directorate

Health Protection & Medical directorate		Chilton	Glasgow	Leeds	Other <sup>2</sup>	Total
Emissions	Emissions Source	tCO <sub>2</sub> e	tCO <sub>2</sub> e	tCO <sub>2</sub> e	tCO <sub>2</sub> e	tCO <sub>2</sub> e
Emissions from our properties and the operations carried out therein	Natural gas	353.500	49.900	30.600	14.640	448.640
	Gas oil	0.100	0.000	0.000	0.000	0.100
	Emissions from electricity use	721.300	109.400	47.900	52.390	930.990
	Emissions from import of heat or steam	0.000	0.000	0.000	0.000	0.000
	Process emissions (refrigeration)	0.000	0.000	0.000	0.000	0.000
	Water supply	1.670	0.140	0.150	0.030	1.990
	Water (waste)*	3.430	0.270	0.300	0.050	4.050
	<b>Sub Total</b>	<b>1080.000</b>	<b>159.710</b>	<b>78.950</b>	<b>67.110</b>	<b>1385.770</b>

\*Waste water is not reported as part of our Greening Government Commitment

## Water consumption

PHE has set a target to reduce its water consumption by 2% annually to 2020, in line with the government's Greening Government initiative. The reportable usage of water for the whole estate was 114,318 m<sup>3</sup>, with a further estimated 95,636 m<sup>3</sup> being used by our non-reportable sites. For our reportable sites, this represents a 36% reduction in consumption from last year and a 34% reduction on our baseline year. In part, this is due to PBL now being included as a non-reportable facility.

Water		2013/14	2014/15	2015/16
SCOPE 3 (Water)				
Non-financial indicators (m <sup>3</sup> )	Water from office estate (reportable)*	684	572	538
	Water from whole estate (reportable) [excluding office estate]	172,757	177,528	113,780
	Total for reportable estate (m <sup>3</sup> )	173,441	178,100	114,318
	Water from office estate (non-reportable)**	6,971	8,431	9,556
	Water from whole estate (non-reportable)** [excluding office estate]	17,318	17,067	86,080
	Total for non-reportable estate (m <sup>3</sup> )	24,289	25,498	95,636
Financial indicators (£)	Water supply costs***	169,947	164,156	107,190
	Porton Biopharma water costs	-	-	61,261

\* Estimated usage from our six reportable sites

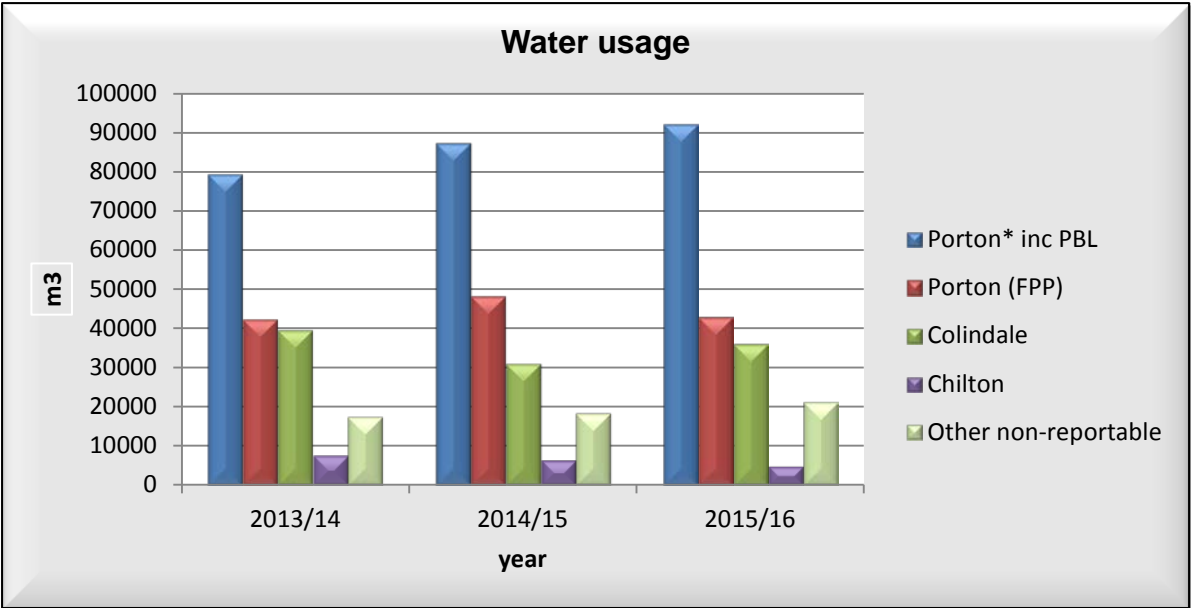
\*\* Estimated usage (Includes water usage from PBL's manufacturing facility at Porton)

\*\*\* Water costs from owned sites

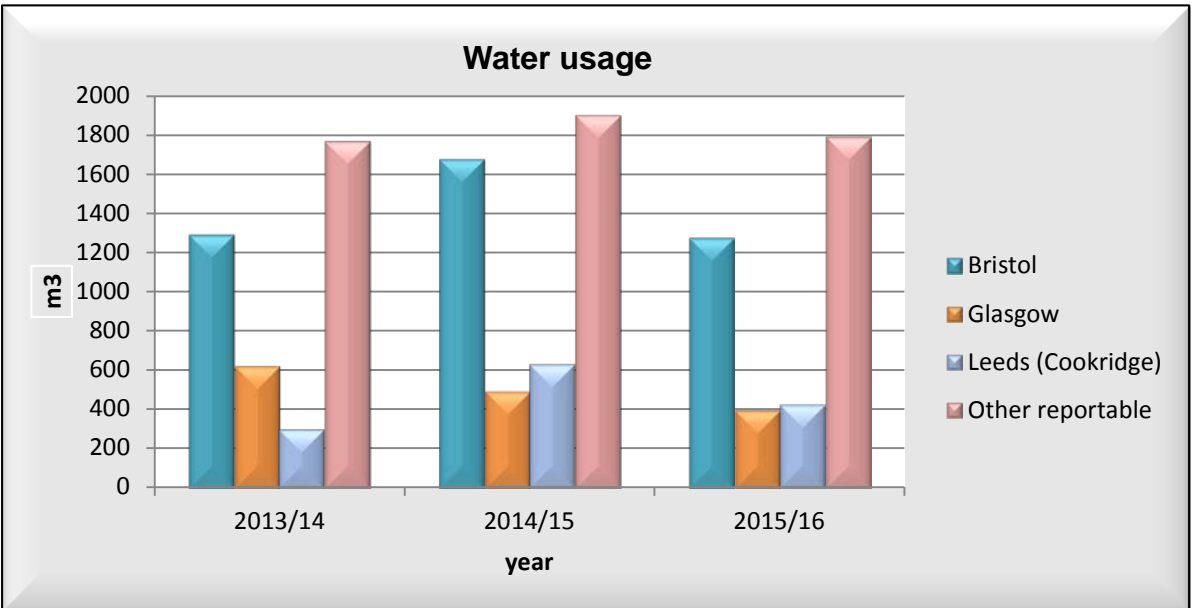
Following creation of PBL as a discrete entity and its separation from PHE, the water usage on the Porton site accounted for by PBL was estimated for 2015/16. When the water sub-metering for the site comes online during 2016/17, a more accurate position will be established for future reporting.

Water that was consumed by offices and laboratories embedded in tenanted, non-reportable accommodation continues to be estimated using a recognised benchmarking algorithm.

Water consumption on our owned estate is illustrated below.



\*Water data for the main Porton campus is made up of PHE and PBL usage.



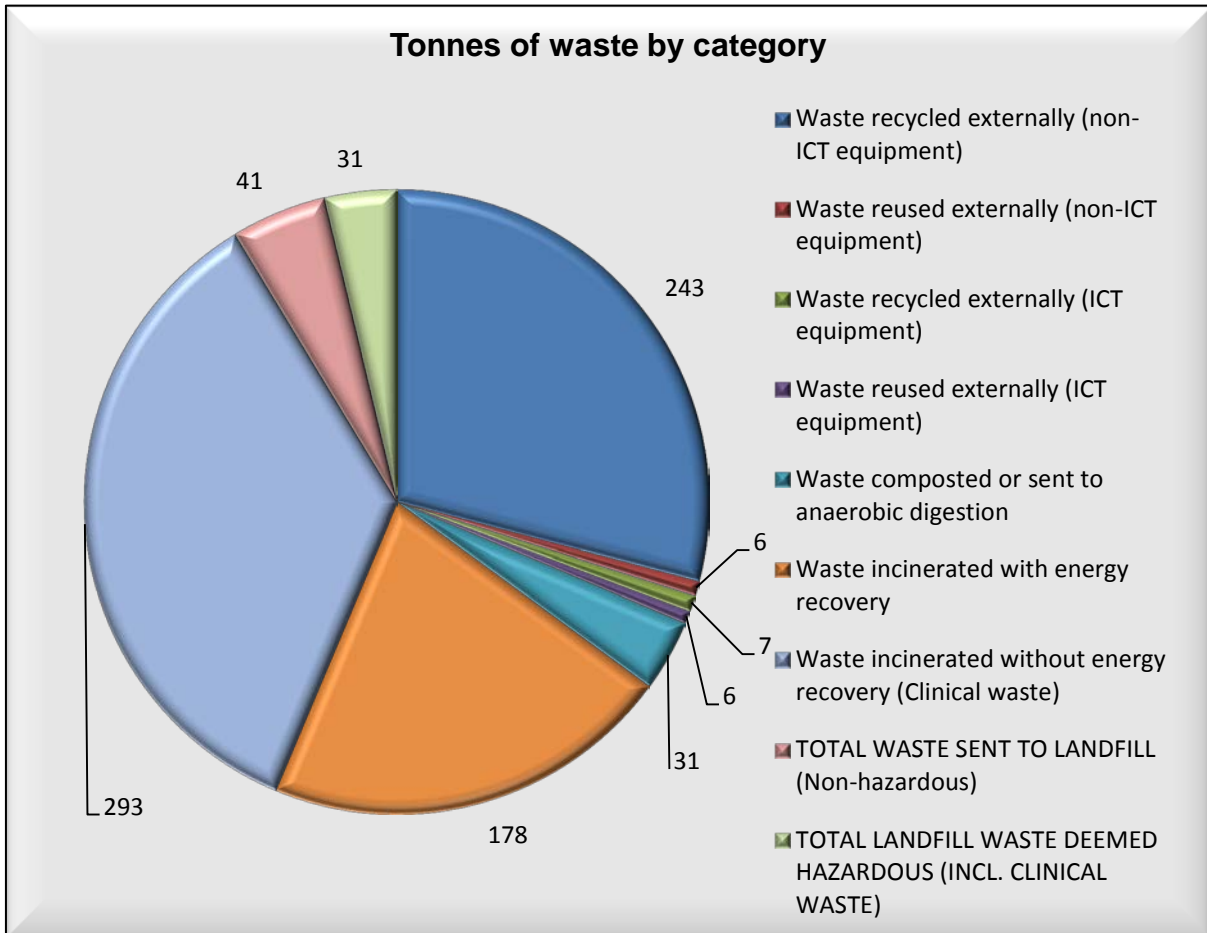
## Waste

PHE has set a total waste reduction target of 2% annually to March 2020, in line with the Greening Government initiative. Analysis indicates that PHE's total waste figure for 2015/16 was 831 tonnes, a 21% reduction in total waste compared with 2014/15 and a 12% reduction on the baseline figure.

	2013/14 tonnes	2014/15 tonnes	2015/16 tonnes
Waste recycled externally (non-ICT equipment)	254	331	243
Waste reused externally (non-ICT equipment)	0	4	6
Waste recycled externally (ICT equipment)	8	21	7
Waste reused externally (ICT equipment)	8	17	6
Waste composted or sent to anaerobic digestion	17	34	31
Waste incinerated with energy recovery	252	225	178
Waste incinerated without energy recovery (Clinical waste)	329	314	293
TOTAL ICT WASTE	15	38	13
<b>Total waste not to landfill</b>	<b>867</b>	<b>937</b>	<b>764</b>
<b>Total waste sent to landfill (Non-hazardous)</b>	<b>45</b>	<b>47</b>	<b>41</b>
<b>Total landfill waste deemed hazardous (incl. clinical waste)</b>	<b>29</b>	<b>36</b>	<b>31</b>
<b>Total waste</b>	<b>912</b>	<b>1018</b>	<b>831</b>



A number of initiatives have been introduced to reduce waste at all PHE locations, applying to both offices and laboratories. Contractors working at PHE sites are regularly reminded about their obligation to reduce their waste wherever possible, in line with PHE's waste policy and its associated management arrangements.



Non-hazardous waste sent to landfill decreased by 16 tonnes over the past year. This is a 20% reduction compared with last year's figures.

Due to the nature of the work carried out at a number of our sites, a significant quantity of hazardous waste is produced and the majority of such waste was sent for incineration in compliance with government guidelines. Various controls have been put in place to manage this and we have reduced the hazardous waste sent to landfill in 2015/16 by 20 tonnes compared with 2014/15, and by four tonnes compared with the baseline year.

PHE's contractor CDL continues to be engaged to recycle and reuse all of PHE's redundant ICT equipment. ICT waste is collected and disposed of at no cost to PHE, mostly as part of our government contract with CDL. This approach continues to be an effective method of disposal for this waste stream, which is supported by government policy. A total of 13 tonnes of ICT waste has been processed in this manner over the last financial year.



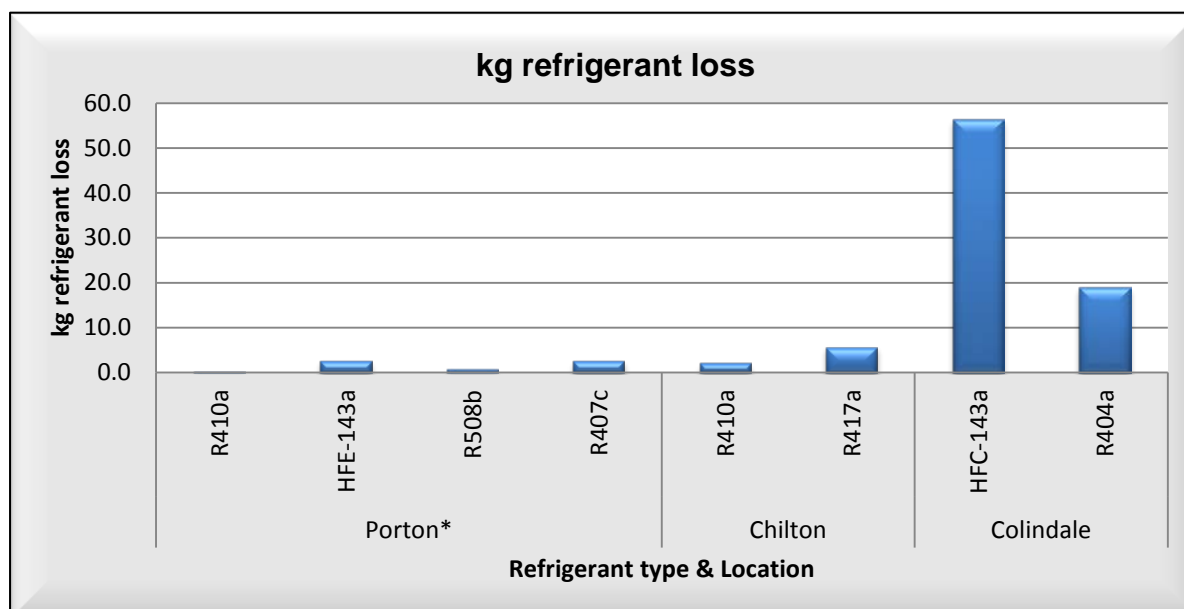
## Refrigerant losses

The losses of refrigerant on PHE's estate, with the associated carbon emissions, are illustrated below.

Facility / source description	Type of Refrigerant	Refrigerant Loss	GWP of refrigerant	CO <sub>2</sub> Emissions
		kg	CO <sub>2</sub> e	tCO <sub>2</sub> e
Porton*	R410a	0.3	1,725	0.52
	HFE-143a	2.7	756	2.04
	R508b	0.7	10,350	7.25
	R407c	2.7	1,526	4.12
Chilton	R410a	2.2	1,725	3.80
	R417a	5.8	1,938	11.24
Colindale	HFC-143a	56.5	756	42.71
	R404a	19.0	3,260	61.94

\*data include Porton Biopharma Limited

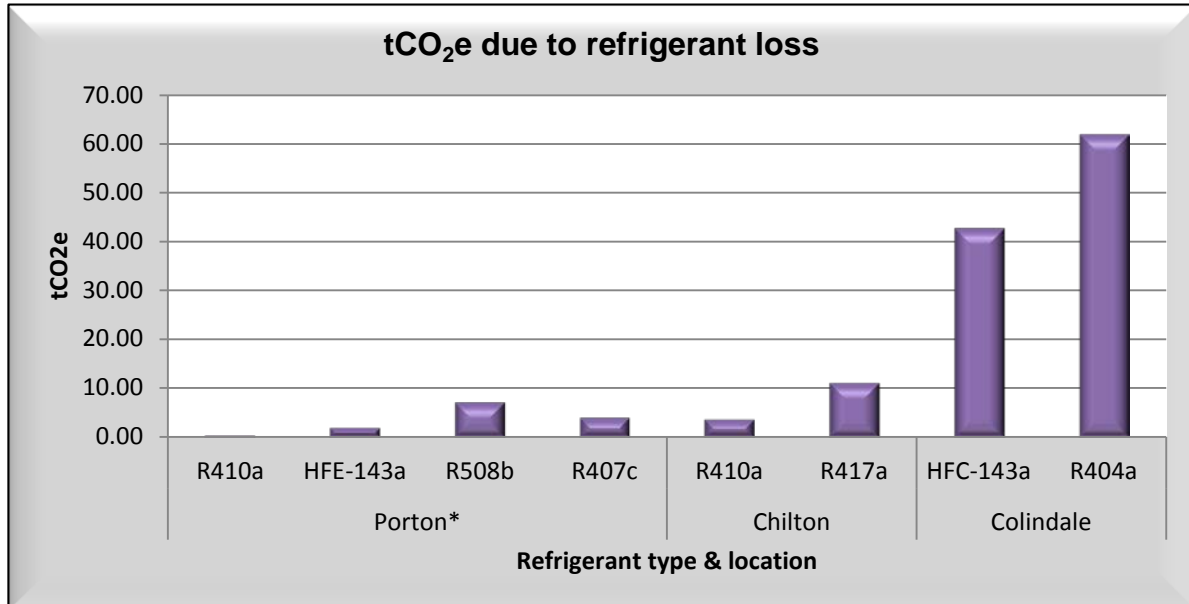
Due to the Global Warming Potential (GWP) of each specific gas emitted, the carbon equivalent of each kg of gas emitted is significantly higher. It is hoped that in the near future some of the more damaging CFC gases will be replaced with less harmful equivalents.



\*includes Porton Biopharma Limited

There is a legal requirement to monitor and measure the amount of refrigerants (F-gases) that are lost to atmosphere from the operation of cooling and air handling systems fitted on our owned estate. At each of our properties where this type of

equipment is fitted, an F-Gas log is maintained by the local estates team. This records how much of each particular gas has had to be topped up through operational losses. This information is collated and sent quarterly to DH as part of PHE's GGC return.



## Paper usage

PHE has an active programme to reduce paper usage, in line with government targets. It has been reported that the government's closed-loop recycling system<sup>1</sup> (operated via Banner) will no longer be operating in its previous guise and that an alternative recycling scheme will be put in place over the next year. We are pleased to report that 77% of paper used by PHE in 2015/16 comprised closed-loop recycled paper.

In 2015/16, PHE used 26,353 reams of A4 paper, 359 reams of A3 paper and 85 reams of A5 paper – reductions of 3%, 25% and 53% respectively, compared with the previous year. PHE's paper usage since its formation in 2013 is summarised below, demonstrating a continuing downwards trend. PHE will continue to use the closed-loop recycling scheme until an alternative system is put in place by central government.

Year	Ream		
	A5	A4	A3
2013/14	247	28,660	501
2014/15	180	27,097	479
2015/16	85	26,353	359
<b>Change since baseline year</b>	<b>-66%</b>	<b>-8%</b>	<b>-28%</b>

The move to multi-function devices for printing continues across the business and 'follow me' printing is being introduced on an increasing number of our sites, including in central London. This reduces waste, ensuring printing only occurs when needed. Paper usage is being further reduced through improved signage and messages about minimising printing wherever possible.

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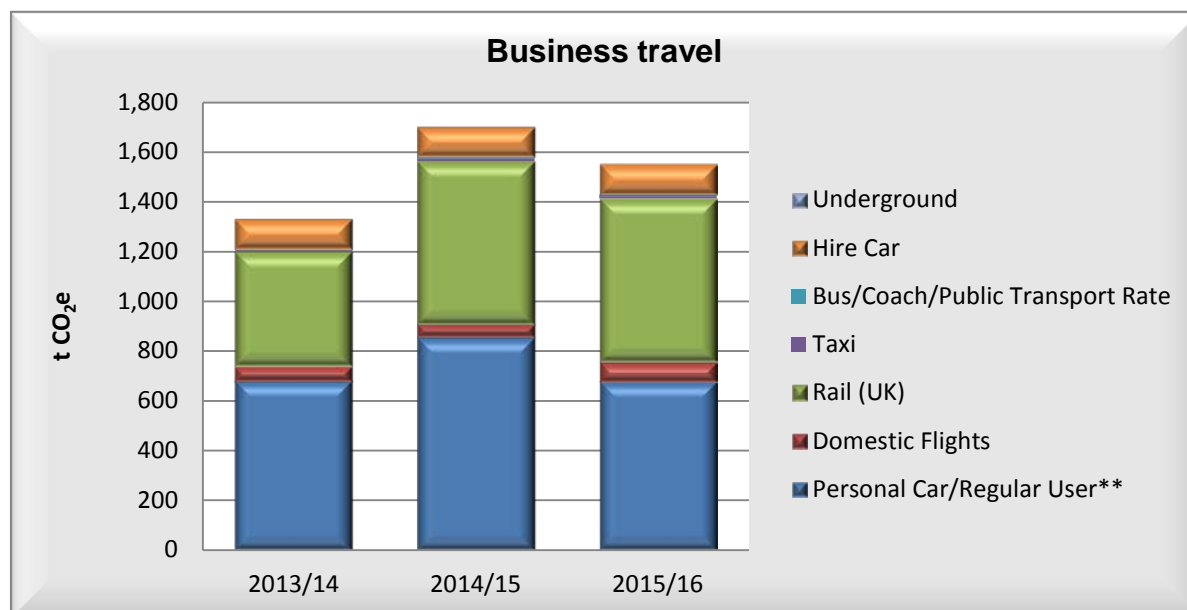
<sup>1</sup> 'Closed loop forms part of the Government Office Supplies Contract (GOSC) which is managed by HM Revenue & Customs on behalf of the CCS. It is government policy for central government departments to use this contract and closed loop'. See: <http://ccs-agreements.cabinetoffice.gov.uk/sites/default/files/attachments/CL%20specification%20for%20FM%20V2%20-%20CCS%20website%20Mar14.pdf>

# Our travel footprint

PHE set a target to reduce business travel by at least 2% annually, relative to our baseline year of 2013/14, to March 2020. Staff are encouraged to limit journeys wherever possible, and when they must travel, to use the most sustainable modes of transport.

We accept that our staff sometimes need to travel to deliver the business objectives of the organisation. However, to meet our travel commitments, members of staff are encouraged to travel only when necessary and, when they must travel to use the most sustainable modes of transport. This approach has led to an increase in members of staff using public transport instead of their own vehicles.

Despite this, business travel rose by 14% during 2015/16. There was a significant increase in the amount of travel internationally last year, partly due to the continued PHE response to the Ebola crisis in west Africa but also because of PHE's commitments to provide public health advice to other government organisations.



\*\*Regular user allowance stopped in Q1 14/15

A breakdown of the impact of the various types of business travel is given below.

Business Travel		2013/14	2014/15	2015/16
<b>SCOPE 3</b>				
<b>Non-Financial Indicators (tCO<sub>2</sub>)</b>	Personal Car/Regular User**	681	854	678
	Domestic Flights	63	56	83
	Rail (UK)	458	652	653
	Taxi	5	10	8
	Bus/Coach/Public Transport Rate	4	7	7
	Hire Car	122	121	125
	Underground	0.51	1.01	0.88
	<b>Total</b>	<b>1,335</b>	<b>1,702</b>	<b>1,554</b>
<b>Related Scope 3 travel (km)</b>				
	Personal Car/Regular User**	3,580,880	4,510,395	3,637,801
	Domestic Flights	366,392	361,677	524,039
	Rail (UK)	9,346,189	13,759,549	14,460,906
	Taxi*	36,830	55,507	50,468
	Bus/Coach*/Public Transport Rate	39,822	65,791	72,150
	Hire Car*	641,065	640,602	668,295
	Underground*	7,962	16,063	15,672
	<b>Total</b>	<b>14,019,139</b>	<b>19,409,584</b>	<b>19,429,331</b>
<b>Financial Indicators (£)</b>				
	Personal Car/Regular User**	1,022,687	1,264,866	1,028,793
	Domestic Flights	66,494	75,084	92,970
	Rail (UK)	2,970,871	3,705,995	3,882,894
	Taxi	79,901	123,353	112,143
	Bus/Coach/Public Transport Rate	19,739	17,552	33,986
	Hire Car	87,639	88,216	102,068
	Underground	45,625	74,365	71,237
	<b>Total</b>	<b>4,292,956</b>	<b>5,349,431</b>	<b>5,324,091</b>
<b>Other business travel (km)</b>				
	Short Haul International Average	1,918,087	1,962,413	1,991,556
	Long Haul International Average	4,370,326	5,215,474	6,210,706
	Rail - Eurostar	113,679	95,444	98,988
<b>Other business related information</b>				
	Domestic Flights undertaken	440	788	869
	Total gross emissions Scope 3	<b>1,392</b>	<b>1,702</b>	<b>1,554</b>
	Total financial cost Scope 3 business travel	<b>4,292,956</b>	<b>5,349,431</b>	<b>5,324,091</b>
	Total other financial cost	<b>497,078</b>	<b>636,887</b>	<b>875,565</b>

\*Figures calculated using PHE's own conversion table

\*\*The regular user allowance ended in Q1 14/15

In order to facilitate a comparison of travel emissions across the various parts of the organisation, PHE uses the measure of tCO<sub>2</sub>e per whole time equivalent (wte) staff. On this basis, the key changes to our travel footprint compared with last year were:

- emissions per wte from UK (domestic) flights increased by 73.7%
- emissions per wte from international flights increased by 72.9%
- emissions per wte train use per wte increased by 10.13%
- emissions per wte from personal car use decreased by 22.32%
- emissions per wte from taxi use decreased by 2.84%
- emissions (tCO<sub>2</sub>e) from use of PHE owned/leased vehicles decreased by 34%

PHE's targets of reducing travel to meetings for its staff has been supported by a number of directorates over the last year. Microsoft Lync continues to be a well-supported tool in this initiative. PHE recognises that less business travel will not only benefit public health by preventing air pollution, support PHE's plans to reduce carbon and save money, but also benefit the health and wellbeing of our staff.

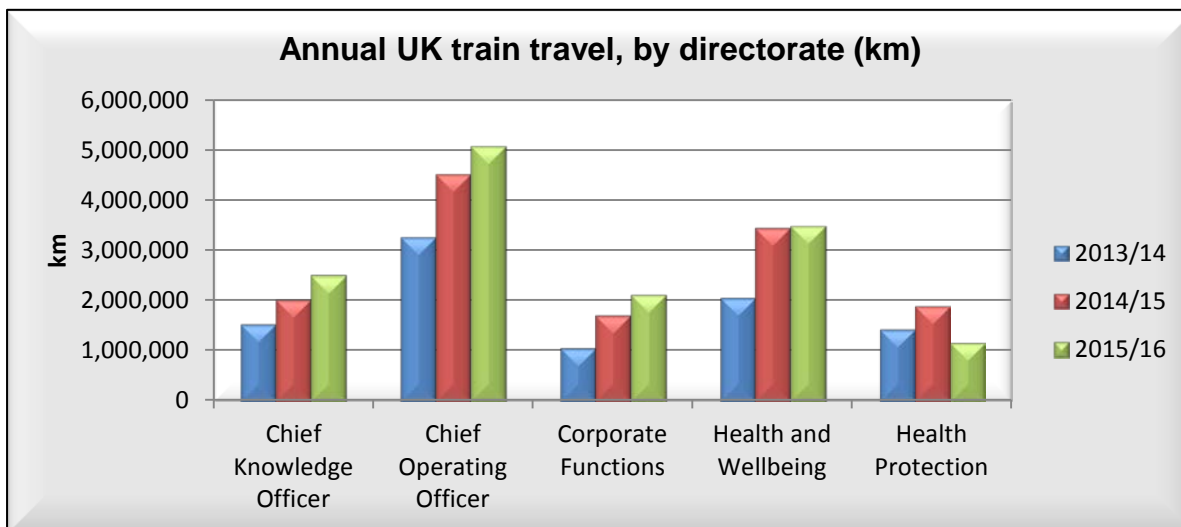
Active travel initiatives across the whole of PHE are one of the ways we have been asking staff to consider whether they actually have to attend a meeting. If travelling locally, walking or using a bicycle where practicable are examples of how carbon savings can be made while contributing to improving health. PHE is a lead advocate of active travel in the UK.

## Rail travel

During 2015/16, PHE staff travelled 14,460,906 km by train, representing a 5.6% increase on last year. It is believed that in part, this reflects a lower usage of car travel. The Chief Operating Officer's directorate undertook the most travel by rail, travelling more than five million km. PHE's total spend on UK rail travel amounted to £3,882,894 (inclusive of data from i-expenses). The following table summarises PHE's carbon footprint due to rail travel.

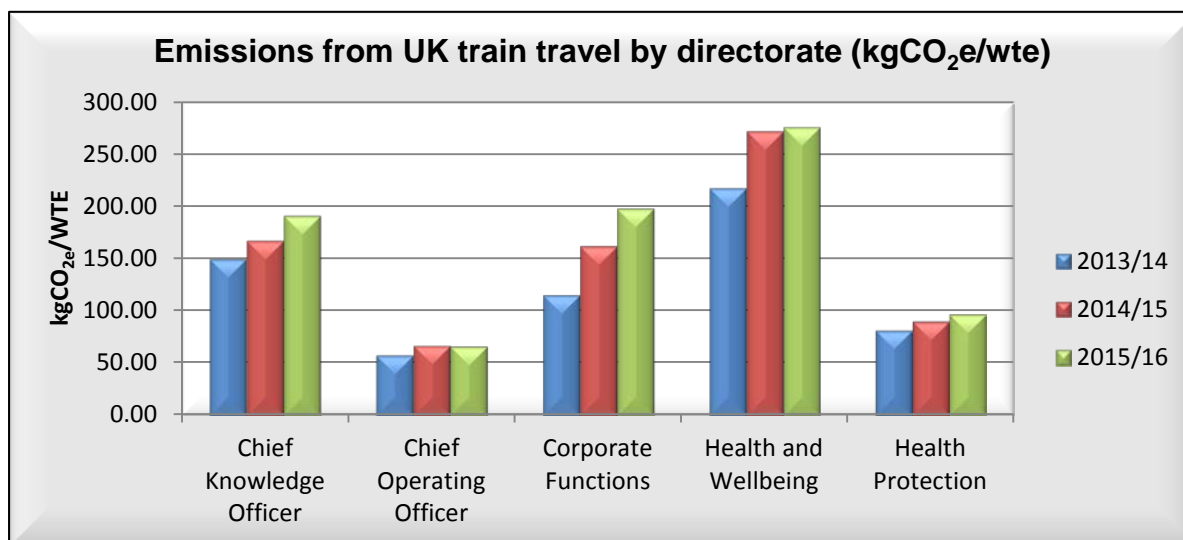
Directorate	Staff wte	tCO <sub>2</sub> e	kgCO <sub>2</sub> e / wte
Chief Knowledge Officer	584	113.09	193.79
Chief Operating Officer	3594	229.01	58.55
Corporate functions	517	96.03	231.32
Health and Wellbeing	573	157.47	286.34
Health Protection & Medical	544	52.78	77.89
<b>TOTAL</b>	<b>5,812</b>	<b>652</b>	<b>848</b>

An additional 3.2 tCO<sub>2</sub>e is derived from claims on PHE's i-expenses system, taking the annual figure for rail travel to 652 tCO<sub>2</sub>e. This is illustrated by directorate in the following graphs, showing the changes since our baseline year.



The term 'corporate functions' is used collectively for all areas not listed individually, including support functions such as HR, finance, etc.

To facilitate comparison across PHE directorates the emissions due to rail travel are expressed as kgCO<sub>2</sub>e per wte. This gives the following distribution.



Staff in the Health and Wellbeing directorate generated highest emissions per person (276 kgCO<sub>2</sub>e/wte) as a result of rail travel, up 1.47% on last year. This compares with members of staff from the Chief Operating Officer's directorate, who generated 66 kgCO<sub>2</sub>e/wte, down by 1.49%.

## Air travel

Alternatives to flying on business should always be considered, especially for domestic travel. Moreover, domestic air travel is a specific government target for reduction. While PHE does have offices which are widely geographically distributed, much of our travel between them could be undertaken by more carbon-efficient means, such as train.

However, PHE acknowledges that some journeys may require air travel, but we recognise the importance of minimising our air travel wherever possible. This includes air travel to western Europe.

Our air travel in 2015/16 is summarised below, expressed as kgCO<sub>2</sub>e per wte to facilitate comparison.

Directorate	Staff wte	kgCO <sub>2</sub> e/wte		
		Domestic	Short-haul	Long-haul
Chief Knowledge Officer	591	29.212	5.140	5.839
Chief Operating Officer	3,478	12.521	34.394	99.590
Corporate functions	485	111.604	208.677	495.390
Health and Wellbeing	572	57.785	26.639	56.095
Health Protection & Medical	544	38.750	161.740	672.826
<b>TOTAL</b>	5,670	-	-	-

Total distances travelled by air are shown in the following table, by quarter.

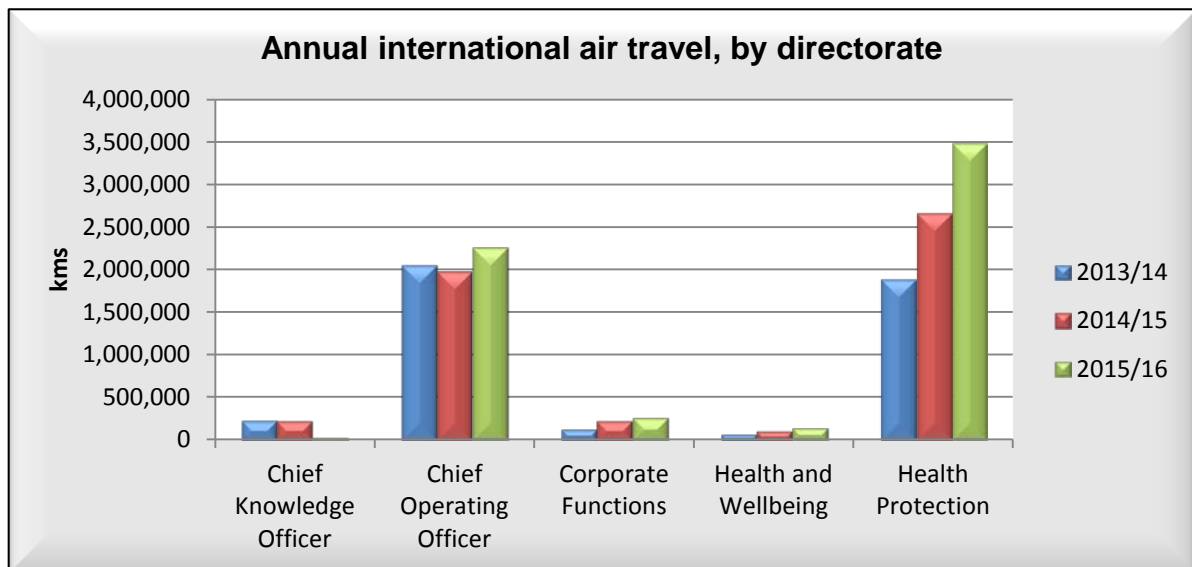


Directorate	Distance travelled (km)				
	Q1	Q2	Q3	Q4	Annual total (km)
Domestic flights (<500 km)					
Chief Knowledge Officer	103,934	2,681	531	1,043	108,188
Chief Operating Officer	70,516	21,578	24,995	17,650	134,739
Corporate functions	8,951	4,273	4,366	4,868	22,459
Health and Wellbeing	47,743	19,487	24,986	32,654	124,870
Health Protection & Medical	55,605	27,940	14,493	35,745	133,783
<b>Total domestic flights</b>	<b>286,749</b>	<b>75,959</b>	<b>69,371</b>	<b>91,960</b>	<b>524,039</b>
Short-haul flights (500-3,700 km)					
Chief Knowledge Officer	18,388	4,817	6,804	3,414	33,423
Chief Operating Officer	325,927	138,369	190,101	190,159	844,556
Corporate functions	7,642	2,639	18,850	5,252	34,383
Health and Wellbeing	44,636	21,495	24,985	7,615	98,731
Health Protection & Medical	229,111	226,467	275,849	249,036	980,463
<b>Total short-haul flights</b>	<b>625,704</b>	<b>393,787</b>	<b>516,589</b>	<b>455,476</b>	<b>1,991,556</b>
Long-haul flights (>3,700 km)					
Chief Knowledge Officer	32,525	0	0	0	32,525
Chief Operating Officer	434,307	614,740	698,724	521,333	2,269,104
Corporate Functions	73,708	36,062	126,795	30,461	267,026
Health and Wellbeing	13,461	15,176	119,884	0	148,521
Health Protection & Medical	1,172,627	881,317	705,035	734,550	3,493,529
<b>Total long-haul flights</b>	<b>1,726,629</b>	<b>1,547,295</b>	<b>1,650,438</b>	<b>1,286,344</b>	<b>6,210,706</b>
<b>TOTAL ALL FLIGHTS</b>	<b>1,051,919</b>	<b>1,936,988</b>	<b>2,098,748</b>	<b>1,567,148</b>	<b>8,726,300</b>

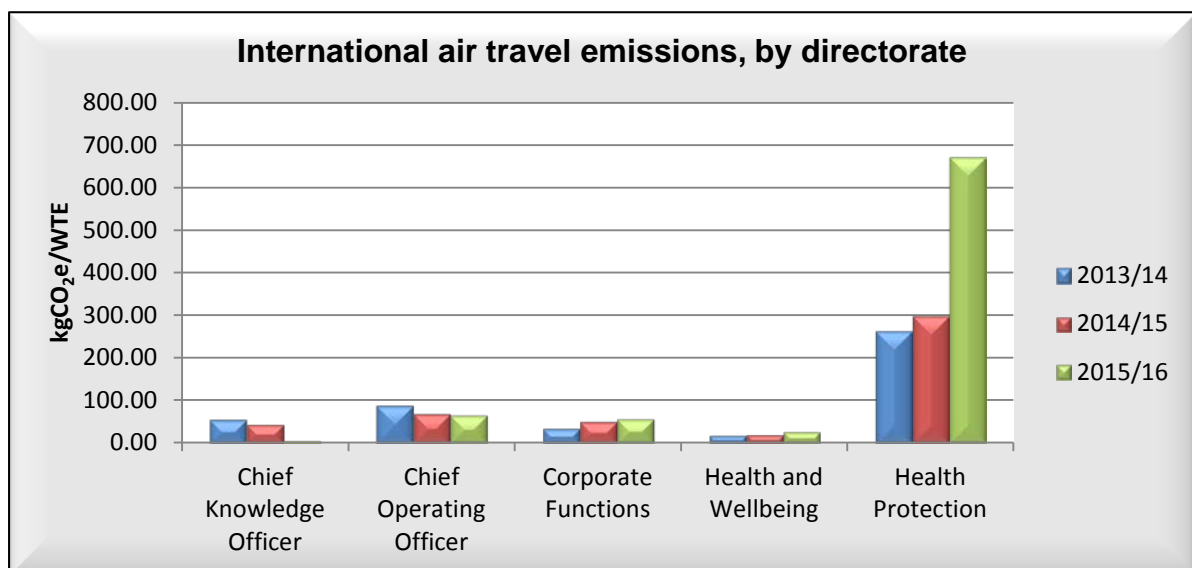
## Long-haul flights

Due to the international activity that PHE undertakes in improving global public health, a number of our members of staff travel internationally to support other countries on public health issues. For example, PHE is still contributing in relation to the recent Ebola outbreak in west Africa.

Compared with last year there was a 19% increase in the amount of international air travel undertaken. The Health Protection and Medical directorate was the greatest user of long-haul flights.

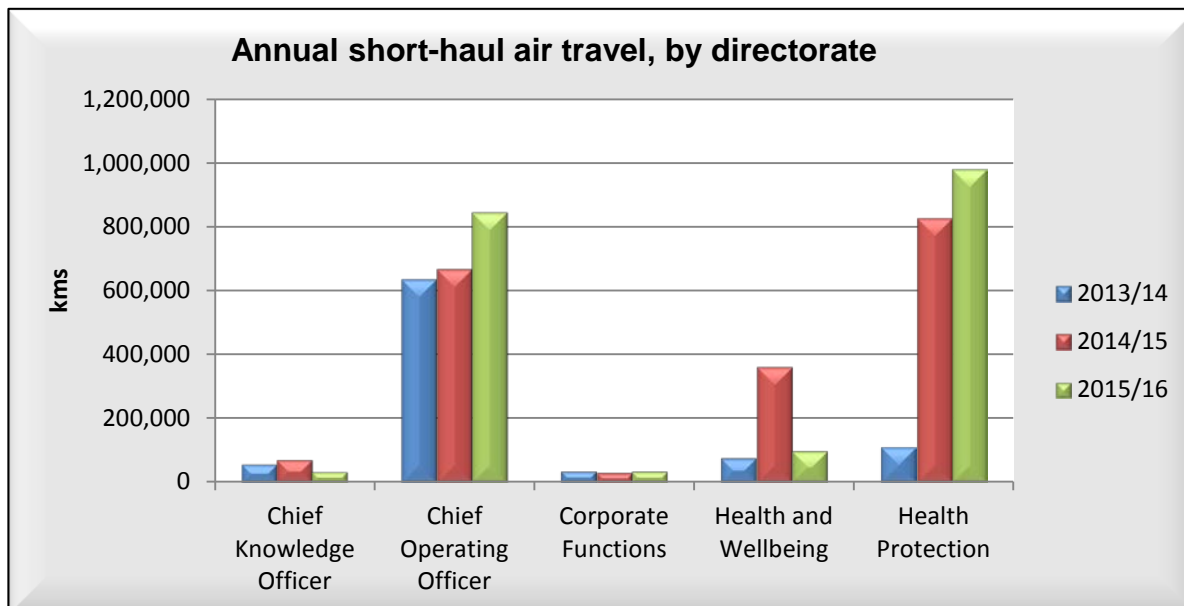


To facilitate comparison across PHE directorates, the emissions due to long-haul air travel are expressed as kgCO<sub>2</sub>e per wte. This gives the following distribution:

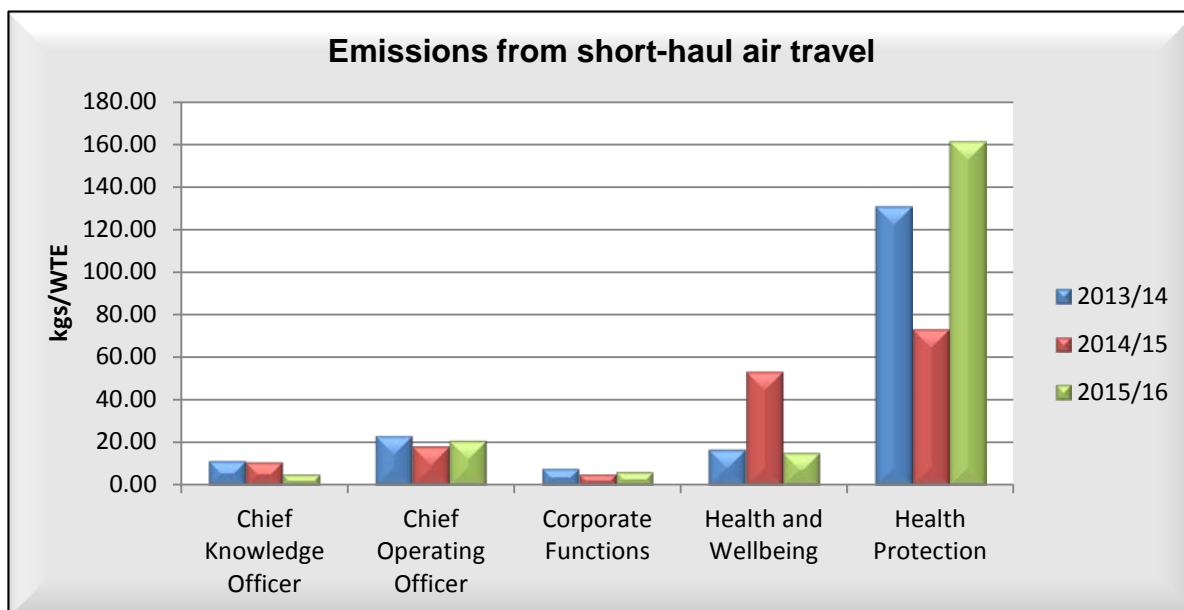


## Short-haul flights

Short-haul flights to Europe, to and from the UK, increased by some 1.4% compared with 2014/15. The Health Protection and Medical directorate, the Chief Operating Officers directorate and the Health and Wellbeing directorate were the heaviest users of short-haul air travel.

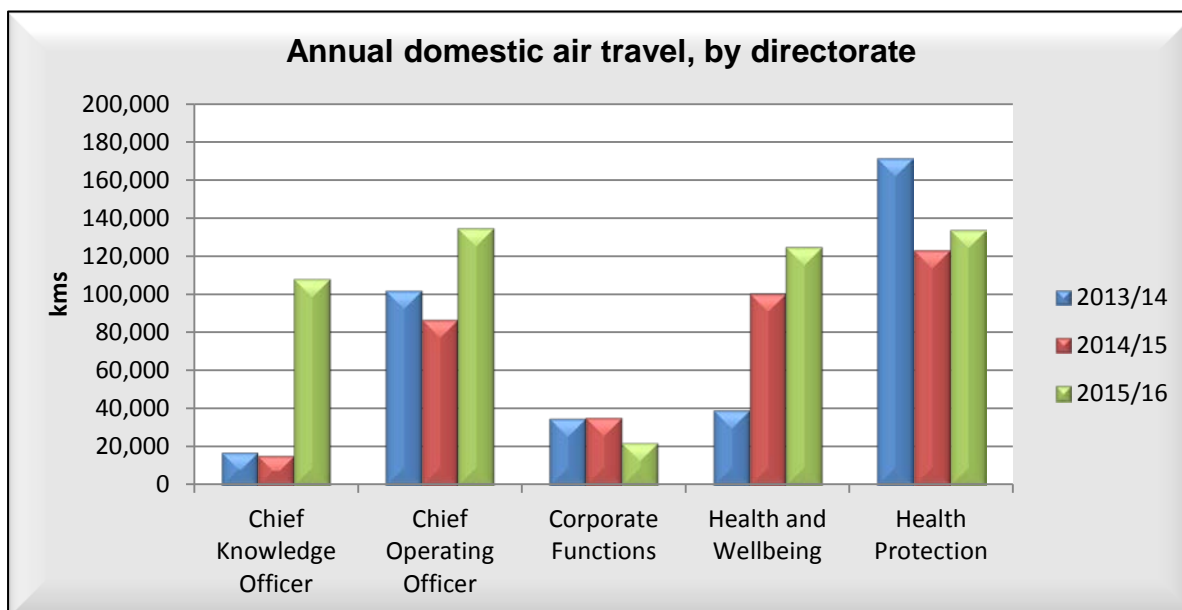


To facilitate comparison across PHE directorates the emissions due to short-haul air travel are expressed as kgCO<sub>2</sub>e per wte. This gives the following distribution:

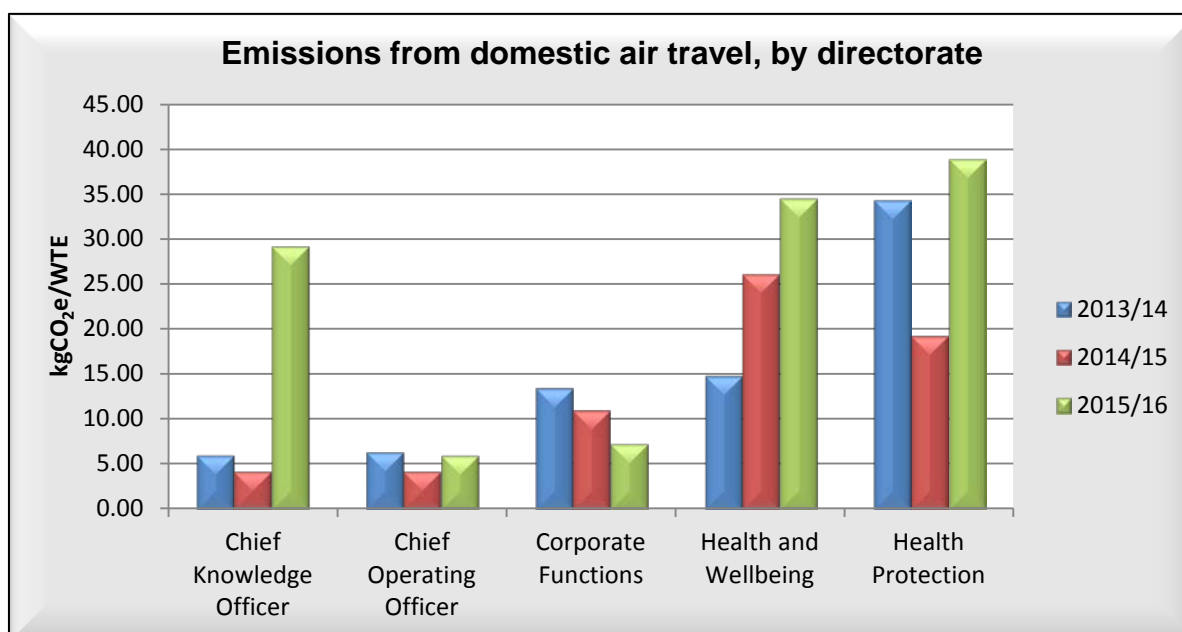


## Domestic flights

The government has indicated that air travel within the UK in particular should reduce significantly this will be reflected in the new GGC targets. PHE's UK air travel increased some 45% from the previous year, this was due in part to our continued work on Ebola and a significant number of staff attending a conference in Northern Ireland.



To facilitate comparison across PHE directorates the emissions due to domestic air travel are expressed as kgCO<sub>2</sub>e per wte. This gives the following distribution:



## Car use for business travel

PHE continues to undertake a significant amount of business travel by car, the majority of it in personal cars. For 2015/16 we travelled some 3,637,801 km in our own cars at a cost of £1,028,793 (ie 28p/km). The distance travelled, compared with last year, is down by some 19% but still 2% higher than the baseline. The method for calculating personal car travel is derived from PHE's i-expenses claims data.

Personal car use by directorate (with associated cost) is shown below:

Directorate	Distance travelled (km)				Total (km)	Cost (£)
	Q1	Q2	Q3	Q4		
CKO	32,846	46,907	56,557	53,273	189,583	53,599
COO	529,733	546,827	576,150	612,736	2,265,446	641,087
Corporate Functions	81,783	85,047	105,756	110,921	383,507	104,237
Health & Wellbeing	139,298	140,637	139,002	174,992	593,929	168,180
Health Protection & Medical	49,078	48,885	52,192	55,181	205,336	59,337
<b>TOTAL</b>	<b>832,738</b>	<b>868,303</b>	<b>929,657</b>	<b>1,007,103</b>	<b>3,637,801</b>	<b>1,028,793</b>

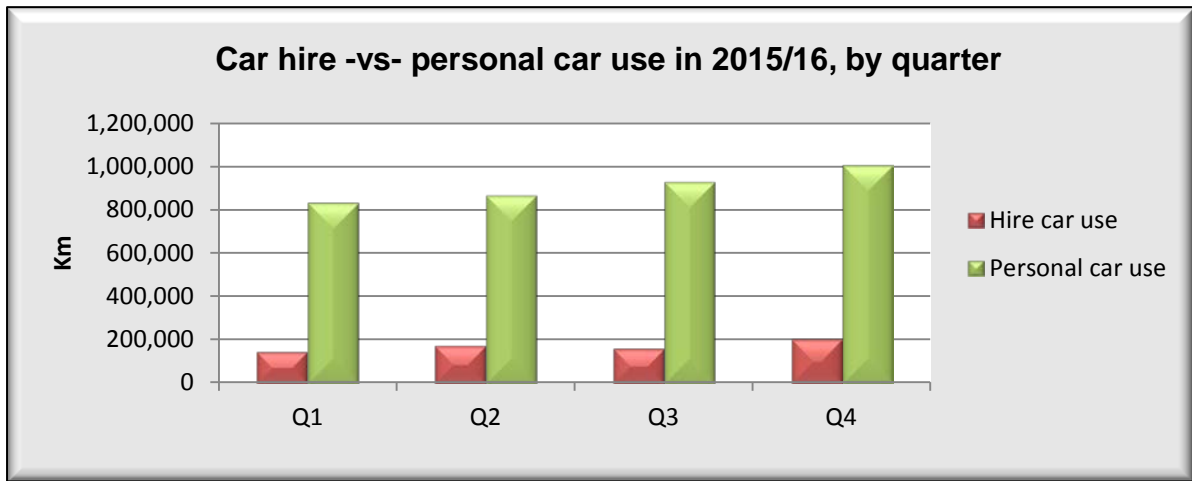
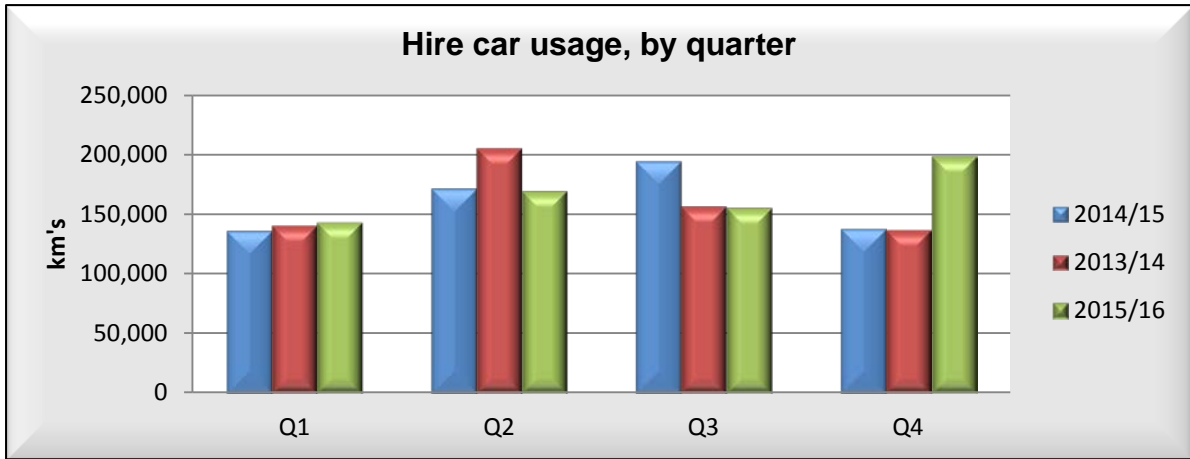
## Hire car versus personal car use

PHE continues to have a contractual arrangement with Enterprise Cars for the supply of hire cars across the country. It is PHE policy that members of staff should, where practicable, use hire cars for journeys over 65 miles, instead of using their own vehicles, with travelling via public transport or rail being the first choice.

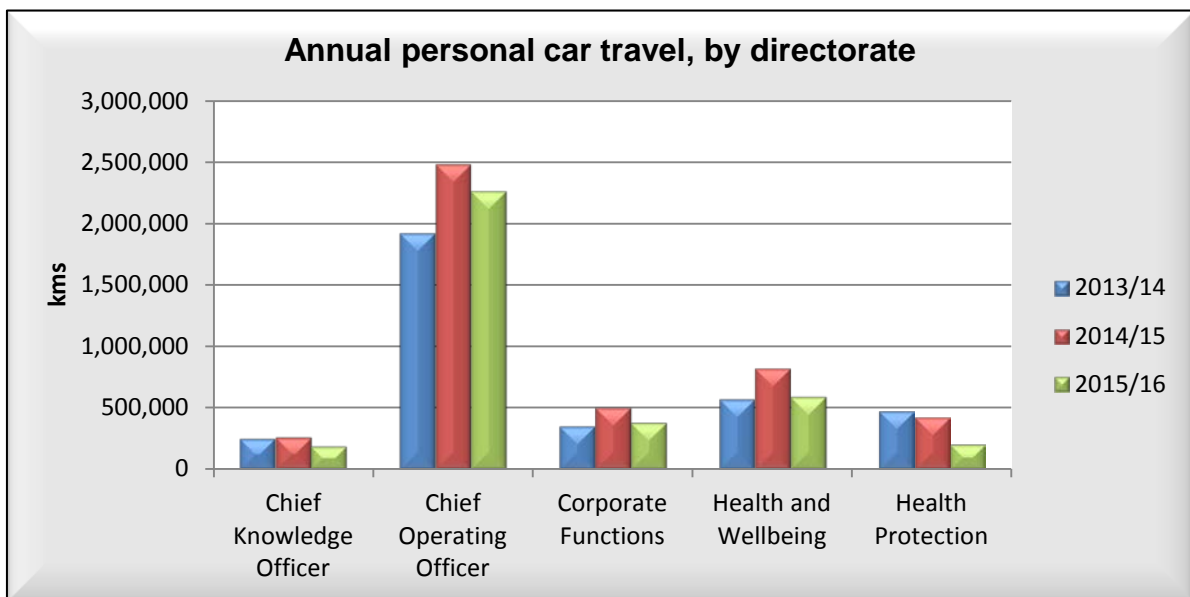
PHE staff using hire cars, travelled a total of 668,295 km, at a cost of £102,068 (ie 15p/km) in 2015/16, an increase of some 4.32% compared with the previous year and a 4.25% increase on our baseline.

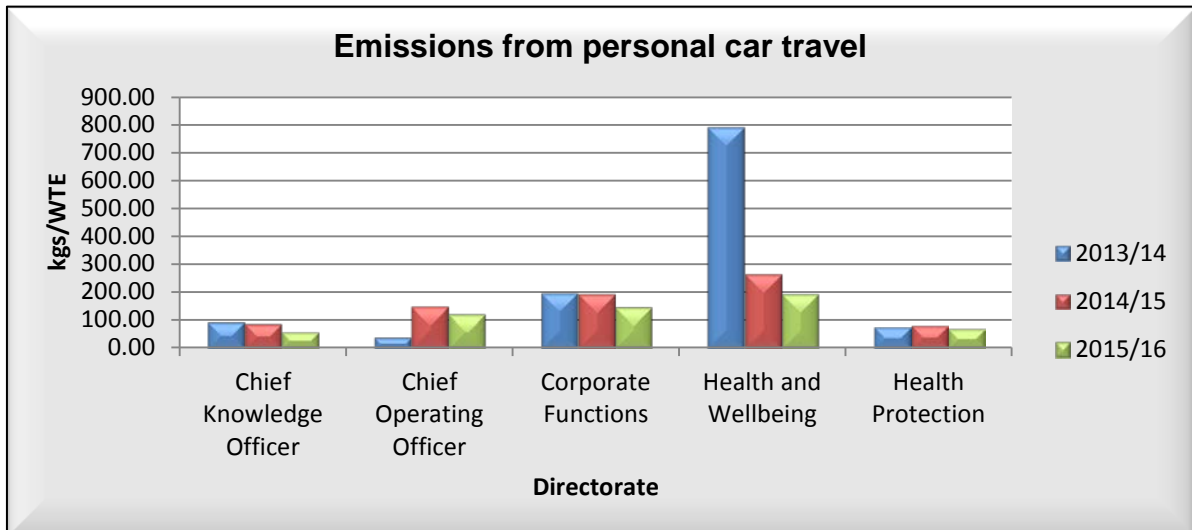
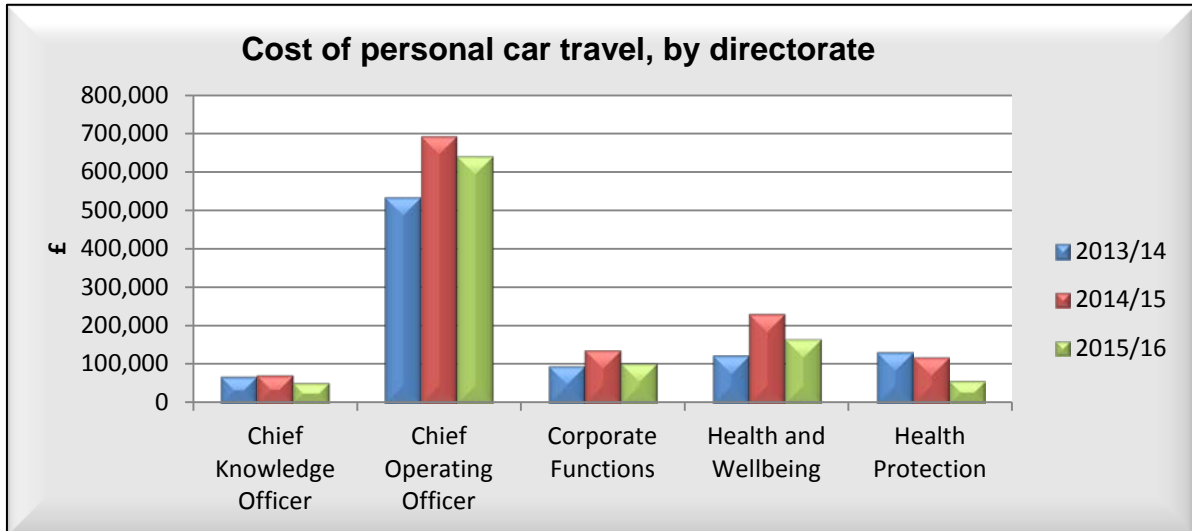
The principal cost difference is due to the higher cost per km travelled by staff in personal cars, because the reimbursement rate set by government is significantly higher than the cost of using a hire car.

The trend for travel by personal car (compared with hire car) over the last year has increased and this is illustrated below.



The travel on business by PHE staff in 2015/16 using personal cars is shown below.



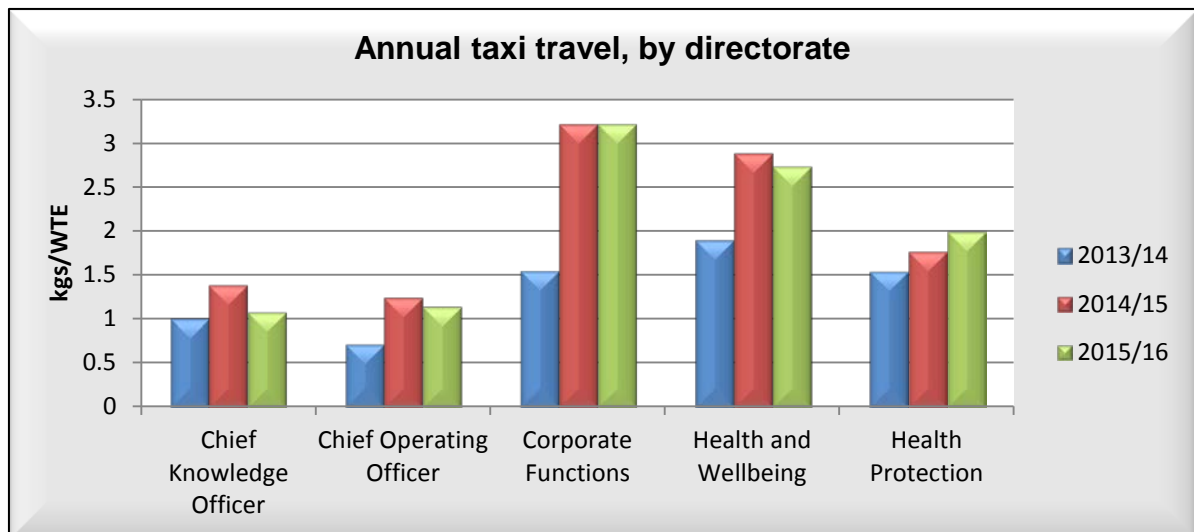
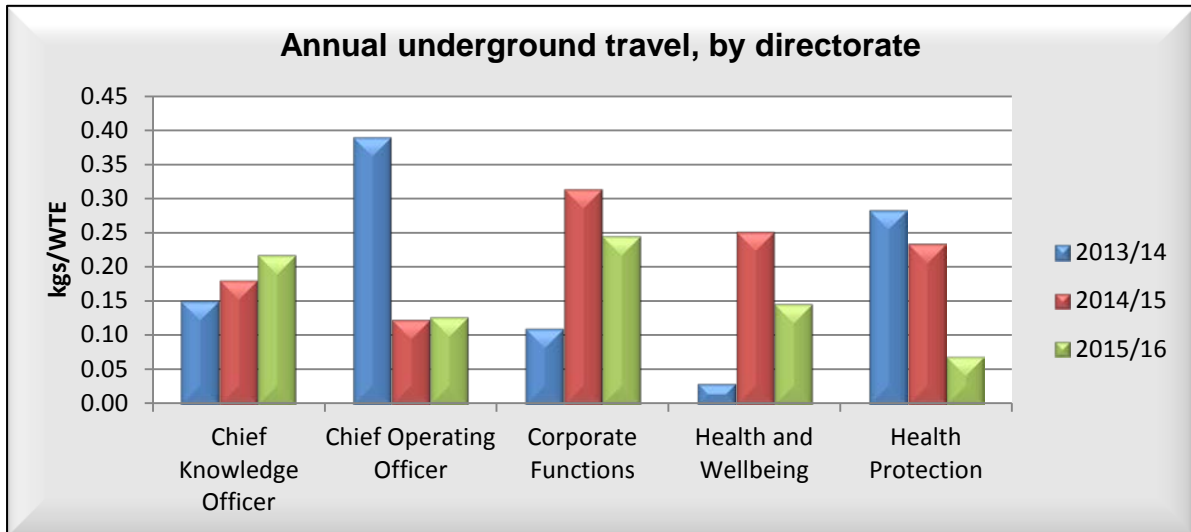


## Underground and taxi travel

We continue to use an algorithm developed in-house for calculating distance from the cost of a taxi, bus and underground journey. This method gives us a general estimate, and a number of other DH departments have now adopted this method for their own reporting purposes. However, it still remains difficult to distinguish journeys by bus and underground where either an Oyster or rail travel card has been used, as opposed to the purchase of specific, single transport tickets.

For journeys specifically identified as being by bus or underground, the data is presented below. Emissions from our use of taxis have reduced by 9% over the previous year, to 8.47 tCO<sub>2</sub>e. The cost has also reduced by 9%, to £112,143 from £123,354 in 2014/15. It should be noted that analysis of the data indicates that the majority of taxi journeys are undertaken outside of the capital.

PHE's carbon footprint due to travel by taxi and on the London underground is shown below, by directorate.





# Green procurement in PHE

The procurement department within PHE is divided into categories with specialised managers to ensure that the most cost-effective and sustainable items and services are purchased. Sustainability is an important part of all of our purchases. The category managers ensure that all of our tender documents contain relevant questions to confirm that the successful suppliers adhere to given environmental and sustainability standards.

Our tendering is managed through e-tendering and our documentation is stored electronically. There is an environmental section in our tender documents which asks specific questions about a company's environmental management system. This includes elements relating to their impact on energy and water for production, and their disposal of waste and the sourcing of raw materials.

The tender document can be adapted to include specific questions relevant to a particular tender. This will then be scored to ensure that the companies that take account of the importance of sustainability and environmental issues are recognised for their contribution to this important area.

We have recently brought together a number of professionals from across PHE to form the Procurement Strategy Group. This group is looking at procurement in a different light, introducing a number of new initiatives, for example the Social Value Act and value for money.

# Biodiversity and wellbeing

PHE fully recognises the importance of biodiversity and health and wellbeing and the role it plays in our everyday lives. We continue undertaking biodiversity projects on our sites where we can (especially on our sites in rural settings) that have embodied the local environment. In the last year, our beehives at Colindale were decimated by disease. It is hoped that a new colony of bees can be quickly installed.

Guided walks and cycling events are promoted across the estate. We also have an active programme related to 'healthy people, healthy places' with a number of health and wellbeing groups to inform staff about the benefits of active lifestyles and healthy diets and the health problems associated with smoking and excess alcohol. Mental wellbeing classes are also being run across the estate to help staff, where necessary, to cope with the stresses and strains of everyday life.

# Sustainability in the regions

## Approaches to sustainability

Within PHE there are four regions, the North; Midlands & East; South; and London. Outside of London the other three regions are made up of eight PHE centres. London is an integrated Centre and Region.

Each of the four PHE regions has its own approach to sustainability networks and partnership engagement, developed to best serve local and regional needs. All regions have networks in place across their region and in addition every PHE centre and region has a sustainability lead.

## Conferences and events

Conferences and events are often used to raise awareness on sustainability issues and connect key people who work on this agenda both internally and externally. Some examples of the conferences, events and sustainability sessions that have taken place or are planned across the Regions are highlighted below:

- North Region: In June 2015, stakeholders from across the North of England region came together to learn and explore opportunities for sustainability action through a series of workshops and lectures. This event looked at how agencies can work together on sustainability issues
- Midlands and East Region: The Midlands and East Region are organising a Sustainable Development Conference entitled 'A Whole System Approach and Sustainable Development'. This event aims to reconnect the enthusiasts and experts while looking at a whole systems approach to sustainable development across the health system and in particular the role of systems leadership.
- South Region: The South Region Annual Sustainability and Health Conference 2015, 'Embedding Sustainability in Health and Social Care', took place in Bristol in October 2015. Headline speakers included Nigel Acheson, NHS England, Stephen Morton, PHE and David Pencheon, NHS Sustainable Development Unit. The next conference will be held in November 2016 and will focus on the health benefits of the natural environment
- London Region. Delivered sustainability awareness sessions at PHE London staff engagement days

## Working with our partners

PHE has links with partners such as NHS England, Directors of Public Health, academia and other agencies. Examples of some of the networks that are in place with our partners and work undertaken are highlighted below:

- North Region: A Sustainability and Health Network for Northern England has been created to help NHS organisations, PHE centres and public health and social care teams in local authorities implement the Sustainable Development Strategy for the Health and Social Care system
- This network provides opportunities for representatives from public health and the health and social care systems to collaboratively work towards a sustainable health, public health and social care system. An action plan is in place for the network to monitor progress on this work and resources to the network include a quarterly newsletter, regular sharing of best practice and masterclasses
- Midlands and East: The West Midlands Centre has been proactive in promoting sustainable development and this has involved various presentations on active travel and waste to the Public Health and Sustainability Network. The East Midlands Centre has supported the development of appropriate links between public health, planning and other local authority work areas to support a cohesive approach to sustainability
- This included work with East Midlands Council's planning CPD service to deliver an event for planners and public health, building an understanding of the planning role in sustainable communities that support positive health and wellbeing
- South Region: The South Region has a Sustainability and Health Network jointly run by NHS England and PHE. The primary purpose of the network is to support a rapid transformation of the health and care system in the south of England to a sustainable, resilient system
- The work of the network supports the overall strategic direction for NHS England as published in the Five Year Forward View and for PHE as described in their five-year priorities. This network links and supports those working in the health and care system across the south of England
- London is an active member of the London Climate Change Partnership, including awareness raising on the Health and Care Sustainable Development strategy. London is also one of the partners on the Urban Heat, a community-led approach to the heatwaves project delivered by Westminster University

Since the publication of the NHS planning guidance in December 2015, PHE centres and regions have worked closely with NHS England to co-ordinate the offer of support and advice to the developing Sustainability and Transformation Plan (STP) footprints.

## Travel initiatives

All regions have focused on how they can reduce the carbon footprint of travel, in particular focusing on reducing travel to and from London and within the regions themselves. Video conferencing facilities are in place across the regions and are regularly used. Furthermore, all regions are currently in the process of migrating from Microsoft Lync to Skype for Business and this will provide additional opportunities to reduce travel.

Some examples of the work undertaken on travel are highlighted below:

- North Region: A full analysis of travel expenditure was undertaken within the Yorkshire and Humber Centre looking at individual, team and centre travel. The Centre is currently building on this work to share the data across all staff and using team meetings to explore ideas for how each team can further reduce travel. Skype for Business has recently been rolled out across the centre and there is a drive to utilise this to deliver business wherever possible
- Midlands and East Region: A project was undertaken to examine the use of Microsoft Lync and its potential to reduce travel costs and lower the carbon footprint. A presentation was made to the regional executive team to raise awareness of the issue and use of Lync and a summary of PHE policy and guidance on travel were provided
- South Region: The region has championed new ways of working that promoted sustainable working patterns, for example, by actively encouraging the use of Lync and evaluating the human and financial impacts. The project demonstrated financial benefits to the organisation and a measurable improvement to work-life balance.
- London Region: The region agreed a commitment to use technology to deliver business wherever possible as opposed to travelling.

## Office moves

Sustainability is at the heart of office moves that take place across the regions and these projects are used as an opportunity to examine how PHE can become a sustainability exemplar. A number of office moves have taken place across the regions and all projects consider proximity to public transport and energy efficiency – for example, the fitting of energy-saving devices such as lighting sensors. Recycling is also a key focus across our premises. Some examples of accommodation moves are highlighted below:

- North Region: The North West Centre has had office moves taking place across three different patches and all of these locations maximise opportunities for staff and visitors to utilise public transport

- Midlands and East Region: The East Midlands centre moved offices to premises that has easy access to the railway station to enable a greater number of journeys to work and meetings to be completed more sustainably via train. As part of the office move, a secured cycle shed and shower facilities were constructed to improve accessibility of active travel for staff

### Staff health and wellbeing

As part of the sustainability agenda regions have also looked at how sustainability can benefit the health and wellbeing of staff. Some examples include:

- Midlands and East Region: Within the West Midlands Centre a loan of 18 bikes for PHE staff from Birmingham Cycle Revolution was secured to promote health and wellbeing. The centre undertook an active travel survey which in turn generated an active travel plan for staff. The centre is also inviting organisations to come and advise staff on sustainability, for example, Sustrans on cycling to work
- The East Midlands Centre set up an Office Environment Group, which aims to develop the physical office environment to have a positive impact on staff health and wellbeing. As part of this, access to recycling facilities in each office wing has been improved, including facilities for recycling printer cartridges and batteries. An office gardening club is making effective use of green space around the office building to grow plants to attract pollinators, as well as fruit and vegetables. Cycle share schemes are also being explored.
- London Region: A cycle scheme morning was held to promote the cycle to work initiative and staff were signposted to 'cycle confident' training provided jointly by London boroughs and the Metropolitan Police, to build confidence in an individual's ability to cycle in London. Lunchtime walks for staff have also been implemented and staff undertook the Himalayan Challenge – so instead of using lifts and escalators, they climbed the 8,848-metre equivalent height of Mount Everest

# Sustainable Development in the Health and Wellbeing directorate

## Sustainability and healthy places

In PHE's previous Sustainability Report 2014, the Healthy Places team focused on PHE's work with the Institute of Health Equity on Health Inequalities in England on green spaces, cold homes, and physical activity through active transport. Some of the key messages which have emerged are that:

- there is significant and growing evidence on the health benefits of access to good quality green spaces. The benefits include better self-rated health; lower body mass index, overweight and obesity levels; improved mental health and wellbeing; increased longevity
- there is unequal access to green space across England. People living in the most deprived areas are less likely to live near green spaces and will therefore have fewer opportunities to experience the health benefits of green space compared with people living in less deprived areas
- increasing the use of good quality green space for all social groups is likely to improve health outcomes and reduce health inequalities. It can also bring other benefits such as greater community cohesion and reduced social isolation

Since then, the Healthy Places team has continued to promote the importance of the natural environment and access to green spaces as important issues for public health. We take as our start-point some of the UK's most pressing health challenges – such as obesity, mental health issues, physical inactivity and the needs of an ageing population – that can all be influenced by the quality of our built and natural environment. In other words, the considerate design of spaces and places and access to green space and the natural environment can help to promote good health. Access to goods and services can alleviate, and in some cases even prevent, poor health and thereby have a positive impact on reducing health inequalities.

As such we have continued to emphasise the need to consider sustainability issues in planning and how it needs to underpin our work on addressing the wider determinants of health through the design of, and access to, the built and natural environment, and how infrastructure issues like transport and housing have important roles to play if we are to seriously address the health challenges facing the country. We have taken this work forward through a number of publications, partnership events, trainings and working across government and with partners to demonstrate what we observe, which is: 'What is good for improving health is also good for the environment as well as for the economy.'

An example of this win-win situation is the benefit of increasing physical activity through active travel. Switching more journeys to active travel can improve health, life quality and the environment while supporting the economy. Working together to promote active travel, a briefing for local authorities (and transport planners) was published in May 2016.<sup>2</sup> The report's key messages capture sustainability at its core while developing a healthy local transport strategy:

- physical inactivity directly contributes to one in six deaths in the UK and costs £7.4 billion a year to business and wider society
- the growth in road transport has been a major factor in reducing levels of physical activity and increasing obesity
- building walking or cycling into daily routines are the most effective ways to increase physical activity
- short car trips (under five miles) are a prime area for switching to active travel and to public transport, health-promoting transport systems are pro-business and support economic prosperity. They enable optimal travel to work with less congestion, collisions, pollution and they support a healthier workforce

Last year, a series of webinars were delivered on Planning, Housing, Transport, and Heatwaves. Through supporting events that foster sustainable ways to achieving healthy lifestyles, we have worked with local and national partners, for example: the Landscape Institute; Royal Town Planning Institute; NHS Forests and Durham Health and Wellbeing Board 'Big Tent' event, on the environment and housing. This year there was a PHE masterclass on Green Infrastructure at the 2016 PHE Annual Conference and we are currently preparing an Evidence Review with the University of the West of England which is considering aspects of the natural environment on health.

In recognition of the unique part which the National Parks play in the life of the nation, to promote health and wellbeing, PHE with National Parks England have developed an accord to work proactively and practically together. Through this work we hope to further highlight the importance of increasing access to, and making use of, good quality natural environments to help improve health and reduce inequalities.

Green spaces have many environmental benefits such as air and water quality, tranquillity, greater community cohesion and less social isolation and decreased risk of flooding. We know that rising temperatures suggest there will be increasingly more

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<sup>2</sup> See:

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/523460/Working\\_Together\\_to\\_Promote\\_Active\\_Travel\\_A\\_briefing\\_for\\_local\\_authorities.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/523460/Working_Together_to_Promote_Active_Travel_A_briefing_for_local_authorities.pdf)

heatwaves in the UK, but excess deaths from cold weather will remain challenging due to an increasingly ageing population.

Healthy Places supports the work of local energy officers in delivering warmer homes and a sustainable energy future and has worked closely with other government departments such as DECC in developing the Fuel Poverty Strategy, published in 2015.<sup>3</sup> To emphasise the triple win for health, the environment and economy, we would conclude with an example from a recent publication from the Building Research Establishment (BRE) which includes a forward written by Professor Kevin Fenton. Poor housing has been estimated to cost the NHS (through treating ill health as a result of sub-standard housing) £2.4 billion per year. However, the BRE goes on to note: “It has been estimated that there are some 1.325 million homes in England that suffer from a serious excess cold hazard. The cost to bring these up to a reasonable standard (ie the current national average SAP value of 57) is around £6 billion. But, if this work were undertaken, it is suggested that it would be possible to save some £1.3 billion per annum in fuel bills. In England, this would typically be the cost of purchasing gas, mainly from overseas.”<sup>4</sup>

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<sup>3</sup> <https://www.gov.uk/government/publications/cutting-the-cost-of-keeping-warm>

<sup>4</sup> [https://www.bre.co.uk/filelibrary/Briefing%20papers/86749-BRE\\_briefing-paper-PHE-England-A4-v3.pdf](https://www.bre.co.uk/filelibrary/Briefing%20papers/86749-BRE_briefing-paper-PHE-England-A4-v3.pdf)



# National Infection Service – Porton

PHE Porton is a large operational site with a variety of complex and resource intensive activities. In April 2015, the pharmaceutical manufacturing department on site separated from PHE to become Porton Biopharma Limited (PBL). Although now a separate company, PBL's staff and facilities remain based on the PHE Porton site and are supported by PHE.

It has been a challenging year for the Porton site, as the separation of PHE and PBL created the need to divide procedures, data and information to enable the organisations to operate and report separately. Despite these challenges, the site has continued to make progress towards PHE's sustainability goals. The following summary identifies the work and projects that have both progressed and been completed at the Porton site in the last year.

## Photovoltaic installation

In December 2015, PHE Porton received planning permission to install a photovoltaic (PV) array in the field to the west of the main site. The total installed capacity of the array is 600 kW and it is estimated that the array will generate approximately 612 MWh annually. The array was installed, commissioned and started generating electricity on 29 March 2016.

The PV installation will support PHE Porton's work towards the organisation's targets to reduce greenhouse gas emissions from utility usage by 3% annually. The installation will reduce the total electricity that the site draws from the grid by approximately 6%. PHE is also able to take advantage of the Renewables Obligations Certificate (ROC) subsidy for generating electricity, currently £0.44/kWh. The expected payback for the installation is nine years.

## LED lighting installation

To further support PHE's target to reduce greenhouse gas emissions from utility usage, during 2015-16 PHE Porton has continued with its programme to identify and replace suitable fluorescent lighting with LED lighting. This year the site has concentrated on corridor and stairwell areas in the main building as well as upgrading lighting in a small number of laboratories during refurbishment projects.

The lighting installed this financial year is anticipated to save 9kWh per year. With both energy-saving and reduced maintenance costs it is anticipated that this lighting will save approximately £3,700 annually. The lighting programme will continue to identify suitable projects throughout 2016/17.

## Sub-metering

To meet PHE's environmental targets, particularly for greenhouse gas emissions from utility usage and water consumption, we need a good understanding of where and when we are using these resources so that we may identify priority areas for improvement. Over the past two years, PHE Porton has been rolling out a programme to install electricity, water and gas/steam sub-meters.

Due to the site's age, complexity and 24/7 operation, the installation has been challenging and has suffered with delays. However, over 90 electricity meters have now been installed, 10 of the 16 water meters have been installed and the final steam meters will be installed in August 2016. We plan to develop a good baseline understanding of our usage over 2016/17 in preparation to take a more targeted approach to resource efficiency projects in 2017/18.

## Boiler upgrade

PHE Porton's main site boilers were over 60 years old and were installed when the site was constructed in 1950. The boilers provide low pressure steam as the primary heat source for a number of critical sites systems as well as the heating medium for the majority of the site's buildings. Due to the boilers' age, the insulation around the boiler shell was inefficient and a considerable amount of heat was wasted. Moreover, the boilers no longer matched the demand profile for the site.

To eliminate the risk of failure due to the age of the equipment, and to support PHE's target to reduce greenhouse gas emissions from utility usage, a project was approved to replace the two ageing boilers with three smaller, efficient gas/oil boilers. The project commenced in October 2015 and was completed with the commissioning of the new boilers in July 2016.

The new boilers have been specified to operate at over 90% efficiency, modulating to handle the varying site loads. It is anticipated that the new boilers will provide approximately £48,000 savings on annual fuel consumption. It is anticipated that efficiency will also improve further in the future with plans to replace the steam distribution network on site.

## Reuse opportunities

To support PHE's target to reduce total waste arisings by 2% annually, PHE Porton has been investigating ways that it can reuse items rather than sending them for disposal.

To firstly look to reuse items onsite, we have subscribed to WARP It, a web-based reuse portal that enables staff to upload and claim unwanted items. PHE's portal was launched in February 2016 and in the first two months more than 100 staff registered

to use the portal and a number of items were uploaded and claimed. We believe this portal will be particularly useful for saving laboratory equipment and consumables from unnecessary disposal. If items cannot be reused on site, we are also looking at the opportunity to auction laboratory equipment at specialist auctioneers.

Both initiatives are still in the early phase of implementation but during 2016/17 we anticipate a reduction in the amount of waste we send off-site as well as associated financial savings from reduced procurement and waste costs.

### Environmental management at Porton

Work has continued in 2015/16 to embed environmental management into the culture at PHE Porton. Training programmes and written site communications have continued to be rolled out, as well as additional initiatives to encourage engagement in environmental management in all departments across the site.

### Environmental working group

A workshop was held in July 2015, with representation from departments across the site to resurrect, refocus and re-task the site's environmental working group. The group now meet every other month and are developing a programme of work for 2016/17 focusing on auditing environmental behaviour across the site.

Representatives from the group have also organised for environmental items to be added to departmental meetings to ensure that environmental messages are distributed across the site.

### Management updates

PHE Porton's Environmental Manager now attends the site management meeting once a quarter to deliver an update on the site's progress towards PHE's environmental objectives and to raise any environmental issues or initiatives for approval.

### Site environmental updates

Biannually, PHE Porton's Environmental Manager and Safety Adviser organise a series of update talks in the site's lecture theatres. All staff are invited to attend. The talks provide an opportunity to report progress against targets, highlight successes, report incidents and receive questions and feedback.

### Sustainability day

On February 2016, PHE Porton held a site sustainability day. The event, held in the site's restaurant, focused on waste reduction but also had displays informing staff about the sustainable sourcing of food in the restaurant, cycling to work and a charity plant sale. The event was well attended and positive feedback was provided from those staff that attended.

# Sustainability at Colindale

## Energy

Since 2009-10 Colindale has saved more than 564 tCO<sub>2</sub> directly, due to energy management projects. In addition, the number of cooling degree days has increased so the cooling energy required to regulate the building is expected to continue increasing.

Existing office lighting is being replaced with new LED flat panels, on a rolling programme, providing lighting for an extended 45,000 hours. Existing plant room lighting is being replaced with new T5 energy-saving lamps coupled with microwave movement sensors. This project uses 60% less energy, emits less heat to the environment and due to the fitting's longevity, less waste is produced over the lifetime of the building. The latest LED lighting replacement can save up to 75% of electricity use. This can be achieved with programming so that lights dim to 50% and then 25% after a further five minutes. They automatically light up when motion is sensed. Electricity use at Colindale reduced by 1.23% although costs still increased by 1%.

A second phase of photovoltaic solar panels was installed in March 2016 on the corporate services roof and the south-facing side of the main building roof. The system is rated at 250 kW and can save up to 95 tCO<sub>2</sub>e per year. Across the lifetime of the installation, it will save 2,240 tonnes CO<sub>2</sub>e.

Gas used as steam for autoclaves and heating at Colindale has reduced by 7% overall for 2015-16 with a 19% reduction during the last quarter. This has been achieved through pressure setting changes as a large percentage of the steam produced was not being used. This has also resulted in a financial saving of 29%. However, the cost of gas per unit has also reduced in line with universal energy price fall.

Overall, Colindale met PHE's carbon reduction target as it saved 141 tCO<sub>2</sub>e, a 3% reduction.

During the forthcoming year the roll-out of LED lighting changes will continue on the third floor, in laboratory hot and cold rooms and office spaces.

## Water

The trend of water use is still reducing and has been since 2004-5. However, one of the water meters needed replacement last year which caused an anomaly in 2014/15. The figures for 2015/16 are correct as the meter was replaced towards the end of the last financial year. Waterless urinals continue to reduce water use.

## Waste

Colindale has made improvements in waste management with a 9% reduction of overall waste produced on site from 288 tonnes in 2014/15 to 265 tonnes in 2015/16.

Legislation requires that Colindale considers the waste hierarchy when deciding how to dispose of waste. With that in mind, there has been a 48% reduction in waste being sent for disposal via incineration without energy recovery. This clinical waste is now sent to Hillingdon hospital, only a few miles away, where it is incinerated and the energy produced is used by the hospital.

The quantity of waste sent for recycling has increased as food waste is collected separately and sent for anaerobic digestion. Additionally, the quantity of waste being reused offsite has increased to seven tonnes.

The Banner closed-loop paper collection system began in September 2015 and has resulted in reduced resources being used as the hessian recycling bags have been replaced with locked reusable plastic wheelie bins. The scheme satisfies the Caldecott principles for the protection of sensitive information and reduces confidential waste costs by 50%. The large blue bins are also serviced directly by the contractor which means that there is very little requirement for PHE staff to move this waste around site.

## Sustainable procurement

A team was set up to investigate the procurement of new clinical waste bags for Colindale. The result was that a better quality clinical waste bag was procured at less cost, with less labour now required to complete the filling process.

## Promotional events held at Colindale in 2015/16

Colindale supports a holistic approach to sustainability and environmental management with promotional events to inform and inspire staff to help them understand that environmental impacts have a much larger effect on us than might be perceived. Understanding the pathways of our impact on the environment also helps people to remember how to avoid damage to the environment.

## Earth awareness day was held on June 2015

Colindale launched 'the Colindale Wildlife Group' at this particular event, with materials showing the wildlife already witnessed on site and suggestions as to how staff can encourage the natural inhabitants of the ecological systems that we occupy. Ideas on flowering plants attractive to bees and constructing homes for hedgehogs, local birds and insects were displayed, with expert advice given by RSPB members and bee keepers.

The allotment team held competitions on identifying unusual vegetables and fruits while raising awareness about what the Colindale allotments have achieved already and the therapeutic effects of gardening on the physical and mental wellbeing of staff.

EMCOR held a stand promoting reducing food waste and promoting 'I-FREEZE', a promotion developed by WRAP (Waste Resource Action Programme) to show people how to prepare and package food properly to lengthen the edible life of food items.

Catering Academy displayed fresh fruit and vegetables showing staff how to use fresh produce to cook a delicious and quick meal for the family.

The Health and Wellbeing directorate were represented with occupational health staff members highlighting obesity, weight loss programmes initiated by PHE and signposts to incentivise staff to participate in becoming healthier. Other participants included URGE Cycles completing bicycle MOTs; Barnet Beekeeper's Association selling locally produced honey, the 'Electric Bike Company', 'Affinity Water', and Banner who promoted their closed-loop paper recycling programme.

### Colindale freshers' day, October 2015:

In October, the health and wellbeing group organised an event to highlight ways in which PHE staff can improve their personal wellbeing while helping to reduce their impacts upon the natural environment. Cycling and walking were encouraged as well as climbing stairs instead of using a lift, methods that help personal fitness while having very limited impact upon the natural environment.

An emphasis on good mental health was used to illustrate to staff methods to reduce stress and improve health with yoga, tai chi and mindfulness techniques.

Information and advice was provided on mental health services available for staff with the PHE occupational health team on hand to assist, together with PHE mental health first aiders and a junior psychologist.

In line with eco-therapeutic aims (the green agenda for mental health) a Colindale craft group was initiated. Members were recruited with the aim of producing crafts for sale at events held at PHE and the profit sent to chosen charities. In December 2015, the craft group raised £515 for Dementia UK. Bearing in mind that plastic bags in supermarket shops are no longer free, members of the team produced shopping bags with no sewing, from recycled T-shirts.

## Climate change day

Colindale had another large event in February 2016 to highlight the impacts of climate change and draw attention to the importance of 'adaptation to climate change' in the community. Guest speakers included David Pencheon (Director PHE & NHS Sustainable Development Unit) and Marc Beveridge (PHE Sustainability Lead for London).

This was accompanied by promotions from Catering Academy, providing PHE staff with the opportunity of using a static bike to whisk healthy smoothies.

Campbell Kennedy Energy was on hand to answer questions from staff about the new photovoltaic cells that were being installed on the roofs at Colindale.

ECOPROD presented water-reduction techniques, such as the waterless urinals installed across site and presenting technologies such as 'no touch' taps. 'Dr Bike' ensured bicycles were road-worthy and safe for staff to cycle to work and EMCOR produced bird-feeders from recycled materials and planters from recycled pallets.

# Management and governance

PHE has taken steps to improve reporting and knowledge of the social, environmental and financial impacts of PHE's operations. A Sustainable Development and Climate Change Programme Board was established to oversee our work on sustainable development and to help formulate and coordinate advice to local authorities when required. PHE continued to work with the Sustainable Development Unit on the implementation of the public health and social care sustainable development strategy. Work has also continued on delivering health advice about a changing climate through PHE's commitment to the national adaptation programme. PHE's sustainable Development and Environmental Management Group continues to monitor carbon management and works to reduce PHE's carbon emissions year on year.

## Sustainable Development & Environmental Management Group

Carbon emissions and associated activities are managed through the Sustainable Development & Environmental Management Group, which reports to PHE's Sustainable Development Programme Board. Membership in 2015/16 was:

Angie Bone	Climate Change & Extreme Events
Sotiris Vardoulakis	Centre for Radiation Chemical & Environmental Hazards
Peter Gidman	Head of Estates
Brigitte Guile	Environmental Manager, Colindale
Peter Hammond	Head of Security & Sustainability
Jim McLauchlin	Microbiology Services: Laboratories
Steve Owens	Head of Sustainable Development (Chair)
Lizzy Staincliffe	Environmental Manager, Porton
Chris Smith	Procurement

The following people also served on the group during the year:

Jo Campbell-Brown	Chief Knowledge Officer Directorate
Natalie Glover	Operations Directorate and regional lead
Colin Hawkins	Chief Knowledge Officer Directorate
Karen Martin	Sustainability Coordinator