

University of Bristol

Sustainability Report 2016/17

Key Performance Indicators/Report Summary

- ISO14001 certification covering all activities including education delivery.
- Absolute carbon emissions down by 17% relative to income/staff and student numbers, down by 35% from baseline year 2005/06. This includes over £60,000 of energy savings from lab efficiency work.
- Water consumption down by 28% from baseline year 2007/08.
- Staff commuting via single occupancy car journeys fell from 19% to 17%.
- Student bus service carried 722,000 passengers
- Students bringing cars to the University fell from 27% (2008) to 17% this year.
- 82% of all waste is reused, recycled or composted. The rest goes to fuel or hazardous disposal, less than 1% of University waste goes to landfill.
- 94% of construction waste is reused or recycled.
- Hazardous waste disposed of via incineration has fallen by 16%.
- Halls recycling rates up to 56% from 51% last year.
- A newly launched lab equipment reuse scheme has seen 1.5 tonnes of equipment reused.
- Confidential waste has risen by 120% and general waste production has risen.
- Procurement have achieved Chartered Institute of Procurement and Supply (CIPS) Corporate Ethics Mark certification.
- BREEAM Excellent achieved at 8-10 Berkeley Square refurbishment.
- High sustainability brief set for TQEC.
- Rare birds present on the University estate including – House sparrows & stock doves.
- Butterfly population on the University estate grown by 50%.
- The university has achieved the Green Flag certification.
- Over 30 teams have taken part in Green Impact, with an additional 12 teams piloting Green Impact in labs. UNESCO award won by NUS for Green Impact roll out.
- Bristol Futures is underway, developing online courses for all students.
- Green Apple scheme funded two projects on curriculum innovation.
- Green Gown Award won for student engagement work.

University of Bristol

Sustainability Report 2016/17

Environmental Management System (EMS)

The University successfully passed audit for ISO14001 (seventh year of holding ISO14001). The University included Education for Sustainable Development within this management system in 2012/13. This was a significant step to include curriculum within the EMS to have a full institution certification, the first within the Russell Group and one of only a handful in the sector. Sustainability continues to maintain an annually reviewed environmental legislation register available on our website. A new version of ISO 14001 was published in late 2015 which focuses on outcomes as well as processes; inclusion of curriculum puts the university in a strong position to deliver the new certification. The University is working towards this new standard in 2017.

Carbon/Energy Management

We have considered for this report, as in previous years, the areas for which we have full operational and financial control. These are areas owned and leased by the University at which we contract and pay for fuel. This is the area considered by Carbon Reduction Commitment. Estates Management Records now require us to also consider leased areas where we do not pay for fuel and or have maintenance control – space within hospitals and leased accommodation. We have very limited control over consumption in these areas.

From the table below we note that **carbon dioxide emissions are 17% below the baseline**, a lower reduction than the 1% noted in the previous year. This change can be ascribed to:

- Reductions from better control and the use of air-source heat pumps at electrically heated halls
- Efficiencies from our lighting programme at several sites
- Efficiencies from improvements to air handling at Chemistry and High-Performance Computing
- A warmer winter
- A national reduction in the carbon emissions from the use of electricity

It is important to note that the Synthetic CHP has been out of action this year due to maintenance outage and works at Queens Building affecting the heat main. This has meant that electricity production has been lower and there has been a concomitant rise in the use of grid electricity and reduction in the use of gas. The Grid Electricity figures therefore mask a reduction in the use of electricity, including that which is self-generated.

	GridElec	Gas	Oil	Steam		Elec	Gas	Oil	Steam	CO2 (t)	Var
	GWh	GWh	GWh	GWh	Total	tCO2	tCO2	tCO2	tCO2	tCO2	
05/06	60.0	79.9	1.2	1.4	142.5	31,229	14,801	336	335	46,701	0%
06/07	55.2	77.4	0.6	0.9	134.1	28,630	14,329	167	207	43,333	-7%
07/08	56.8	85.1	1.2	0.5	143.6	28,969	15,753	320	124	45,166	-3%
08/09	57.8	86.4	0.9	0	145.1	30,146	16,000	259	0	46,405	-1%
09/10	56.3	87.4	0.3	0	144.0	29,767	16,187	95	0	46,049	-1%
10/11	56.5	84.0	0.4	0	140.9	28,520	15,552	108	0	44,180	-5%
11/12	57.5	81.6	0.3	0	139.4	28,425	15,111	81	0	43,617	-7%
12/13	57.8	94.5	0.3	0	152.6	28,246	17,436	70	0	45,752	-2%
13/14	60.6	81.0	0.3	0	141.9	31,226	14,957	75	0	46,258	-1%
14/15	62.1	83.6	0.3	0	146.0	31,020	15,413	55	0	46,488	0%
15/16	63.1	76.4	0.2	0	139.7	28,421	14,057	63	0	42,542	-9%

16/17	65.3	74.7	0.2	0	140.2	25,101	13,737	67	0	38,904	-17%
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By this measure, we met our 2015/16 target of a 15% reduction on 2005/06 a year late. The University maintains the Carbon Management Standard ISO 14064 (achieved April 2017). The 2016/17 figures above have not yet been externally audited and may change slightly on audit. However, they follow the same methodology as previous years. The following tables show how the University's size has changed since 2005/6 by several measures.

	2005/6	2016/17	
GIA	352,500	506,091	+44%
Total Staff FTE	4,745	5,564	+17%
Students FTE	15,347	22,226	+45%
CO2 (tonnes)	46,845	38,904	-17%
tonnes/FTE	3.05	1.75	-43%
kg/m2 GIA	133	77	-42%

Rethinking the CMP

As the Sustainability Policy is being renewed, we have been redeveloping the Carbon Management Plan into a Carbon Strategy to address emissions in all the University's space, including leased space, and to put us on a path to net zero emissions from Scope 1 & 2 emissions, measured by ISO 14064, by 2030, and to inventory and control our Scope 3 emissions better.

The plan includes:

- Action to reduce costs
- Action to reduce reputational risk and to satisfy funders and potential funders
- Linking the installation and implementation of measures with didactic opportunities for students and research opportunities for the academic community
- A focus on highly serviced areas
- Actions to increase our purchases of power and heat from lower carbon sources

Progress against our Scope 1& 2 emissions since 2007/8 is as follows:

ISO14064	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17
Scope 1	17,391	17,485	17,204	16,992	15,980	18,398	15,458	16,235	14,261	14,520
Scope 2	28,510	30,789	30,089	29,349	27,564	29,192	34,013	30,986	28,205	24,944
Total	45,901	48,274	47,293	46,341	43,543	47,590	49,472	47,221	42,466	39,465
FTE Staff and Student	20,849	21,302	21,438	22,047	22,246	23,722	24,530	25,814	25,905	27,829
tCO2 per FTE	2.2	2.3	2.2	2.1	2.0	2.0	2.0	1.8	1.6	1.4

Therefore, emissions are down from 2007/08 by 14% whereas staff & student FTE's are up by 33%. Emissions per FTE are down by 35%.

A key target of this is a plan to reduce the total energy consumption per FTE at buildings over which we have operational control by a third from 2014/15 to 2030, chosen because it is a year by which our major recent buildings, such as Life Sciences, were in use, which experienced 20-year average temperatures. The table below shows our progress on this, and we are currently 6% down on this baseline, against a 33% target.

Total Energy GWh	Student FTE	Staff FTE	Total FTE	kWh/FTE
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05/06	142.5	15,347	4,745	20,092	7,092
10/11	140.9	17,340	4,707	22,047	6,391
14/15	146.0	20,845	4,969	25,814	5,656
15/16	139.7	20,614	5,291	25,905	5,394
16/17	140.2	22,266	5,563	27,829	5,038

From April 2017, we began to buy electricity for our contracted sites from UK wind farms, via our supplier EDF.

Water

The University's water consumption in 2016/17 was slightly higher than in 2015/16, at 28% below consumption in the baseline year of 2007/08, despite a major leak at Hiatt Baker and increasing numbers and activity.

	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17 (draft)
M ³	491,473	448,713	445,265	448,161	416,403	367,037	379,022	384,067	354,425	352,159
		-9%	-9%	-9%	-15%	-25%	-23%	-22%	-28%	-28%

In the last decade, many reductions have been due to the wholesale replacement of the ring mains at the Precinct, Langford and Stoke Bishop.

The avoidance of tap water being used for cooling electrical equipment is now a key strand of our water conservation and cost-saving activity.

Transport

The University's Combined Staff and Student Travel Plan (2009-16) was last updated in April 2014. This sets a range of targets for reducing single occupancy car trips and increasing use of sustainable travel modes (walking, cycling, public transport and car-sharing) among both staff and students. Progress against these targets is measured through a series of regular staff and travel surveys conducted separately at intervals of between two and four years.

The staff travel survey conducted in late 2016 showed the long-term downward trend in car use was continuing among University staff for the journey to work. The share of single occupancy car trips fell to 17% from 19% in 2013, against a travel plan target of 15%. The sustainable travel modes showing the greatest increases over the same period were cycling (up from 14% to 17%) and bus (from 11% to 15%).

The student travel survey is scheduled to be repeated in early 2018. When it was last conducted in 2015, this showed the share of single occupancy car trips among students for the journey to study was in line with the travel plan target of 4%. This is in apparent contrast to the proportion of students with their own cars at University, measured at 18% in 2015. Although much reduced from the 2008 baseline level of 27%, this is still short of the travel plan target of 14%.

The travel plan also identified a series of further priorities for action, for example on business travel, fleet management and visitor travel. Targets in these areas were less well-defined and resources available to tackle them limited, so progress has been slow or difficult to measure (or both). These areas will be subject to review when the travel plan is updated in 2018.

Key activities and achievements this year:

- The University's Bus Service 16 carried a total of 722,000 passengers from September 2016 to June 2017, a 2% decline on the previous year. The overall satisfaction rating for the service operated by Wessex also fell from 75% to 66%, reflecting dissatisfaction with a timetable change introduced in late 2016.
- Following a competitive tendering process, the contract to operate the University's student bus service for five years from September 2017 was awarded to First Bus. The contract includes provision of a new U1 bus service with a dedicated fleet of low-emission double decker buses, and free travel for students holding a University bus year pass on four other First bus services linking the campus with the city centre, Bristol Temple Meads and other parts of the city.
- Work began on the development of a new online car park permit management system. When implemented in early 2018, the new system is expected to result in time savings for all staff during the application process. It will also be compatible with hand-held devices being introduced by Security Services to improve parking enforcement and provide enhanced management information on parking operations.
- Continued support for staff and student cycling through investment in new cycle parking providing capacity for 120 bikes (using space reallocated from car parking); fortnightly free cycle clinics attracting around 500 staff and students during the year; a Cycle to Work scheme (enabling 86 members of staff to purchase new bikes in 2016/17); access to free cycle training and loan bikes. The University also supports a thriving community of cyclists through a Bicycle User Group with nearly 1,700 members, a further 10% growth on the previous year and now believed to be one of the largest such groups of all UK universities.
- Continued steady growth in the University's car-sharing scheme, supported by incentives for car-sharing through the precinct car parking policy, with 61 new members added in 2016/17 bringing the total to 743, an increase of 8.9% on the previous year.

Waste and Circular Economy

In 2016/17 the University **reused, recycled and composted 82.37% of its total waste achieving our strategy target of 65%**. This was a reduction on the 2015/16 figure of 86.02% and can be attributed to a significant increase in waste that cannot be recycled. The amount of hazardous waste streams that require incineration to produce energy from waste increased by over 20%, due to increased teaching and research activities. The amount of general (residual) waste to landfill produced at the University has consistently fallen since our baseline year of 2007/08 and due to waste market and technology changes is now less than 1%. Under the European Waste Framework Directive, waste should be managed using a hierarchy with prevention as the first option and landfill as the least preferable option. The University has minimised landfill and utilises alternative technologies such as energy from waste (EFW) in line with the Directive.

Proportion of general waste going to landfill:

	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17
% waste sent to landfill	59.7	52.0	51.3	44.3	24.12	5.0	5.8	<5%	<1%	<1%

In 2013/14 the **amount of waste produced per FTE** had grown by 8% on 2012/2013 numbers. This was a reflection of new build projects and associated office/laboratory moves. The move into Life Sciences in particular produced a significant amount of waste as old materials were discarded. In 2014/15 this

figure started to reduce but has again increased in 2015/16 and 2016/17. This trend will continue to be challenged in 2017/18 as the University expands and maximises space usage.

The amount of confidential materials shredded and recycled has increased consistently year on year.

2013/2014 – 80 tonnes

2014/2015 – 130 tonnes

2015/2016 – 160 tonnes

2016/2017 – 174 tonnes

This upward trend will focus our attention on a balance between managing our confidential and non-confidential media correctly and ensuring we adhere to our information security policies at the University. Changes in how we manage information in line with space optimisation projects, changes to the Data Protection Act and a move towards more flexible working and hot desking will continue this upward trend.

Construction and bulky wastes

Current average **recycling/reuse rates for 2016-2017 are 94%**, in line with 2015/16 averages and an increase on 2014/15 averages of 92%.

In 2016-2017 we recycled and reused 169 tonnes of waste from bulky waste clearances. This compares to 107 tonnes in 2015-2016, representing a 58% increase. The increase is attributed to the volume of office moves and refurbishments at the University during 2016/17.

Hazardous waste

- The aim is to reduce the amount incinerated by 50% by 2018 (baseline 2010/11), in 2013/14 this fell and the trend continued in 2014/15 and 2015/16, making a total reduction of 24% from the baseline figure. In 2016-2017 the amount of hazardous wastes requiring incineration increased due to increased teaching and research activities and building refurbishments at the University. The current increases mean we **are now reduced 16% against our baseline**.
- Chemical waste disposals have been increasing over the last few years.

2014/15 31 tonnes

2015/16 45 tonnes

2016/17 65 tonnes

This reflects an increase in laboratory work and various department moves, refurbishments and bulk clearances.

Student waste

In 2016-2017 our students recycled on average 56.49% of their waste, an increase on the previous year which was 51.24%.

Feasibility of zero waste to landfill

The amount of general (residual) waste to landfill produced at the University has consistently fallen since our baseline year of 2007/08. There were particular leaps in this target over the last two years as the University was able to retender contracts and make use of new technological solutions for waste management. **99% has been achieved consistently over the last two years**. A more challenging target for waste management in current markets is overall waste reduction.

Reuse

The University expanded a reuse website, Re-Store, which re-homed directly within the University 12 tonnes of reusable furniture in 2016-2017. In 2016-2017 there has also been an increase in furniture remanufacturing at the University, with departments choosing to reupholster old furniture rather than disposing and buying new. These initiatives have helped the University avoid buying new furniture

saving between £50k and £100k, saved disposal costs, minimised environmental impact, and reuse supports the local community. In addition the Bristol Big Give project, of which the University is a partner, has reused over 114 tonnes of student waste, which would otherwise have gone to landfill, and has raised up to £200,000 for local and national charities. In 2016/17 we improved how we manage waste electrical items, in particular our unwanted IT equipment. The majority is now compliantly reused instead of being recycled, which is a more sustainable solution and helps us manage our adherence to the waste hierarchy.

Staff Waste/Compliance Training

The University CIWM (Chartered Institute of Waste Management) Training Centre trained 60 members of staff in Sustainable Resource Management in 2016/17. A further 86 members of staff were trained in spill response and more specialist areas of laboratory waste management, helping the University to run more efficiently and remain compliant with complex environmental legislation.

Sustainable Procurement

A new Procurement Policy has been agreed with sustainability embedded within it. The Procurement team (and University) have been awarded the Chartered Institute of Procurement and Supply (CIPS) Corporate Ethics Mark for its work on sustainability and ethics in procurement. Each new tender is reviewed for relevant sustainability criteria including requirements around the Modern Slavery Act 2015. An example is the new furniture contract that includes 10% of sales relating to remanufacture of furniture. Finally engagement with the supply chain has increased with the implementation of a Net Positive tool which reviews supplier's sustainability credentials.

This policy area is delivered by the University's Procurement team.

Sustainable Construction

A number of projects have completed 2016/17 construction, including the Queens Building Extension and 33 Colston Street, though as yet the certification has not been presented. BREEAM refurbishment has also been used as a trial for smaller projects in 8-10 Berkeley Square, achieving an excellent rating, and was nominated for an award at the national BREEAM awards in February 2016. Finally, a full review of sustainable construction was made during 2016 to ensure it is still fit for purpose. A new set of targets has been proposed and a new process for BREEAM and sustainable construction has been agreed for the capital projects manual. A sustainability brief has been produced for the new TQEC and this is being adapted for the wider University.

This policy area is delivered with the help of the Estates Capital Projects team.

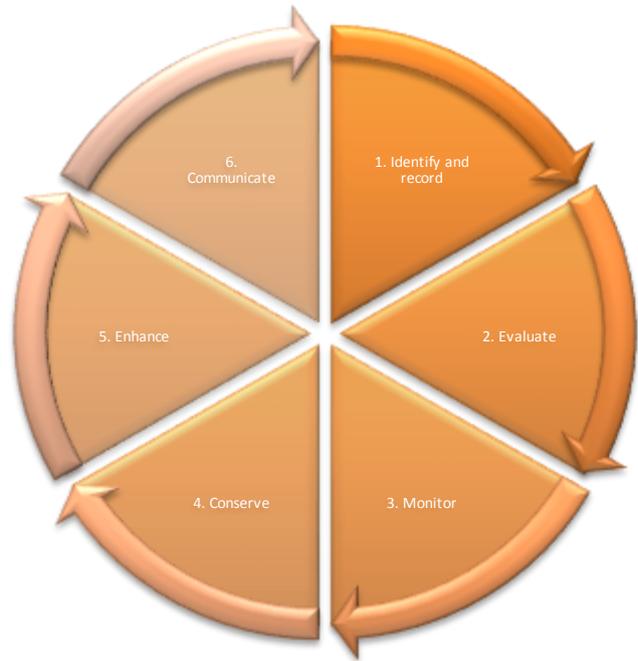
Biodiversity

The following report attempts to capture the University of Bristol's Biodiversity strategy in six steps – see Diagram

Identify and record

External Estates have adopted the Phase ONE Habitat Survey Toolkit - Oxford Brookes University over ArcGIS. These have been complete for the entire University landholding. The **“toolkit allows you to produce effective, JNCC colour coded maps in the field and export them directly to reports or as GIS supported files for further processing in your chosen GIS packages”**. The department is looking to purchase AIT Spatial GIS software to publish this information online in this financial year (August 2017 to July 2018). In a similar way we have published our stock of trees which can be found at:

<https://bristoltrees.space/Tree/collection/UoB/tree>



Evaluate

External Estates is currently developing a suite of evaluation tools for its landscape ecology and will ultimately include (for example): Habitat mix; habitat scale; biodiversity richness; conservation values (species specific); species trend analysis.

Monitor

Surveys of key indicator species were completed once again in 2017 for birds on three University sites (this is the fourth year running), following BTO Breeding Bird Survey techniques, and butterfly species at Stoke Bishop campus (this is the second year of running) using Pollard methodology used by the UK Butterfly Monitoring Scheme.

The surveys conclude:

3a. Birds:

“Two species of conservation concern were recorded in these surveys for the first time in 2017. House sparrow, which is known to have occurred in all three areas in the recent past, was recorded at Clifton Wood...The other newly recorded species, stock dove, is not known to have been present previously.

There are no ... consistent trends amongst the regularly recorded species. [An] apparent large decline in the number of starlings at Stoke Bishop ... was the result of the presence of a single post-breeding flock [in 2014]. No comparable flock has been recorded since but such parties are highly mobile and this is not of any significance.

It is notable that nuthatch...was recorded at Stoke Bishop after being absent in 2016.

The most numerous species of conservation concern at the Precinct are herring and lesser black-backed gulls, which may come as a surprise to those dealing with their increasing urban populations. However, the much larger coastal populations are declining rapidly. In the case of herring gull, the British population declined by 48% from 1969 to 1988, a further 13% from 1988 to 2002 and another 33% from 2000 to 2011. Both large gull species are in rapid decline and whilst it is understood that control will be required in some situations the birds should be tolerated where possible.”

3b. Butterflies:

"This survey recorded an average of 63.75 individual butterflies per visit in 2017, compared with an average 14.2 per visit in 2016. The three most numerous species were meadow brown, small skipper and marbled white. A total of 14 species was recorded over the four visits, the same total as in 2016 although there were changes in the lists."

"The results ... suggest that there has been a significant increase in the value of the meadows for butterflies and other insects. However, it is certain that this apparent increase is due in large part to different weather conditions in the two years. The summer of 2016 was exceptionally wet and cool and this depressed numbers of many butterflies. The weather in 2017 was more favourable and this probably accounts for the striking increase in numbers of species such as meadow brown. These increases in abundance are generally in line with provisional results from Butterfly Conservation's national monitoring scheme. However, the results do suggest that the meadows have maintained [at least] their value for butterflies."

Conserve

The University is dedicated to conserving habitats for which it is responsible. Habitats are only at risk if they are impacted by potential development, and when this occurs Estates use BREEAM to identify the ecological value of the site and mitigate against losses and seek to increase species diversity through (for example) intensified landscape species, or green roofs. The University maintains over 200 acres of parks and gardens (this figure does not include agricultural land ≈ 450 acres or sports grounds).

Where there is no development risk, the habitats are maintained to a high standard. For example, having been awarded a green flag in 2016, External Estates have retained it in 2017. The Green Flag "recognises and rewards well managed parks and green spaces, setting the benchmark standard for the management of recreational outdoor spaces across the United Kingdom and around the world".

Enhance

New green roofs have been established on the university's Queens Building. We have also launched 'My Wild University', a collaboration with the Avon Wildlife Trust with an annual meadow in the Royal Fort. More information for which can be found at:

<http://www.avonwildlifetrust.org.uk/mywilduniversity>

New for 2017/18 are two dedicated web pages for Gardens and Grounds using social media. They can be found at:

<https://en-gb.facebook.com/unibrisgardens/> and

<https://www.instagram.com/unibrisgardens/>

Communicate

Gardens and Grounds team continue to provide activities which attract local community groups, clubs and schools. For example, in 2017 the Bristol Naturalist Society ran several tree, fungi and bird identification walks, organised by External Estates, through University grounds. Numbers interested in attending their bat walks outstripped demand.

Once again, the Botanic Garden ran a number of events (Bee and pollination day; the ballast seed garden; and attended Bristol's 'festival of nature') in order to promote education about, specifically, plant diversity.

This area of the policy has been delivered by the External Estates Team.

Staff and Community Communications

A full communication plan was implemented during 2016/17 and included the running of Green Impact in 30 departments, a joint Green Impact scheme with the Bristol University Hospital Trust and North Bristol Health Trust, as well as within GP Practices. Members of the Sustainability team spoke at a

number of staff events, including Technical Managers Conference and Site Services Supervisors meetings. A key event this year has been the close working with the technicians helping to sponsor their conference. Transport has run a number of events around personalised travel planning, as well as running a bike user group with over 1000 members and Facebook pages. New Facebook and Twitter accounts for Sustainability have been set up. Sustainability is also involved in the welcome lunches and fairs for new staff. Further communication activities are noted within other sections of this report.

Sustainable Labs Initiative

The Sustainable Labs initiative goes from strength to strength, and in the last year helped realise savings of £86,650. This includes energy & water saving activity, and procurement savings.

	Energy		Water		Procurement	Waste	
	kWh	£	m ³	£	£	tonnes	£
15/16	755,927	73,325	0	0	39,699	0	0
16/17	479,845	46,545	19,973	40,105	5,000	1.5	750
Total	1,991,699	193,195	19,973	40,105	84,398	750	750

Energy and water management

- Further equipment replacements of drying cabinets and ultralow temperature freezers (ULTs) are £4,625 per year.
- Chilling up (raising the temp. from -80°C to -70°C) ULTs save on average £120 per unit. Another 16 units chilled up incurring savings of £1,920 per year.
- Water savings incurred from replacing tap-to-drain cooling with recirculating chillers is 19,973m³ per year (NB there is an additional electricity load from chillers amounting to £11,650, therefore there is a net benefit of £28,455).
- Fume cupboard upgrades in Synthetic Chemistry, initial savings ~ £40k per year.

Waste and resource management

Reuse

Implementation of an equipment sale service has diverted 1.5 tonnes of electrical waste from biomedical labs for reuse externally, the equivalent of 4.89 tonnes carbon dioxide. So far, the Biomedical Department has already received over £750 in rebates but are expected to receive £3,000-5,000 over the next year, and over 50hrs of staff time has been saved. All science departments are due to use the service in 2017/18.

Staff have undertaken projects to reuse laboratory glass and Pyrex in the local community within schools as artistic and scientific educational projects.

Recycling

Recycling rates of lab plastics, glass, Pyrex and cardboard have increased due to communication of processes and dissemination of lab recycling caddies.

Sustainable procurement

In 2016/17 S-ProLab was created, which is a partnership between Technical Managers, Sustainability and Procurement that provides strategic centralised processes to our institutional purchasing, and includes sustainability within tender specifications. In the last year the group successfully contracted a wireless alarm and monitoring system, saving the University an estimated £5,000 per annum, and persuading lab users to increase the temperature of their cold storage due to increase sample security, thus saving energy.

Lab users have been introduced through communications and training to sustainable procurement principles, and an online tool for lab grants which takes into account Whole Life Costing has been developed for end users to engage with. The Sustainable Labs Officer is the University of Bristol's Laboratory Lead for

the Southern University Purchasing Consortium (SUPC) and has fed into national contracts such as 'Laboratory Equipment Supply, Installation, Delivery and Post Installation Services'.

Staff and community communications

- Staff receive quarterly updates on the Sustainable Labs Initiative through an e-newsletter, and regular communications via social media and emailing platforms have been maintained.
- The web presence of the UoB Sustainable Labs Initiative has increased by 14 webpages, communicating guidance and ways staff can engage.
- The Sustainable Labs Network meets termly and has grown to 39 members, with 19 Sustainable Labs Leaders across the University; the group collaborates on University-wide projects.
- Resource creation: guidance documents, best practice guides, posters, stickers, brochures.
- Green Impact Labs awards scheme – the first year of the new sustainability and efficiency framework for labs had 20 teams signed up. 12 teams achieved Green Lab Accreditation status, with two achieving Gold and Platinum accreditations. This scheme increases collaboration across the campus and enables behaviour change in labs, as well as improved but non-quantifiable water, energy and waste management. Student interns and 12 volunteers took part in the scheme, working directly with academic and technical staff to audit and support their accomplishments. The awards ceremony took place in conjunction with the annual Technical Conference.
- 13 staff were trained via the new Sustainable Lab training session which aligns with clinical waste auditing and includes 'sustainable procurement' and 'energy and water management'.

Outreach

- Presenting at the 2017 LUPC conference – '*e-auction for the procurement of specialist laboratory consumables*'
- Coordinating the Laboratory Efficiency Action Network (LEAN), a group of UK universities with equivalent sustainable labs initiatives (26 universities, 35 members). The network consists of an online forum and bi-annual meetings. Outputs include standardised environmental frameworks, job descriptions, staff and student training programmes, resources (stickers, posters, best practise guides etc.), sharing tender specifications/joining up on joint tenders for optimal buying power, equipment energy benchmarking, project identification and data sharing.

Targets

1. To increase engagement in the initiative across the campus by increasing the number of Green Impact Labs teams to 25. This will be achieved via regular communications, campaigns, training and Sustainable Labs Network events.
2. To make 35-50% energy efficiencies in labs by focusing on heating, ventilation and air conditioning (HVAC) and fume cupboard infrastructural, operational and policy upgrades. This will contribute to the University aim of becoming carbon neutral by 2030.
3. It will be embedded in procedure that all staff and students in labs receive either a Sustainable Labs induction and/or training by 2020.
4. To increase the proportion of lab recycling to landfill/incinerated waste in labs year on year.
5. To reduce water consumption in labs by 20% by 2020.
6. Implement a chemical management system by 2019 to reduce both the procurement of the chemicals as well as waste costs.
7. Set up annual student Living Lab projects based in labs, with Estates/Sustainability and academic staff as stakeholders. This should be in place by 2019 and tie in with the Sustainable Futures element of Bristol Futures.

Education for Sustainable Development (ESD)

Supporting curriculum innovation

- Two projects from the Graduate School of Education received funding awards from the Green Apple Scheme. Janet Orchard's "Learning from best practice Education for Sustainable Development in Northern Ireland" explored themes of conflict resolution. Funding for last year's successful "Teacher Education for Sustainable Futures" project was extended, led by Alf Coles.
- Dr Aisling Tierney developed a series of seminars within the "Working in Cultural Heritage" unit in the Department of Archaeology and Anthropology. These seminars used the Sustainable Development Goals (SDGs) as a framing device for learning within the context of professional practice.
- Dr Aisling Tierney worked with the Academic Partnerships & Quality Office (AQPO), within the Bristol Futures initiative, to develop plans for curriculum change across all faculties within embedded and option/open units. Substantial curriculum reviews were undertaken, including ESD-specific work on ESD content within units utilising the Unit and Programme Management System (UPMS). This work continues into 2017/18.
- Working within the Bristol Futures initiative ensures that we address our target to see how ESD, through the "Sustainable Futures" theme, can address TEF requirements.
- The ESD team engaged actively with the Bristol Institute for Learning and Teaching (BILT) and the Cabot Institute's SDGs series of workshops, using these as spaces to promote ESD resources.
- A team of academics, working with ESD Team member Dr Aisling Tierney, worked within the Bristol Future initiative to develop a "Sustainable Futures" massive open online course (MOOC), to be hosted on the FutureLearn platform from February 2018. The course will be made available worldwide, for free.
- Content filmed in Albania formed part of the MOOC material. As a result of this work, contacts made with local government officials lead to the development of an interdisciplinary initiative for eco-tourism and sustainable heritage. A pilot project, over two field seasons, is scheduled for 2018.
- Hannah Tweddell from the team facilitated engaged learning opportunities in Geographical Sciences and SPAIS and began discussions for further opportunities in marketing and the Dental School.
- The team supported Lauren Jasper research, for her Engaged Learning Environmental Management and Policy Dissertation commissioned by the Cabot Institute, on how SDGs are used to frame the institutional approach to sustainability.
- Engaged Learning training was delivered as part of the CREATE Bite Series. Training for ESD to researchers was offered through the CREATE team, however, CREATE cancelled the session due to lack of uptake.

Student Engagement

- The Green Curriculum Team hosted a very successful series of panel debates and talks based on the Sustainable Development Goals.
- The team also hosted the third 'A Student's Guide to Sustainability' conference giving the opportunity for students to showcase their sustainability-related research.
- A team of students collaborated with Bristol SU to relaunch the Farmers Market
- The Balloon Bike scheme organised by Bristol SU was again oversubscribed
- Bristol SU organised a Student Advisory Group for Bristol Futures consisting of interested students and staff members developing the scheme.
- The Fossil Free Bristol Uni campaign successfully lobbied the University of Bristol to divest from fossil fuels.
- The Bristol SU Sustainability Committee ran a 'Sustainability Month' campaign in February, raising awareness of the three pillars of sustainability through talks, workshops and the building of a 2m-high hot air balloon sculpture using waste salvaged from Bristol harbour.
- Roots Community Garden developed wild flower meadows around the University to increase biodiversity in partnership with My Wild University.
- Twenty students from South West Universities came to Bristol for the pilot round of UNESCO Young Sustainability Leader Training SW.

Sector engagement

- The 2016 Sustainability Conference proceedings (Canterbury Christ Church University) prominently featured work by the Bristol ESD team.
- In March 2017, NUS produced a report with case studies of how sustainability can be embedded into different courses - 'From Art to Zoo Management: embedding sustainability in UK higher and further education'. The report features two case studies from Bristol.
- Student Engagement Project Coordinator, Amy Walsh, shared her reflections on the "Get Green" project through a blog hosted by The Centre for Comparative and International Research in Education (CIRE), based at the School of Education, University of Bristol.
- Over two hundred staff and students receive the ESD newsletter every month. In twelve months, our online wiki resources were viewed over 29,000 times. We have 300+ likes on Facebook and 700+ followers on Twitter.

Awards and recognition

- October 2016 - Global UNESCO award: An NUS initiative, inspired by the University of Bristol, won a UNESCO award for encouraging universities across the UK to be more environmentally friendly.
- November 2016 - The University won both the Green Gown Award for student engagement and, for the second year in a row, the Bristol Post and Bath Chronicle Environmental Public Sector Award.
- February 2017 - An independent report commissioned by HEFCE praised the University's efforts regarding public engagement, including projects that directly engage with themes of sustainable development and students' experience of working with communities.
- 2017 - The International Green Gown Awards placed the University of Bristol as joint finalists with UWE in the Student Engagement category. The value of 8,000 Bristol students working with 250 city partners on sustainability engagement was thereafter recognised by a prestigious International Green Gown award.

Food

The implementation of the Ethical and Sustainability Policy for food continues, noting locally sourced seasonal and healthy foods, Fairtrade and Rainforest Alliance certified products, all milk used is organic and all eggs are free range and the good egg/chicken award status has been achieved from Compassion in World Farming. Sourcing of only 'Red Tractor' and freedom meats continues as does sourcing fish from Marine Stewardship Society approved suppliers. Meat free days and vegan food is also promoted. On site bottling of water continues to reduce transport-related carbon emissions while saving money. New water fountains have been introduced to promote use of tap water over disposable bottled water. Vegware, a compostable brand of disposable plates, cups and cutlery has been introduced to reduce use of plastics and a food waste policy has been implemented. Delivery of ethical and sustainable food is a major success story for the University.

Appendix one – Target update 2016/17 for Sustainability Policy

Environmental Management System and Legislative Compliance

Targets:

1. To implement a fully operational, externally verified environmental management system across the entire University including curriculum by 2014.

The University included Education for Sustainable Development within this management system in 2012/13 **Target achieved**. Certification continued in 2017/2018 in line with the new 2015 standard.

2. To expand the influence of the University's EMS, by process, to other relevant stakeholders such as contractors by 2016 to ensure best practice for environmental management.

In 2015/2016 the University carried out a programme of CIWM training which was offered to contractors most likely to produce waste as part of their work activities. The University also committed to achieving Flexible Framework Level 5 for the Estates Office and Procurement. **Not on target - Sustainability continues to engage with the Estates Contracting Group and Procurement aiming to achieve Flexible Framework Level 5.**

3. As part of the EMS, an environmental legislative register will be maintained which will include emissions and discharges. This will outline the compliance required; responsibilities for compliance, the controls needed, and will detail resultant actions.

A full legal register has been developed including emissions and discharges and is audited against in accordance with EMS auditing procedures. The register is updated regularly and communicated to relevant staff. The register is updated annually. **Target achieved.**

Energy

Targets:

1. To put the University on a path consistent with a reduction in carbon emissions of 80% by 2050, from a 2005/06 baseline, entailing a reduction of 15% by 2016. This target covers all scope 1 & 2 carbon dioxide emissions. Investments planned for measures consistent with delivering this target will deliver a net cost saving in-period. This will be undertaken using the measures detailed in the Carbon Management Plan, which is aimed at producing a 38% reduction in emissions from buildings by 2020.

A reduction of 17% has been achieved in 2016/17 a year later than the 2016 target for 15%. **Target achieved.**

Carbon Descent plan allows for current slow reduction of emissions, but continued student growth and estate expansion may mean a review of this target is required. Normalised target shows a 28% target when income or floor area or student/staff number changes are accounted for. **On target for completion 2020.**

2. The University will reduce scope 3 carbon dioxide emissions by 10% from a baseline of 2010/11 by 2020.

New work is being planned with Procurement, with a commitment from senior management to include scope 3 within procurement practices. **On target for completion 2020.**

Water

Target:

1. An initial target to reduce water consumption by 10% by 2016 from a 2007/8 base year and to do this cost neutrally or better within this period was achieved in 2009/10. We now aim for a 20% reduction on 2007/08 by 2016.

23% reduction achieved, even with student number increases. Further work is needed to maintain this reduction. **Target achieved.**

Management of Waste as a Resource

Targets:

1. To achieve continuous year on year reduction in waste arising per FTE staff and students.

In 2013/2014 waste produced by the University totalled 97.7kg per person, an increase on the previous year of about 8% (2012/2013 - 90.6kg per person).

In 2014/2015 this upward trend started to reverse with total per FTE being 92kg.

In 2015/2016 this started to increase again with the total per FTE being 98kg.

In 2016/2017 there was a further increase with the total per FTE being 111kg.

Not on target -

2. To reuse, recycle and compost 65% of total waste produced at the University by 2016.

In 2016/2017 The University reused, recycled and composted 82.37% of its total waste. **Target achieved.**

3. To reduce the amount of hazardous waste incinerated at the University by 50% by 2018 based on a baseline of 2010/2011.

In 2011/2012 the University increased waste incineration due to changes in legislation and process, and increased laboratory activity. Against the baseline this figure dropped in:

2012/13 by 4%

2013/2014 by 6%

2014/2015 by 16%

2015/2016 by 24%

2016/2017 by 16% - significant increase in clinical and chemical wastes.

Currently not on target for completion 2018.

4. To recycle or reuse 85% of construction and demolition waste by 2018.

The University's contractors use a combination of waste transfer stations and segregated skips for construction and demolition waste. The average segregation rates range from 65-100% for waste transfer stations and 95-100% for segregated skips. 72% of waste from construction was reused or recycled in 2010/2011, this increased to 82% in 2011/12 and 87% in 2012/2013, 85% in 2013/2014 and 92% in 2014/2015 and 94% in 2015/2016, 94% in 2016/2017. Almost the entire target is recycling with little reuse. In 2017/2018 we aim to continue to promote reuse targets from construction projects. **Target achieved.**

5. To reduce emissions from waste management by 50% from a 2007/08 baseline by 2016.

In 2013/14 emissions were recorded at a 59% reduction of the baseline year. We continue to use the most sustainable waste management solutions available, following the waste hierarchy and minimising waste to landfill. **Target achieved.**

6. To test the feasibility of the University sending zero waste to landfill by 2016.

The University has achieved <1% waste to landfill for the last two years and will continue to minimize this where possible in line with available technology and targets. **Feasibility tested, target achieved.**

Communications

Targets:

1. Annually review the communications strategy for sustainability which will inform each annual communication action plan.

Annually reviewed as part of EMS, communications implementation plans also reviewed annually.

Target achieved.

2. Develop an annual communication action plan for each academic year starting with the year 2009/10. Report on progress with each plan at the end of each academic year.

Implementation plans on the sustainability website. **Target achieved.**

3. Produce an annual sustainability report covering all aspects of the sustainability strategy.

Annual report produced. **Target achieved.**

Transport

Targets:

1. *Develop a framework to support sustainable modes of transport to work and study at the University by staff and students (e.g. walking, cycling, public transport and car sharing). Achieving 85% (baseline 2007) and 96% (baseline 2008) respectively by 2016 for sustainable modes of transport.*

- In 2016, the proportion of staff travelling to work by sustainable modes (including formal and informal car-sharing) had increased to 83%, up from 81% in 2013, but still short of the travel plan target of 85%. Staff are due to be surveyed again in late 2018. **Target not met - reset for 2018.**

- In 2015 (when the last student travel survey was conducted), 96% of students were travelling to study by the same sustainable modes, up from 95% in 2012. **Target met early.**

2. *Reduce the percentage of single occupancy car journeys made to the University by staff and students by 2016 from 21% to 15% (baseline 2007) and to remain at 4% (baseline 2008) respectively.*

- In 2016, the proportion of staff travelling to work by car as driver alone fell to 17% from 19% in 2013. **Target not met - reset for 2018**

- In 2015 (when the last student travel survey was conducted), 4% of students were travelling to study by car as driver alone, down from 5% in 2012. **Target met early.**

3. *Reduce the percentage of all students and Stoke Bishop students bringing a car to the University by 2016 from 27% to 14% (baseline 2008) and 19% to 7% (baseline 2008) respectively.*
 - In 2015 (when the last student travel survey was conducted), 18% of all students and 8% for Stoke Bishop students brought a private car to the University. **Target not met - reset for 2018.**
4. *Increase the percentage of All students and Stoke Bishop Students usually travelling by bus from 4% to 10% (baseline 2008) and 3% to 60% (baseline 2008) respectively by 2016.*
 - In 2015 (when the last student travel survey was conducted), 15% of all students and 81% of Stoke Bishop students usually travelled by bus. **Target met early.**
5. *Reduce car and aviation business mileage by 5% by 2016 (from a baseline of 2009).*
 - The most recent available data suggests continuing rapid growth in air travel for University business. In 2015/16, this rose to 38,566,117km, up 15.4% on the 2014/15 figure of 33,424,637km, which itself was an 11.6% increase on the previous year. **Target due for review (incomplete 2009 baseline data)**
 - Car travel for University business is also on a continuing upward trend. In 2015/16 this rose to 1,406,319km, an increase of 28.3% on the 2013/14 figure of 1,095,988km, which itself was a slight 0.4% increase on the previous year. **Target due for review (incomplete 2009 baseline data)**
6. *Review the University's supply and demand for fleet vehicles and produce a fleet management plan by 2014.*
 - Due to resource constraints, this review has not been carried out. It is expected that fleet management will be identified as a priority when the Combined Staff and Student Travel Plan is updated in 2018. **Target not met.**
7. *Measure and analyse visitor activity to the University; develop and implement a management plan to encourage sustainable travel by visitors by 2016.*
 - No action to date. Potential action to address visitor travel will be considered as part of the travel plan review in 2018 do. **Target not met.**
8. *Identify measure and monitor carbon emissions related to all University related transport by 2015.*
 - Emissions from both fleet transport (Scope 1) and business travel (Scope 3) are now measured as part of the University's carbon management plan, and externally audited under the ISO 14064 process. In 2015-16, total transport-related emissions amounted to 7,891 tonnes CO₂ equivalent, an increase of 8% on the previous year. **Original target met – now due for review**
9. *Identify how 'deliveries' to the University can be reduced and develop a reduction plan by 2016.*
 - No action to date. Potential action to address deliveries will be considered as part of the travel plan review in 2018 do. **Target not met.**
10. *Analyse and seek opportunities to reduce student travel to and from Bristol by 2016.*

- No action to date. Potential action to reduce student travel to and from Bristol will be considered as part of the travel plan review in 2018 do. **Target not met.**

Sustainable Procurement

Targets:

1. To implement the Government's 'Flexible Framework for Sustainable Procurement' to level 4 by 2016.

Current assessment across the areas of procurement place us between levels 2 and 3. **Target not achieved – being reviewed as part of new Sustainability Policy.**

2. To implement a new sustainable procurement policy/strategy produced in 2011 with individual actions for the different areas of the flexible framework.

Policy written and published in 2015 and is being reviewed in late 2016. **Target not achieved, a new 2017 policy has been written and implementation plans will be developed.**

Sustainable Construction

Targets:

1. To build new buildings that cost over £1million to at least BREEAM "Excellent" and Energy Performance Certificate (EPC) "B" rating.

All new builds built to excellent standard. All achieved EPC of 'B'. See text in main body of report. **Target achieved.**

2. To undertake refurbishments over £1million to at least BREEAM "Very Good" and EPC "B" rating, with an aspiration to achieve 'Excellent'.

All refurbishments built to very good or excellent standard. See text in body of main report. **Target achieved.**

3. To assess for each building the cost effectiveness of achieving EPC "A" rating.

Each project is assessed to this level, but as yet none have been cost effective to build to 'A' rating. **Target achieved.**

4. Develop guidelines, targets and procedures for introducing sustainability issues into projects smaller than £1million by July 2014.

Trialling SKA assessment and BREEAM refurbishment for smaller projects. **Target achieved. The University will be using BREEAM rather than SKA for future fit-outs and refurbishments. Wider sustainability brief being reviewed from TQEC.**

Biodiversity

Targets:

1. Using the data supplied, every two years, by the Bristol Regional Environmental Records Centre (BRERC), produce comparative data indicating levels of Biodiversity surrounding key University estates (Precinct, Stoke Bishop and Clifton Village Halls).

From this year onward, this analysis will be replaced by the Key Species Indicator survey results (see appendix 2); as the BRERC data is less specific for University sites. **Agreed and on-going process.**

2. Complete Phase 1 habitat surveys:
 - Of all halls of residence - by the end of 2011,
 - For the Precinct, sports grounds and other outlying properties –by the end of 2012,
 - For agricultural land – by the end of 2013.

These have been completed are currently being converted to the industry approved mapping system ArcGIS. **Target achieved.**

The object for 2019 is to adopt new technology (Oxford Brooks Phase 1) for mapping this information and publishing results (except for redacted information) on line. **New Target Date: December 2019**

3. The University maintains four categories of tree stock, these are:
 - a. Native Woodland
 - b. Tree collections
 - c. Landscape
 - d. Heritage landscapes and veteran trees
 - 3a. From 2013, individual woodlands will have a management plan, informed by the specific British Plant community (Rodwell *et al* 2003) together with a short report containing the actual tree species growing. The objective will be to remove, over a period of time, undesirable species which have become established in the past and to prevent their regeneration. Subsequent reports will be written on a three year basis to display, as a percentage, an increase in desirable community and native trees. **On target with initial plans having been written during the winter of 2015, being implemented during 2016/17 onwards with review in 2018.**
 - 3b. Gardens and Grounds have a list of viable trees within specified collections. Each collection has a management plan which aims to maintain the current range of species and identifies, an objective to increase the diversity. On a three year basis, collections will be surveyed to ensure the objectives of the management plans are achieved; and, in a short report, new stock levels will be identified. **On target with initial plans written during the winter of 2015 and will be reviewed in 2018.**
 - 3c. All landscape trees, within University grounds, have been identified and tagged. As a holistic approach, over a large disparate estate, species diversity is a main objective to achieve. Starting in 2013, and then on a three-yearly basis, a short report will be produced, which will statistically calculate the diversity index. **On target with review in 2018.**
 - 3d. Heritage Landscape and veteran trees (located in numerous sites), have been mapped. Management plans have been produced for the reinstatement of trees lost within a heritage landscape, and successional planting. Within the same time frame a veteran tree plan will be produced, establishing a strategy for their protection and on-going maintenance. **Completed.**
4. A biodiversity protocol has already been established, whereby each University development (over £1m) must achieve a BREEAM excellent award. In order to achieve this award each project will appoint a suitably qualified ecologist, at the development stage, to identify existing ecology and habitats; biodiversity must be maintained and enhanced. Consequently, biodiversity targets can be identified for each project, within a specific target date. **Included for all projects: Ongoing basis**
5. From 2013, Gardens and Grounds will run a competition which requires students to identify a biodiversity project which they wish to run on University grounds. Gardens and Grounds will award

funds to run the project and the student/group will receive a prize and publicity after the receipt of a short report which identifies a quantifiable measure of success.

External Estates have commissioned Wessex Ecological Consultancy to organise and run this. Currently the consultants are establishing initial information, through surveys, before launching the competition in 2015. This project has been delayed. **Currently not on target, but discussions are taking place in 2017 which may result in this being relaunched or replaced with 2-3 month summer dissertation projects by MSc ecology students.**

Communications

Targets:

4. Annually review the communications strategy for sustainability which will inform each annual communication action plan.
Annually reviewed as part of EMS, communications implementation plans also reviewed annually.
Target Achieved.
5. Develop an annual communication action plan for each academic year starting with the year 2009/10. Report on progress with each plan at the end of each academic year.
Implementation plans on the sustainability web site. **Target Achieved.**
6. Produce an annual sustainability report covering all aspects of the sustainability strategy.
Annual report produced. **Target achieved.**

Teaching and Research

Targets:

1. To annually monitor progress in the three areas of formal curriculum provision, informal curriculum opportunity and subliminal experience through estates provision.

Formal curriculum monitored via APR annually.
Informal curriculum being reviewed as a baseline in 2014/15.
Subliminal curriculum to be reviewed.
Currently on target for completion via Bristol Futures.
2. Implement a new Education for Sustainable Development (ESD) strategy starting in 2012.

Strategy approved and implementation plan delivered. **Currently being reviewed.**

Food

Targets:

1. Approval of an Ethical and Sustainable Food Policy for the University by 2012.

Policy approved and reviewed annually. **Target Achieved – a revised policy has been launched in 2017, with a food waste policy as well.**
2. Deliver targets as set out in the Ethical and Sustainability Food Policy by 2016.

Implementation plan complete for 2015/2016 with the majority of actions achieved or carried over to 2017/2018. See text within body of report above.