



University of  
Reading



# Environmental Sustainability Report 2020/21



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## 1. EXECUTIVE SUMMARY

July 2021 is the target for many of our 5-year sustainability targets and in normal circumstances, we would be looking to report on and hopefully celebrate the success of meeting many of these targets. The circumstances of 2020/21, due to the COVID-19 pandemic, have of course been anything other than normal. We have therefore reported our genuine environmental impacts for the year, whilst also trying to make an assessment of how we have would performed against our 5-year targets under more normal circumstances.

Undoubtedly, our progress over the last 5 years has been significant. By January 2020, pre-pandemic, we were already within 1% of our 45% carbon reduction target for July 2021, compared to our 2008/09 baseline. At the end of July 2021, we have temporarily seen emissions drop to a staggering **64.8% below this baseline** and whilst we expect something of a rebound once normal operations resume, this gives us a glimpse of what can be achieved, as well as the challenges we face. We estimate a more business-as-usual year would have been our emissions sitting at 45.7% below baseline. Securing grant funding awards totalling almost £3.5 million over the last year will also mean we can go further and faster than ever before.

Our waste and recycling achievements are equally impressive, meeting all our headline targets. We have now reached **60.5% recycling**, slightly exceeding our 60% target, though this may in part be due to less academic operation on campus throughout the year. Our waste per person has significantly dropped too, temporarily by 58% due to limited onsite operations during the year, but pre-pandemic, the drop was already **17.6% per person**, vastly exceeding our 5% target. We also met our re-use target of 8.5 tonnes in 2020/21, despite reduced onsite operation and some technical issues, and anticipate significantly exceeding this level as normal operations resume.

For a combination of reasons, accurately reporting progress against our 30% - 35% water reduction target is more challenging, with 2020/21 consumption estimated to have been between 32.4% - 39.3% lower than the 2011/12 baseline and between 18% - 28% in a more business-as-usual year<sup>1</sup>. Whilst this is below our targeted savings, the reductions are nevertheless substantial.

Our stretch sustainable travel target for 87% of journeys to campus being by sustainable methods is for the 2022 year and may be impacted by changing travel patterns as a result of the pandemic. Our next travel survey in early 2022 will inform us of the latest position in this respect.

We are pleased to be in the top **6 of all research-intensive universities for carbon reduction, recycling rates and low water usage per head**, though we must not get complacent – having this year lost our position of delivering the largest carbon reductions of any research-intensive university.

This year, the University took part in the Times Higher Education (THE) Global Impact Rankings for the first time, achieving a satisfactory **21st place amount UK universities** and providing a platform from which to build for future submissions.

Reading's climate scientists have made [leading contributions to the latest intergovernmental panel on climate change \(IPCC\) report](#), which warns that damaging effects of climate change are already being seen across the globe and that rapid and sustained cuts in human-caused greenhouse gases must be made.

The University is not shirking these responsibilities and in the last few months has signed off its **Net Zero Carbon Plan for 2030**, signed off a new 5-year Waste and Resource Use Strategy and established a working group to embed education for sustainability development into the curriculum.

These and 3 further complimentary work streams of civic and community engagement, biodiversity and campus commerce will be brought together in a new Environmental Sustainability Strategy in the coming months.

As the COP26 international climate change conference approaches in November, we aim to demonstrate leadership in delivering a more sustainable future.

<sup>1</sup> These are large ranges, as the main Whiteknights meter having failed in Feb 2020, the subsequent replacement was delayed, and also most supplies were billed on estimated reads over the last 18 months.

## 2. INTRODUCTION

Our annual environmental sustainability report aims to summarise progress against our key sustainability targets over the 12 months to July 2021, as well as providing a wider review of sustainability initiatives, and a look forward to the year ahead. Accurately measuring progress against target this year is however complicated by the COVID-19 pandemic having affected our operations to variable extents.

This report therefore takes the approach of reporting our genuine environmental impacts, whilst acknowledging that for many aspects, such as energy, carbon, water and waste, there will have been reductions over and above what we might ordinarily have expected.

Progress with the targets set out in our Carbon & Water Plan, Waste Strategy and Travel Plan are summarised here, and for those that like the detail, we have produced more detailed reference information as appendices.

For the first time, we highlighted which of the 17 UN Sustainability Development Goals are relevant to our reporting; supporting future submissions to the THE Global Impact Rankings.



## 3. ENVIRONMENTAL SUSTAINABILITY STRATEGY

Work is now well underway on the production of an overarching Environmental Sustainability Strategy across 6 themes:

- Zero carbon
- Waste & resource use
- Civic and community engagement
- Education for sustainable development
- Biodiversity & green infrastructure
- Campus commerce

This Strategy is anticipated to be published in autumn 2021, setting out key sustainability metrics and ambitions for the next 5 years.



4.        PROGRESS AGAINST TARGETS

4.1       ENERGY PERFORMANCE INDICATORS (ENPI'S)

The following EnPI's are defined in the University's energy and environmental management system (EEMS):  
Carbon Emissions (tCO<sub>2</sub>)

- The University's headline EnPI is its 45% carbon reduction target for July 2021 against a 2008/09 baseline. Our full year emissions for 2020/21 are actually 64.8% **below our baseline**, which is particularly large due to the almost complete cessation of travel throughout the year. Under more business-as-usual conditions, with travel at more typical levels, we estimate this figure would be 45.7% and are therefore confident in saying we would **expect to have exceeded our 45% reduction target**. Appendices 1-4 contain a detailed breakdown of our emissions scope and progress in each area.
- We traditionally report using geographical emission factors; that is, we use average grid electricity carbon conversion factors in our carbon calculations. In fact, the University buys 100% certified renewable energy, and using the alternative, market-based reporting approach, our overall emission reductions stand at 76.1% below baseline (57.1% with business-as-usual travel emissions). Going forward, we will report both figures.
- Our Carbon Management programme has now saved **£39m** cumulatively since 2008/09, compared to a business-as-usual scenario. In addition, approximately **£5.7m** additional savings can be broadly attributed to reductions in business travel and energy use during the COVID-19 pandemic.
- Our **'scope 1 and 2' emissions<sup>2</sup>** are **56.8% below baseline** for the full year to July 2021.
- Restrictions imposed by the University during the COVID-19 pandemic mean that business travel emissions during 2020/21 were just 2.1% of those in 2018/19 (the last full year prior to the pandemic).
- Analysis of reported 2019/20 carbon emissions to HESA's Estates Management Record indicate that Reading have made the **third largest percentage carbon reductions of any research-intensive University** – a drop from previously having the largest carbon reductions of any research-intensive university<sup>3</sup>. Noticeably, the University's carbon reductions in 2020/21 were quite modest compared to many other institutions – a warning that we must not become complacent about our progress.



Projected emissions for 2021/22

- We expect scope 1 and 2 emission reductions to exceed 60% by July 2022, but travel emissions are much harder to predict, with international travel likely to still be fairly restricted. Emission reductions between 55%-60% are likely, depending on the extent to which international travel resumes.

Energy cost (£)

The 'phase 2' Carbon Management Plan for 2016-21 identified that £10.4 million of cumulative savings could be achieved from a 45% carbon reduction by July 2021. Actual savings of **£12.2 million have been realised**, plus £3.2m from reduced operations due to the COVID-19 pandemic. This is in addition to £26.7 million saved from the original 2011-2016 programme.

Utilities costs for the University in 2020/21 totalled £4,871,161, a 10.6% reduction on 2019/20<sup>4</sup>, which is partly the result of reduced electricity use but also lower gas prices.

Electricity unit prices in 2020/21 were 3% higher than those of 2019/20, whereas gas unit prices fell by 34% compared to the previous year. Water unit prices rose by 15%. The University's energy prices should be fairly steady in 2021/22, as it has already purchased its anticipated demand in advance, however in 2022/23, substantial electricity price increases of 30%-50% are anticipated.

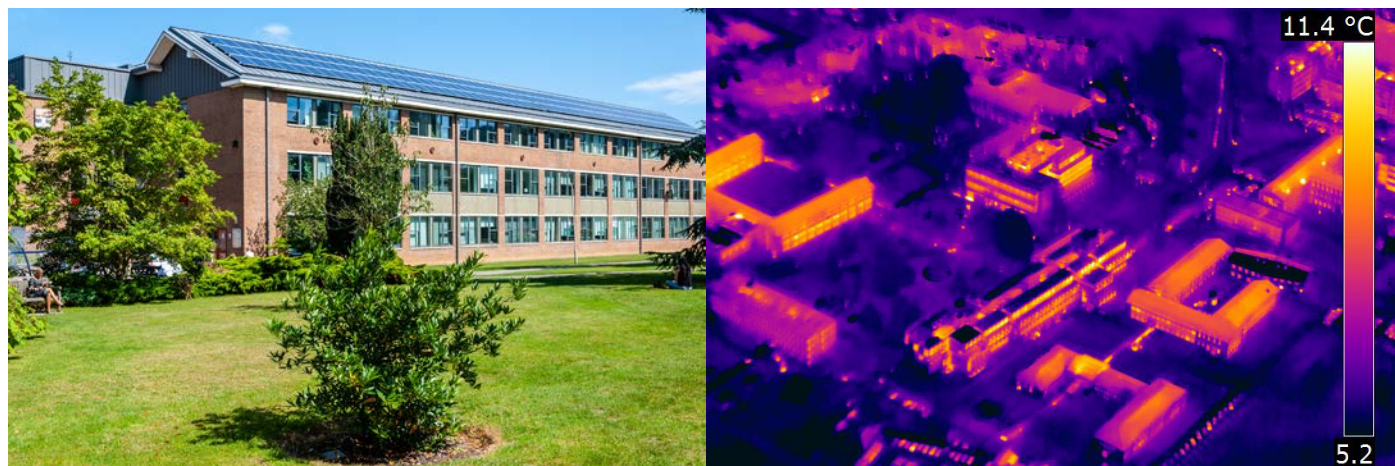


<sup>2</sup>defined as direct and indirect emissions, covering electricity, gas, oil, refrigerant gases, fleet vehicle fuel. scope 3 emissions are 'value chain' emissions. appendix 1 provides further details of the university's emissions scope

<sup>3</sup>HESA is the Higher Education Statistics Agency - <https://www.hesa.ac.uk/data-and-analysis/estates/environmental> - comparison of scope 1 and 2 emissions 2019/20 to 2005 baseline

<sup>4</sup>source: "carbon footprint baseline tool - 2020-21.xlsx"





Energy (kwh)

In order to provide a meaningful comparison of energy consumption year-on-year, we convert all sources of energy back to their primary energy equivalents, so that heating and electricity kWh can be meaningfully combined. These are normalised against the key significant variables we have identified, of heating degree days (for heating supplies) and m2 building space.

Appendix 3 provides a detailed breakdown of raw and normalised kWh consumption. Key conclusions from this data are:

- Changes in energy use compared to the previous 2 years are: -10% for electricity, +11% for gas and -17% for oil. Much of the reductions in electricity and oil use are the result of impacts of COVID-19 whilst the rise in gas use is mainly the result of increased ventilation of buildings during the pandemic.
- Overall, **Primary Energy use was 9% less** than the previous year

Projected energy consumption for 2021/22

- University operations are returning to business-as-usual, with the vast majority of teaching now face-to-face.

Working from home, especially for non-academic staff, is anticipated to be at a higher level than before, resulting in a likely small reduction in electricity demand. More substantial energy reductions are anticipated from the Salix Finance-funded carbon projects spanning 2020/21 and 2021/22, though gas consumption levels due to high building ventilation rates are likely to continue. Overall, energy-use reductions of 5%-10% are anticipated compared to business-as-usual.

Display energy certificates (DECs)

DECs are produced for all public buildings over 250 m2, either annually (>1,000 m2) or every 10 years (251m2 – 999 m2). The University produces its DEC's each October, based on energy data from the previous financial year. The October 2020 data indicated that **86% of our assessed buildings perform better than average** from an energy perspective.

Review of Significant Energy Uses (SEU's)

The University has identified 12 SEU's in its Energy Review Matrix. These are assessed on a building-by-building level to assess the potential for carbon and energy savings.

Figure 1 shows the potential for carbon savings across each SEU currently, compared with the original 2014 analysis. Renewables are excluded, as they were not included in the 2014 baseline. This clearly illustrates that as overall carbon emissions have reduced, the potential for further savings have also reduced.

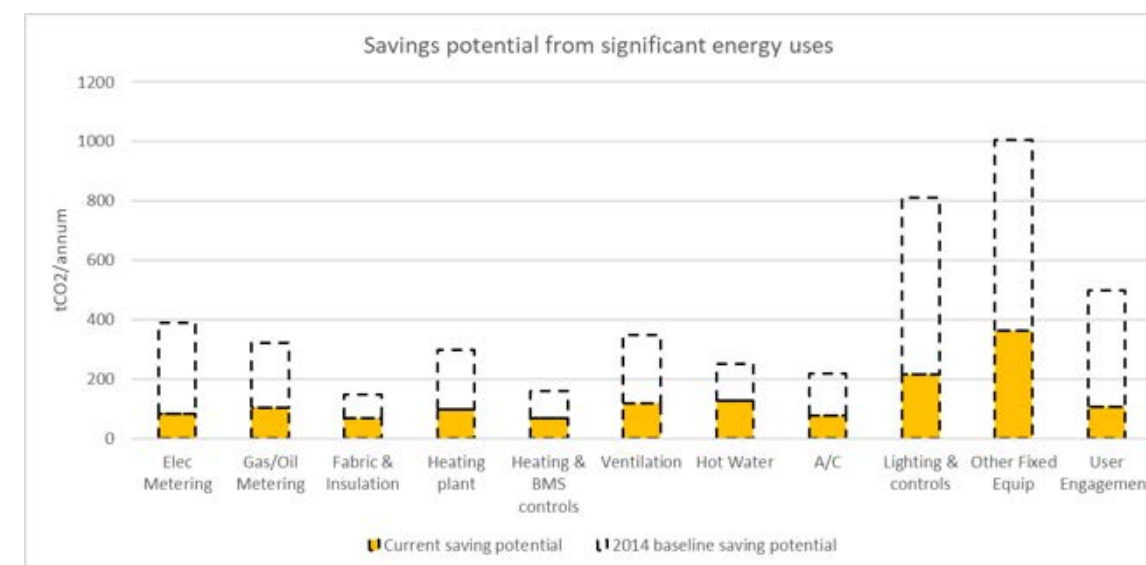


Figure 1 – SEU 2014 baseline year versus 2019

These SEUs are still felt to be suitable for ongoing assessment of the potential for energy and carbon reductions, with renewable energy inputs/potential now added into the matrix.





4.2 WATER

The headline water reduction target is 30% - 35% for the academic estate by July 2021 against a 2011/12 baseline. Use during 2020/21 is estimated to have been between 32.4% to 39.3% lower than the baseline.

Gaining a precise picture of water consumption for 2020/21 was complicated by the fact that the final supplier's invoices during the year were based on estimated readings for several sites and the main meter on the Whiteknights campus stopped operating and was awaiting replacement. We estimate that without lockdown, **reductions of 18% to 28% below our baseline** would have been achieved, **below our target**, but still representing a significant improvement.

Analysis of reported 2019/20 water consumption to HESA's Estates Management Record indicate that Reading has the **sixth lowest water consumption per head of any research-intensive University** – a drop from previous position of third.<sup>5</sup>

A key target for the coming years will be to improve the University's water metering infrastructure, as current limitations with building-level metering make improvements hard to identify or measure. Whilst such improvements have long been an ambition, these are disruptive works that can often only be achieved when wider water infrastructure works are planned.



<sup>5</sup> HESA is the Higher Education Statistics Agency - <https://www.hesa.ac.uk/data-and-analysis/estates/environmental> - comparison of water consumption per head 2019/20

4.3 WASTE & RESOURCE USE

The University's 2016-21 Waste Strategy set out ambitious targets for the institution through the themes of reduce, re-use, recycle and report. As the Strategy has been implemented over the last five years, the University has improved its management of waste and mitigated expected increases in disposal costs. July 2021 was the end point of this Strategy, allowing comparisons to be made against the 2015/16 baseline and targets; although it has to be acknowledged that the coronavirus pandemic has severely affected the resources used and amount of waste generated by the University during 2020 and 2021.

Reduce

- Even before the pandemic, the University had significantly decreased the amount of day-to-day 'operational' waste generated per person as a result of key initiatives to reduce single-use items, to improve the re-distribution of unwanted furniture and equipment, and to reduce packaging waste. In January 2020, waste production stood at 17.6% less per person when compared to our 2015/16 baseline, well ahead of the targeted 5% per person reduction against the baseline set for 2021.
- The **total amount of waste generated in 2020/21 academic year was 26.1kg per person**, compared to 35.1kg in 2019/20 and 50.9kg in 2018/19, showing the effects of the COVID-19 shutdown. This figure of 26.1kg per person for the year, when compared to the 2015/16 baseline of 61.9 kg per person, shows a **58% reduction in waste generated**, which is well ahead of the targeted 5% per person reduction against the baseline set for 2021.

Re-use

- The re-use of items, mostly furniture, via the online Warp-it system was affected by the University shutdown in 2020/21, but 1.9t of items were re-used across the year via this platform (down from 6.8t in 2019/20 and 11t in 2018/19), with a further 6.6t of additional items re-used via routes other than Warp-it. Therefore, **total annual re-use of 8.5t of items** just met the target of 8.5t for 2021.

<sup>6</sup> HESA is the Higher Education Statistics Agency - <https://www.hesa.ac.uk/data-and-analysis/estates/environmental> - comparison of total waste and recycled waste per institution 2019/20

Recycle

- The **annual recycling rate for 2020/21 was 60.5% (by weight of all operational waste)**, which means the University has met its Strategy target of 60% for 2020/21. This compares to a recycling rate of 57.6% for 2019/20. The proportional split of different waste streams in 2020/21 has been affected by having fewer students and staff on campus due to the pandemic, which has actually had a beneficial impact on the recycling rate.
- Over the last 5 years, the University's main waste contractor has been able to record and provide more accurate waste data, so that in 2021 weight data is supplied for almost all operational waste streams collected from the University, including hazardous and clinical waste. This has enabled more detailed waste analysis to be undertaken, which has shown that the University's 2015/16 baseline recycling rate for operational waste (including re-use, anaerobic digestion & composting) was actually closer to 55% by weight, rather than 50% previously reported.
- With the waste reduction initiatives undertaken since 2016, it has become apparent that the makeup of operational waste has changed significantly over the last few years. It now includes considerably fewer single-use items, such as bottles and cans which previously might have been recycled; so a greater proportion of recyclable items have been removed from the waste stream, thereby potentially making it more difficult to increase the recycling rate.
- The Waste Hierarchy states that it is most important to prevent and reduce the total amount of waste generated, then to re-use items, and then to recycle materials. As such, we are focused on the prevention of waste, first and foremost, even if this has the knock-on effect of impacting our overall recycling rate.
- Analysis of reported 2019/20 recycling rates to HESA's Estates Management Record<sup>6</sup> indicates that Reading has the **sixth highest recycling rate** (including construction waste) **of any research-intensive University**.







## 11 SUSTAINABLE CITIES AND COMMUNITIES



### 4.4 TRAVEL

- The 2017 University Travel Plan originally set a headline target of 83% of commuter travel to the University to be by modes other than Single Occupancy Vehicle (SOV) by 2022, later increased to a stretch target of 87%. This data is assessed through a biennial travel survey, next due to be undertaken in early 2022. Based on results from the 2020 travel survey undertaken in Jan/Feb 2020, 17.8% of overall commutes were by SOV, and therefore **82.2% of staff and student journeys were by sustainable modes** – so the University is currently off track to meet both its original and stretch SOV targets for 2022.
- Prior to the COVID-19 outbreak, a concerning trend in the rise of travel to the University by SOV, both for staff and students, was evident and we will need to work hard if our ambitious target for the coming year ahead is to be achieved. A working group is proposed to be established to consider the University's Travel Policy much more broadly.



### 4.5 POLLUTION PREVENTION

The University continues to work on minimising the risk of pollution from its activities by controlling emissions, meeting regulatory standards, and implementing emergency response procedures. Any issues or incidents raised in 2020/2021 have been dealt with effectively. Work to improve procedures and documentation continues, with staff due to refresh their level 1 spill training in late 2021, which will be further strengthened with the level 2 spill training also due to take place in the 2021/22 academic year.

## 13 CLIMATE ACTION



### 4.6 PROCUREMENT

With the formation of the Responsible Procurement Working Group well on its way, a coordinated approach to Sustainable Procurement going forward will help develop a Responsible Procurement Strategy for the University. Continued efforts to embed sustainability into the University's procurement processes has seen:

- The University published its new Ethical Investment Policy. The University has removed fossil fuel companies from its investment portfolio – directly and indirectly - and is actively investing in solutions to meet environmental need, such as renewable energy and infrastructure (see section 4.12 for more information).
- Continued developments of the new category plans for utilities, waste and travel have all provided a number of opportunities to embed sustainability.
- Collaboration on delivering a range of decarbonisation projects plus a range of sustainability project tenders and appointments.
- Continued affiliation with Electronics Watch to ensure electronic products are sourced ethically and sustainably.



### Construction waste

- The amount of waste generated by the demolition, refurbishment and construction of buildings on the University's sites, collectively known as 'construction waste', can vary considerably from year to year; indeed, in some years it can exceed the weight of operational waste generated. This variability in volume, weight and type of material generated makes it difficult to set meaningful annual targets and to analyse the data that arises each year. For this reason, construction waste from major projects coordinated by the University's Projects department is collated and classified independently from the University's operational waste.
- In 2020/21, the University's contractors generated 116t of construction waste across their works, of which 83% was re-use or recycling.



4.7 CONSERVATION AND BIODIVERSITY

There is now a Biodiversity and Green Infrastructure working group which will oversee the production and delivery of a Biodiversity Plan for the University and monitor initiatives to promote biodiversity on the University’s estate. The Whiteknights campus is set in 50 hectares of parkland with a diverse mix of habitats and the University also manages a community nature reserve at Langley Mead comprising of 18 hectares of wildflower meadows. Notable achievements over the last year include:

- The University has achieved a target of recording 2021 species living wild on Whiteknights campus by 2021. The list now stands at 2076, including 600 plants, 125 birds, 22 mammals and almost 1000 species of insect. Student-led research this summer is exploring the diversity on campus of spiders and deadwood feeding beetles, both of which have not been well recorded in the past.
- The campus Habitat Management Plan now includes two ‘succession areas’ which are areas of meadow being left to grow wild naturally with no management. These have already been used for teaching and will be monitored for change in the years ahead.
- In spring 2021, the grounds maintenance team established new ‘pollinator lawns’, which cover extensive parts of previously short mown grass on Whiteknights campus. These have proved a well-received addition to the diversity of habitats on campus, bringing wildlife closer to some of the busier parts of campus.
- Grounds Maintenance have been awarded their 11th consecutive Green Flag for the management of the Whiteknights campus. This award recognises the multiple skills required to maintain such a diverse green space.
- The University has been awarded bronze accreditation for having a hedgehog friendly campus and are working towards the silver level, which demonstrates the commitment to helping to protect this ever-popular mammal.



4.8 ESTATE DEVELOPMENT AND MAINTENANCE

The new Health & Life Sciences Building has achieved a ‘Very Good’ BREEAM rating in line with its target environmental objectives. An in-use energy performance study will take place throughout 2021/22 to compare how its modelled energy performance compares with reality and aiming to identify opportunities for optimising what will be a very energy-intensive building.



4.9 CAMPUS COMMERCE & FARMS

The University’s Hospitality operations have committed to continuously improve their services’ environmental sustainability:

In 2020/21, Hospitality have:

- Cut their gas equipment down to two appliances in all of their kitchen outlets at the University
- Been the First UK member of Menus of Change Universities Research Collaborative (MCURC)
- Been shortlisted for a Public Sector Catering Award – University Category
- Moved to cooking from scratch, putting produce first, while adopting a Plant-Forward Cooking approach
- Had coverage on BBC Radio 4 Food Programme about how the University has responded to catering during the pandemic
- Replaced two of its five diesel vans for full electric and plans to replace the other 3 in the next few years
- Sourced 75% of its beer and cider locally
- Introduced the first local winery supply into Park House

In 2021/22, Hospitality will be aiming to:

- Establish a carbon footprint of its food and reducing carbon load of the food it serves
- Participate in the MCURC Low Carbon Food Study
- Reduce energy and water inputs into all Catering outlets



4.10 EDUCATION FOR SUSTAINABLE DEVELOPMENT (ESD)

Sustainability is a cornerstone of the University’s Strategic Plan and it is a priority to embed environmental sustainability across our curriculum and staff training programme. We have set up a steering group to oversee this work and agreed that all graduates of the University will have a fundamental understanding of the concepts related to Sustainable Development. Our students will be enabled and empowered to become effective in positively contributing to sustainability problem-solving in their lives, professions, and communities. We are supporting our staff to deliver the ESD agenda, which will be further enhanced in 2021 with further training sessions to support the newly introduced principle to integrate ESD as appropriate to each discipline. Much of our research is focused on environmental themes and we are working to maximise opportunities for collaboration across students, staff and community partners. We encourage using our facilities and surrounds as a ‘living lab’ in order to provide students with direct practical experience and help to contribute to a thriving and sustainable university.



4.11 SUSTAINABLE DEVELOPMENT GOALS (SDGS)

The UN SDGs align closely with many of the University’s teaching and research aims. In 2021, the University decided to enter the Times Higher Education (THE) Global Impact Rankings for the first time; submitting against all 17 SDGs (the minimum submission is against 4 SDGs). This has proved a useful baseline for future submissions, and has highlighted a number of strengths, and some weaknesses, in our current approach.

The University achieved a top 100 placing in 7 of the SDGs out of 1,115 institutions from around the globe, ranking 21 overall among UK universities, with an overall score of 84.5%<sup>7</sup>.



4.12 ETHICAL INVESTMENT

In early 2020, the University confirmed it had put steps in place to fully divest its investment portfolio from fossil fuels, following the appointment of a new fund manager selected for their ethical investment credentials. More recently, the University published its new Investment Policy, making strong long-term commitments to invest ethically, as well as publishing details of where it invests its money<sup>8</sup>.

4.13 COMMUNICATION AND COMMUNITY INVOLVEMENT

See section 6.4 Engagement & Awareness.

<sup>7</sup>Tackling global issues: University of Reading performs strongly in THE Global Impact Rankings

<sup>8</sup>Investment details and Policy available at: <https://www.reading.ac.uk/finance/university-accounts>



5 COMPLIANCE

5.1 ENERGY & ENVIRONMENTAL MANAGEMENT SYSTEM (ISO14001 & ISO50001)

The Energy & Environmental Management System (EEMS) provides a framework to enable the University to maintain compliance with its legal and other obligations and improve its overall energy and environmental performance.

- The auditing body NQA undertook a reassessment audit of the now joint EEMS in February 2020, and recommended that the University retain their ISO14001:2015 and ISO50001:2018 certifications.
- The surveillance audit in March 2021 identified no non-conformities relating to clauses within the ISO14001:2015 and ISO50001:2018 standards.
- Alongside this public report, a report on the annual management review of the EEMS system has been prepared for the University Executive Board. That review provides an update to senior management about the progress and opportunities for improvement within the system and general environmental management at the University. It also provides a summary of the non-conformities that have been identified as part of the internal auditing programme as well as any environmental incidents that have occurred in the last year.

4.14 NOISE AND NUISANCE

Issues regarding noise and nuisances are reported to the Community Relations Manager or to the Estates Department directly, who then refer the issue to the appropriate staff member to investigate and resolve. It is understood that there were four reported complaints relating to nuisances on the main campuses. These incidents involved litter being left around the lake during lockdown and the subsequent infestation of rats around Whiteknights Lake presumed to be due to increased feeding of wildfowl and leftover bread.

There have also been issues with waste facilities overflowing, suspected to be student tenants disposing of waste when moving out of private accommodation.

It was established that monitoring complaints and issues from the local community is well managed by the community relations team.

The EEMS continues to help embed sustainability into everyday practices and decision making by giving a framework to set objectives, identify opportunities and risks, and monitor progress via internal audits and management reviews.





5.2 PEOPLE & PLANET GREEN LEAGUE

- Due to the COVID-19 outbreak, People & Planet did not produce a 2020 Green League, but are due to publish their next league late in 2021.
- In the most recent 2019 League, the University was awarded a ‘**1st class**’ rating for our environmental and ethics performance, ranking 28th out of 154 institutions, scoring top marks in both environmental management and auditing systems.
- Achieving a top 5 position by 2026 is a key target identified in the University’s Strategic Plan.



6 COMPLETED PROJECTS 2020/21

6.1 CARBON, ENERGY & WATER

The substantial Salix Finance grant shifted the focus and momentum of work part way through the year, enabling significantly more carbon reduction projects to be implemented than originally envisaged.

Appendix 2 provides the full list of carbon and water projects implemented last year.

The table below shows progress against key targets identified in 2019/20 and highlights some additional key initiatives completed through the year:

Item	Target	Outcome
Net Zero Carbon Plan	Published in 2020/21	Approved and published in spring 2021
Solar PV expansion	Either 150 kWp on JJ Thomson or 116 kWp on RUSU	Installs completed on <u>both</u> buildings for total of 282 kWp, predicted to generate 248,323 kWh electricity each year, saving £37,129 and 57 tCO <sub>2</sub> annually. The JJ Thomson install was substantially funded through the Salix Finance grant.
Energy Centre decarbonisation	Feasibility study	Initial study complete, thermodynamic digital model built and plans to progress design in 2021/22.
LED lighting	90,000 kWh and 25 tCO <sub>2</sub> savings p.a.	Projects delivered in different buildings – TOB2 and URS, with further works planned through Salix grant. 117,566 kWh and 30 tCO <sub>2</sub> savings are anticipated from the completed works in these 2 buildings; exceeding target.
IT server room partition with associated cooling reduction	90,000 kWh and 25 tCO <sub>2</sub> savings p.a.	Partition complete, enabling a third of the cooling to be disabled, showing 159,786 kWh savings, 78% above target. In addition, the server rationalisation that facilitated this work is saving a further 358,902 kWh; in combination delivering 182 tCO <sub>2</sub> annual savings (£95,473)!
Hopkins HVAC controls review	Not set	Measured savings of 309,569 kWh and 57 tCO <sub>2</sub> have been seen – significant savings from a low-cost fault fix.
Science laboratory drying cabinets	91,000 kWh and 21 tCO <sub>2</sub> savings p.a.	All 32 drying cabinets on the estate have been upgraded, with 24 paid for by the Salix grant. Measured savings of 124,347 kWh and 29 tCO <sub>2</sub> have been seen, saving £18,592 p.a. and exceeding target.
Science laboratory fridges & freezers	13,104 kWh and 3 tCO <sub>2</sub> savings p.a.	Measured savings of 9,084 kWh and 2 tCO <sub>2</sub> have been seen – a little below target, but still a 35% measured reduction.
Lab and farm ultra-low temperature (ULT) freezers	78,923 kWh and 18 tCO <sub>2</sub> savings p.a.	Measured savings of 26,770 kWh and 6 tCO <sub>2</sub> have been seen - below target, but still an 41% measured reduction (the existing units proved not be quite as inefficient as originally estimated).
Catering oven upgrades	426,594 kWh and 99 tCO <sub>2</sub> savings p.a.	Measured savings of 326,214 kWh and 67 tCO <sub>2</sub> have been seen, saving £27,800 p.a. – a little below target, but still a 73% reduction.
Glasshouse growth lamps	66,335 kWh and 15 tCO <sub>2</sub> savings p.a.	Lighting purchased and being gradually installed as live experiments draw to an end.







## 6.2 WASTE & RESOURCE USE

- The University commissioned an external organisation to undertake a waste benchmarking and analysis exercise during winter 2021. The in-depth study included a review of all aspects of current waste service provision, on-site visits to waste collection locations, interrogation of waste weights, costs and disposal destinations, and overview of compliance. The analysis gave detailed information, from both a cost and environmental perspective, with recommendations for potential savings to be made and innovations that could be pursued in the future.
- The University's new Waste & Resource Use Strategy 2021-30 was written and approved by the Environmental Sustainability Committee in June 2021. It is focused on responsible resource use and sustainable waste management, acknowledging the global, national and local drivers for improving the University's environmental performance. Headline targets have been set around the themes of 'reduce', 're-use, remanufacture and repair', 'recycle', and 'enable the circular economy'.
- Analysis of the costs associated with using waste compactors at the Whiteknights catering yard showed significant savings could be made if wheelie bins were instead used for collecting cardboard and general waste. This led to two compactors being swapped for wheelie bins from early 2021.
- Work was undertaken in conjunction with RUSU to improve the waste and recycling facilities in their buildings.
- A project coordinated by staff from Technical Services has commenced to improve the recycling of laboratory plastics, with collections for polypropylene now available.
- Led by Technical Services, the University has introduced the LEAF (laboratory efficiency assessment framework) scheme to monitor and improve environmental sustainability in laboratories. This will help to provide a focus on the reduction of waste and increase in re-use and recycling in science schools.
- Appendix 6 provides further detail on waste initiatives implemented this year.

## 6.3 TRAVEL

- Combined investment in improved, shared pathways from Sustainability Services and Maintenance Services now exceeds £500,000, with widening to the east of the Black Bridge over Whiteknights lake now complete.
- Electric vehicle charge points have now been installed and are operational at the Greenlands, Henley Business School campus.
- A Co-Wheels car is now available at Northcourt halls of residence, to complement the one at Dunsden Crescent. There has been an increase in the number of bookings – with over 100 extra bookings across the 2 sites compared to the previous year.
- Despite the pandemic, the use of our electric vehicles charge points has increased – there have been 100 extra recharges each data period from 2018/19 through to 2020/21 at University EVCPs.
- Cycling training remains popular and regular sessions have been offered throughout the year. When permitted, maintenance sessions have also taken place and been well attended.
- The COVID-19 pandemic had a big impact on public transport usage over this data period. This led to large declines in bus usage and the number of season ticket loans for rail and bus use. There has also been a further decline in the numbers of Easit card holders.
- The Mycar salary exchange scheme to purchase new low emission vehicles was removed by HR during this period due to low take up and high administrative costs.
- Appendix 7 provides further detail on the travel initiatives implemented this year, and on the uptake of different schemes.





6.4 ENGAGEMENT & AWARENESS

The Annual Communication Plan targets were met as follows:

- **Green Festival 2020** – Very well-attended running alongside **Reading Climate Festival**, a week-long programme of free events to inspire action on climate change, curated by Reading Climate Action Network. This included University climate change experts appearing on BBC Berkshire and the release of a pre-recorded biodiversity tour of the Whiteknights Campus.
- **Jump** – There was an increase of 12% in staff signing up to JUMP in 2020/21, with 645 registered users (excluding RUSU and Campus Jobs, which are reset each year). A rebranding of the platform is underway to become **Doing#UoRBit** - launching in November 2021, which will reinvigorate the platform and steer it to being more University of Reading branded.
- **Sustainability Matters** - The mailing list increased in the student population from 210 in 2019/20 to 332 subscribers 2020/21. With staff subscribers staying consistent at 443. Growing the mailing list in 2021/22 will be an important aim so that improvements at the University can be communicated directly to the University community.
- **Engagement** - Sustainability Services have had regular meetings and engagements throughout the year with RUSU, UPP, Procurement, Catering, Technical Services, Staff and Student Communication teams. Sustainability have delivered lectures to students in the School of Real Estate and Planning and the School of Agriculture Policy and Development. The topics covered included Sustainability in Facilities Management and Energy Management.
- **Social media platforms and website** - The website click rate is unfortunately unavailable at this time due to a technical issue. We had an increase of 141 followers on twitter which takes us up to 1977 followers up in total for 2021. On Instagram we have 601 followers from 476 last year and have been increasing our activity on this platform. This has generated more engagement and we will continue to work on focused communications in the upcoming year.
- **Visible fixed sustainability signage** - Due to Covid this year, fixed signage has been postponed, instead we have purchased some portable flags and banners to help with more mobile messages around campus, including for Welcome Week and Green Festival.
- **Community Action Partnership (CAP)** – led by Community Relations, CAP is an internal collaboration between staff (University and RUSU) and students to coordinate community engagement activity and share best practice. There are a number of workstreams within the CAP including an Environmental Sustainability stream. The aim is to encourage staff and students to consider ways to build environmental sustainability into their work, coordinate and communicate this activity and share expertise. 58 staff and students have joined the CAP over the last 6 months, and it is intended to expand this next year, including building in opportunities to have external groups hold workshops and ways to encourage student-led activity.

The University's successful inaugural **Climate Education Summit** ran in September 2021, which falls outside of this year's reporting timeline, so will be covered in more detail in next year's report.



7 PLANNED INITIATIVES 2021/22

7.1 CARBON, ENERGY & WATER

The large Salix Finance grant means we will be able to deliver more energy reduction projects in 2021/22 than ever before, including:

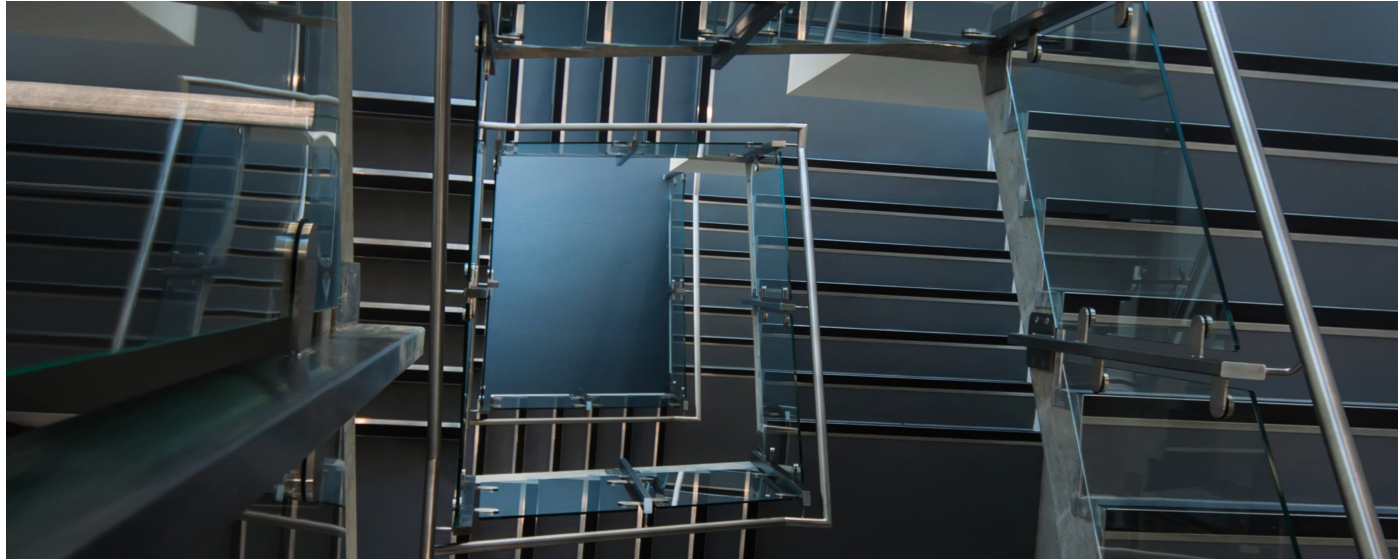
- Doubling Whiteknights' solar PV generation capacity to 1 MW, generating an additional 390,000 kWh electricity per annum, saving 99 tCO<sub>2</sub>/annum
- Upgrading approximately 4,800 light fittings across Whiteknights, London Road and Greenlands to LED, targeting combined savings of 890,000 kWh and 226 tCO<sub>2</sub>/annum
- Providing zoned heating control to the URS and Greenlands Main House buildings, targeting combined savings of 660,000 kWh and 138 tCO<sub>2</sub>/annum
- Air conditioning upgrades targeting savings of 64,000 kWh and 16 tCO<sub>2</sub>/annum
- Creating a heat decarbonisation plan for the Earley Gate side of the Whiteknights campus
- Progressing plans to begin decarbonising the central Energy Centre on Whiteknights, including the potential addition of a small district cooling network to nearby science buildings

Appendix 2 provides the full list of carbon and water projects planned for this year.

7.2 WASTE & RESOURCE USE

- With the University's new Waste & Resource Use Strategy having been agreed and published in June 2021, an initial 3-year Delivery Plan will be written once the results of the re-tendering of the University's main waste contract are known in autumn 2021; in order to enact the Strategy and to monitor progress against its objectives and targets. The outputs from the waste benchmarking and analysis exercise undertaken earlier in 2021 will also be considered as an input into the Delivery Plan.
- Cleaning Services are planning to trial the use of clear sacks instead of black sacks for general waste; first in external bins, then in internal bins. This will allow Cleaning Services staff to easily view the waste inside each sack once removed from the bin, in order to determine if it can be classified as mixed recycling, or if it should be treated as non-recyclable waste.
- A project to create a more formalised mechanism for increasing the amount of IT equipment that is redistributed back to schools and functions is being planned, rather than sending equipment to be recycled after its first use.





### 7.3 TRAVEL

Funding for travel initiatives is linked to parking permit and pay & display parking income and is therefore more uncertain than usual due to some operations continuing to take place remotely. Key initiatives planned for this year are:

#### On campus

- Feasibility and design for redevelopment of the space outside the Before & After café at Edith Morley to improve pedestrian and cycle access to the nearby campus quad
- Introduction of a new lift share programme and associated onsite facilities, if COVID-19 guidelines allow
- Continuation of the successful cycle skills promotion campaigns and events
- Promotion of the new Co-Wheels car at Northcourt Halls
- Undertaking the biennial travel survey
- Creation of a new 5-year Travel Plan

#### Off campus

- Upper Redlands Road pedestrian crossing – continue to work with a local community group and St Joseph's College school to ensure Reading Borough Council prioritises the creation of a pedestrian crossing on Upper Redlands Road, supporting both the University's and the Council's plans to increase sustainable transport. The Council have agreed to add this crossing to a list of candidate schemes to be consulted on in 2022 for Community Infrastructure Levy (CIL) funding. The University has also agreed to contribute funds to support this crossing.
- **Shinfield Road active travel developments** – working with Reading Borough Council in support of improved pedestrian and cycle facilities on Shinfield Road, including on the required statutory consultation.

### 7.4 ENGAGEMENT

- **Sustainability Fayre** – being held on 21 September 2021. A partnership between RUSU and the Community Relations Team to promote practical sustainability action to students and enable them to meet local community organisations involved in sustainability.
- **Supporting local community groups** – the Community Relations team is working with a number of local community groups to share learning around biodiversity and to provide resources and support to reduce plastic waste in local areas. This includes working with local residents who wish to create a wildlife corridor from the Whiteknights campus into residential streets/gardens; community gardens and rewilding of green space and supporting residents with litter-picking and educational outreach around single-use plastic.
- **Woodland Monitoring at Thames Valley Science Park** – TVSP are providing site access and supporting information relating to the Langley Mead SANG<sup>9</sup> extension, with students using this information to consider afforestation plans. State-of-the-art instrumentation has also been purchased and is currently being commissioned that measures the exchange of carbon between the land surface and the atmosphere (Woodland Monitoring), allowing the uptake of carbon to be measured continuously. This will be used to measure the carbon sequestered by newly planted trees.
- **IPCC report** - University of Reading was the most represented institution globally in the first working group of authors chosen to produce the next world-leading climate change report. This report was a comprehensive assessment report about the scientific knowledge on climate change, its causes, potential impacts and response options published by the IPCC (Intergovernmental Panel on Climate Change), the United Nations body for assessing the science related to climate change.
- **COP26/Climate Summit** – COP26 is the crucial United Nations climate change conference taking place in Glasgow in November 2021. The University and its Walker Institute will be present in both the blue and green zones of the summit.
- **Green Festival** – sees 3 days of celebration of sustainability at the University running from 3 November to 5 November, timed to coincide with the COP26 international climate change conference in Glasgow. A range of events are planned, including a sustainability fayre, an online home energy saving Q&A, a rebrand and relaunch of our behaviour change platform and an outdoor 'Shout Out for Sustainability' event.
- **JUMP/Doing#UoRBit** - Promoting the re-branded Doing#UoRBit sustainability platform to increase staff participation to over 700 users this year. Releasing the new car share element to the platform plus new feature and activities that will come along with the re-brand.
- **Sustainable travel** - Making noise about the importance of changing modes of transport, 'getting out of the car' and engaging in the travel survey in 2022 at a local level. More widely, promoting the use of technology and lower carbon forms of travel to reduce the need to fly on business.
- **School/Department environmental footprints** - Connecting with other department across the University to deliver sustainability improvements and energy saving while reducing departmental environmental footprints.

<sup>9</sup> Suitable Alternative Natural Green Space



## 8 FINANCIAL INFORMATION

### 8.1 INVESTMENTS

Investments of £1,113,923 have been made in sustainability initiatives this year:

- £1,004,201 in carbon and water reduction initiatives\*
- £99,811 in sustainable travel initiatives
- £9,911 in waste facilities improvements

\*Including £553,714 grant from Salix Finance's Public Sector Decarbonisation Fund

Carbon and water reduction investments totalled £4.1m from 2012-16 and £3.2m from 2017-21.

A full list of investments is included in Appendix 2.

### 8.2 SAVINGS

For our Carbon & Water Management programme, we measure savings in 2 ways; against the original 2008/09 target and against the start of the 2016-21 programme. The cumulative programme savings are as follows:

- £26,799,968<sup>10</sup> cumulative savings from original programme (investments made between 2009/10 and 2015/16)
- £12,218,885 cumulative savings from current programme (investments made since 2016/17) – excluding approx. £5.7m from the COVID-19 lockdown

The final savings of £12.2 million from the 2016-21 programme therefore compare favourably against the target of £10.4 million.

Since the 2015/16 baseline year, the 2016-2021 Waste Strategy has also delivered cumulative savings of £635,000 against the predicted 'business as usual' costs (excluding hazardous waste). This is mainly down to three reasons: long-term trends in reducing the amount of waste generated; over-estimates of increases in waste costs which have not materialised within this timeframe; and the reduction in waste generated due to the COVID-19 shutdown at the University during 2020 and 2021.

## 9 APPENDICES

See – <https://sites.reading.ac.uk/sustainability/appendix-2020-21/>



<sup>10</sup>Adjusted to fix energy costs at 2016 prices so savings are not over-inflated