



University of Warwick

2020 Carbon Target Progress Report for the Academic Year 2013/14

September 2015

BriteGreen
Sustainable Strategy

Foreword

This is our second progress report on carbon reductions in English universities. Our purpose is to provide robust, independent analysis of the emissions trends in the sector and provide institutions with tailored information about their performance to help them achieve their reductions targets.

As such, we have again produced a report and performance tables on sector emissions as well as individual reports for each institution. We have taken the opportunity this year to introduce a number of improvements which address the reliability of publically available data and expand the scope of the analysis.

To improve data quality we undertook a sector consultation and incorporated revisions requested by institutions into our data set. We have also expanded our analysis to include not only absolute emissions but emissions intensity as well, both in relation to floor area and income. As a result we have produced two additional performance tables.

The findings of this report highlight the scale of the challenge of delivering meaningful emissions reductions in absolute terms whilst also achieving commercial growth. They also illustrate that there are a growing number of institutions who have been able to do just this.

London Metropolitan University tops this year's performance table having reduced absolute emissions by 51% since 2005. All top 10 universities have delivered reductions over 40%. The two new emissions intensity tables also show that the majority of institutions have improved their efficiency significantly. These efforts are to be celebrated and recognised.

Despite these achievements the sector as a whole has fallen further behind its carbon reduction target. Absolute carbon emissions for the sector rose by 14,500 tonnes CO₂e from the previous year and total emissions reductions by 2020 are only forecasted to be 12%, well behind the 43% sector target.

Over 75% of universities are set to miss their own 2020 targets. Commercial growth is an important driver and it is clear that carbon and commercial strategies are not aligned in many institutions. In many ways, the challenges universities face in delivering carbon reductions mirror those of the economy as a whole and it's important that institutions take a strategic approach to managing them.

The case for carbon management and broad sustainability should be made strategically, incorporating all material risks, drivers and opportunities. Institutional carbon strategies should be integrated into the commercial strategies with aligned and achievable reduction targets. Monitoring effective implementation of the carbon plan is key, with defined responsibility amongst top management.

Climate change is likely to be the defining challenge of the 21st century. Universities in this country have been pivotal in developing not only the underlying climate science but also many of the solutions needed to address its consequences. It is important that universities continue to take a leadership role in carbon management and innovative abatement technologies, and lobby for effective government policy in the UK and on the international stage.



Darren Chadwick

Managing Partner, Brite Green

About Brite Green

Brite Green is an award winning sustainability strategy consultancy. We specialise in delivering enhanced business value through improved sustainability performance.

With a service offering that covers business strategy, management systems and solution implementation, Brite Green delivers business-focussed solutions that drive business performance.

We have considerable experience in carbon and environmental management in universities, including carbon management plan design and implementation.

Stakeholder comments

"HEFCE supports universities to improve environmental performance. As the Brite Green report highlights, there are notable successes and the challenge is for these advances to become standard practice. We will continue to work with the sector to determine how this can be achieved."

Andrew Smith
Head of Estates and Sustainable Development, HEFCE

"The findings in the latest Brite Green report outline the dilemma the university sector faces in meeting their carbon reduction targets whilst driving commercial growth. An independent light being shone on us may be uncomfortable but it's vital. With a near collapse of carbon reduction policy drivers and funding coming HEFCE and wider Government, the English university sector stands at a cross roads."

"Universities have led our understanding of climate science, climate adaptation and mitigation. This has to shape the way they operate and manage their own carbon footprint. With the marketisation of an ever more competitive sector, universities have to up their carbon game to attract students."

"It's time to look again at investing in carbon reduction and universities should review their carbon management plans to ensure they are doing all they can to reduce their impacts."

Iain Patton
Chief Executive, EAUC

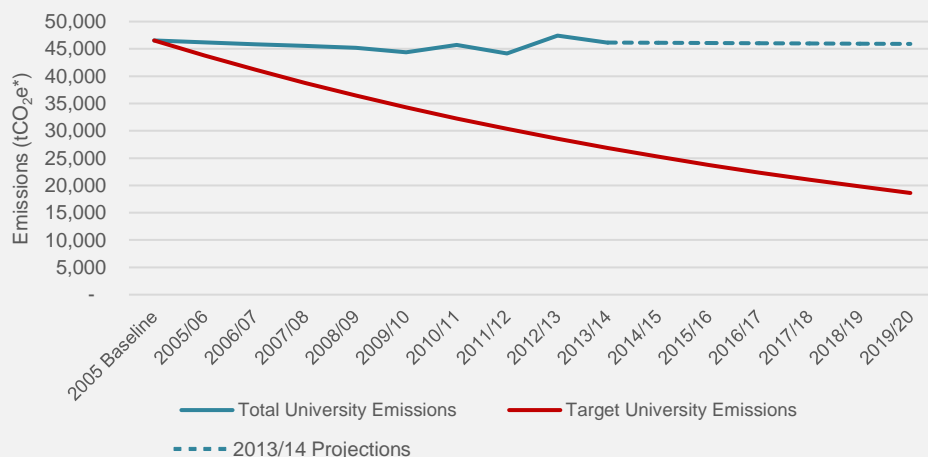
Your Emissions Analysis

University of Warwick

Absolute emissions metrics and intensity metrics based on income and floor space have been analysed for your institution.

Projected emissions to 2020 have been forecast by using historical data from the 2005 baseline to 2013/14.

University Emissions and Targets



emissions in 2012/13 (tCO₂e)

47,428

emissions in 2013/14 (tCO₂e)

46,161

change from 2012/13 (tCO₂e)

1,267

decrease

2005 baseline (tCO₂e)

46,540

2020 target reduction (%)

60%

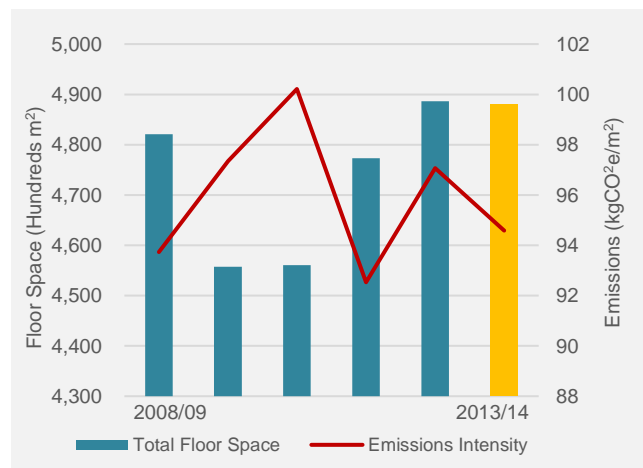
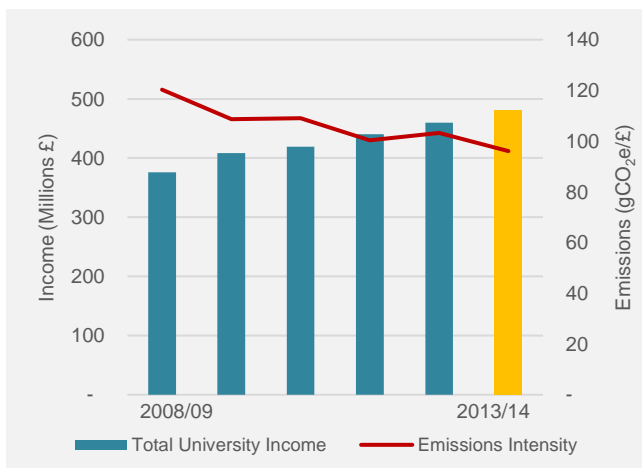
change from 2005 (tCO₂e)

-1%

projected 2020 change (%)

-1%

Our analysis indicates you are not currently on track to meet your carbon reduction target.



Performance against peers

Your performance has been ranked against your peers. 127 universities have been ranked for their total and change in absolute carbon emissions, and 121 universities for emissions intensity. Lowest numbers therefore show the best performance.

total emissions in 2013/14

118th

% change in absolute emissions since 2005

88th

% change in emissions intensity by m² since 08/09

104th

% change in emissions intensity by £ since 08/09

85th

Full performance league tables and a methodology and amendments sheet are available and can be requested from our website. If you would like to discuss these findings or your carbon management plan further please contact us.

A sector wide data consultation process was undertaken, and as such some university data used in this report differs from that published in HESA's EMR.

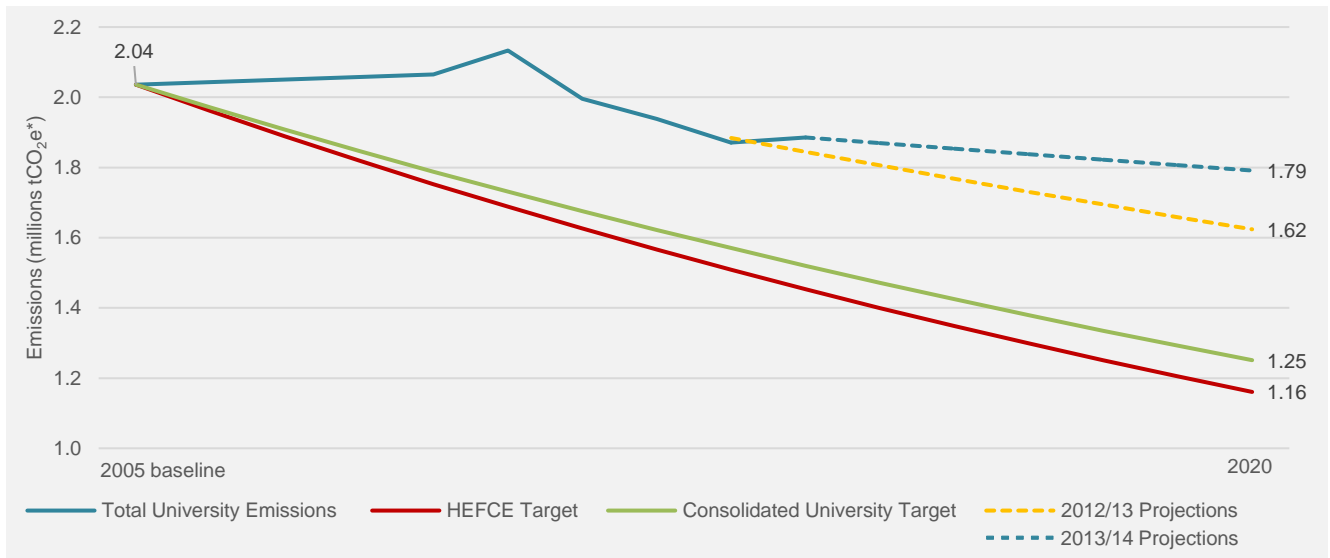
*Emissions from 2008/09 to 2011/12 are in tCO₂ and emissions from 2012/13 to 2013/14 are in tCO₂e. The 2005 baseline is in tCO₂e.

Key Findings for the Sector

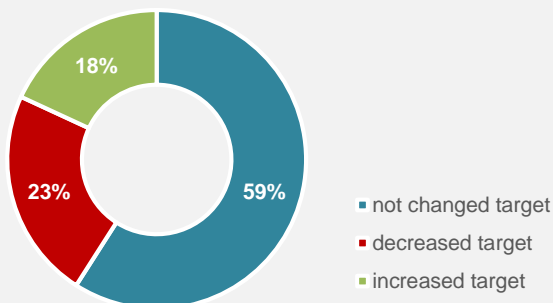
Universities **fall** even further **behind** their sector reduction target

Emissions in English universities increased in 2013/14 leaving them further behind their 43% HEFCE reduction target.

Projected reductions have halved compared to the 2013/14 analysis. If emissions continue to fall at the current rate, the sector may only achieve a 12% reduction in 2020 against the 2005 baseline.

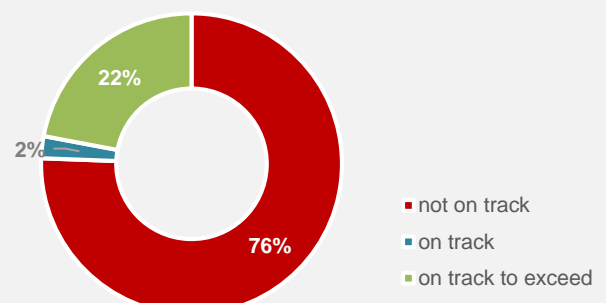


Almost a **quarter** of institutions have **reduced** their emissions targets



Of the 127 English universities analysed, 23% (29) have reduced their carbon reduction targets and 18% (23) have increased their targets.

76% of universities are **not** projected to **meet** their 2020 emissions target



Only 3 universities out of 127 are projected to be on track to meet their 2020 carbon reduction targets, whilst 28 universities could exceed their targets.



Universities are **improving efficiency** within their estates, both **in relation to** **income and floor area**

Universities have experienced commercial growth in terms of floor space and revenue, however carbon emissions have increased at a slower rate.

When measured against income university emissions intensity has fallen by 25% since 2008 to 74 gCO₂e per £.

When measured against floor space (m²) university emissions intensity has fallen by 12% since 2008 to 87 kgCO₂e per m².

Performance Tables

There is a **large gap** between the top and bottom performers **across all carbon metrics**

The carbon performance of all English universities has been assessed in relation to absolute emissions and emissions relative to floor space and income.

The top and bottom performers are summarised here and full tables can be downloaded from our website.

Change in **absolute emissions** (tCO₂e)

University	% change from 2005 to 2013/14
Decrease in emissions	
1 London Metropolitan University	-51.21%
2 University of Cumbria	-48.30%
3 School of Oriental and African Studies	-46.62%
4 Lancaster University	-46.03%
5 Buckinghamshire New University	-43.07%
6 City University	-42.22%
7 Rose Bruford College	-41.84%
8 University of Reading	-41.00%
9 University of Greenwich	-40.31%
10 University of Bradford	-40.24%

University	% change from 2005 to 2013/14
Increase in emissions	
118 King's College London	17.74%
119 University of Cambridge	19.31%
120 University of Derby	22.19%
121 Liverpool Institute for Performing Arts	22.53%
122 Leeds College of Art	26.56%
123 Edge Hill University	31.15%
124 University of Worcester	31.93%
125 University of Bolton	53.99%
126 Queen Mary University of London	62.39%
127 Ldn School of Hygiene and Tropical Medicine	66.37%

Change in **emissions intensity - floor space** (tCO₂e/m²)

University	% change from 2008 to 2013/14
Decrease in emissions	
1 London Metropolitan University	-54.51%
2 Royal Agricultural University	-50.77%
3 School of Oriental and African Studies	-45.52%
4 University of Chichester	-43.64%
5 University of Winchester	-40.06%
6 Harper Adams University	-39.55%
7 University of Greenwich	-39.17%
8 University for the Creative Arts	-36.30%
9 Lancaster University	-35.31%
10 Norwich University of the Arts	-34.80%

University	% change from 2008 to 2013/14
Increase in emissions	
112 University of the Arts London	8.97%
113 University of Cambridge	9.05%
114 University of Chester	9.52%
115 Nottingham Trent University	10.43%
116 Buckinghamshire New University	17.96%
117 University of Hertfordshire	19.84%
118 University College London	19.90%
119 Guildhall School of Music and Drama	21.47%
120 St George's Hospital Medical School	37.70%
121 Ldn School of Hygiene and Tropical Medicine	48.02%

Change in **emissions intensity - income** (tCO₂e/£)

University	% change from 2008 to 2013/14
Decrease in emissions	
1 Royal Agricultural University	-52.04%
2 London Metropolitan University	-51.70%
3 Aston University	-50.91%
4 Royal Veterinary College	-49.34%
5 Norwich University of the Arts	-49.20%
6 University of Reading	-48.09%
7 University of Bradford	-48.08%
8 Lancaster University	-47.57%
9 University of Greenwich	-45.83%
10 King's College London	-45.67%

University	% change from 2008 to 2013/14
Change in emissions	
112 University of Plymouth	-4.37%
113 Writtle College	-4.10%
114 Liverpool Hope University	-3.98%
115 University of the West of England	-3.36%
116 London South Bank University	-2.17%
117 University of Derby	-1.81%
118 Ldn School of Hygiene and Tropical Medicine	0.33%
119 Guildhall School of Music and Drama	27.87%
120 Institute of Education	28.75%
121 St George's Hospital Medical School	53.96%

Full Performance Tables and Institution Specific Reports

Detailed tables are available for all HEFCE funded universities. These can be requested from our [website](#).

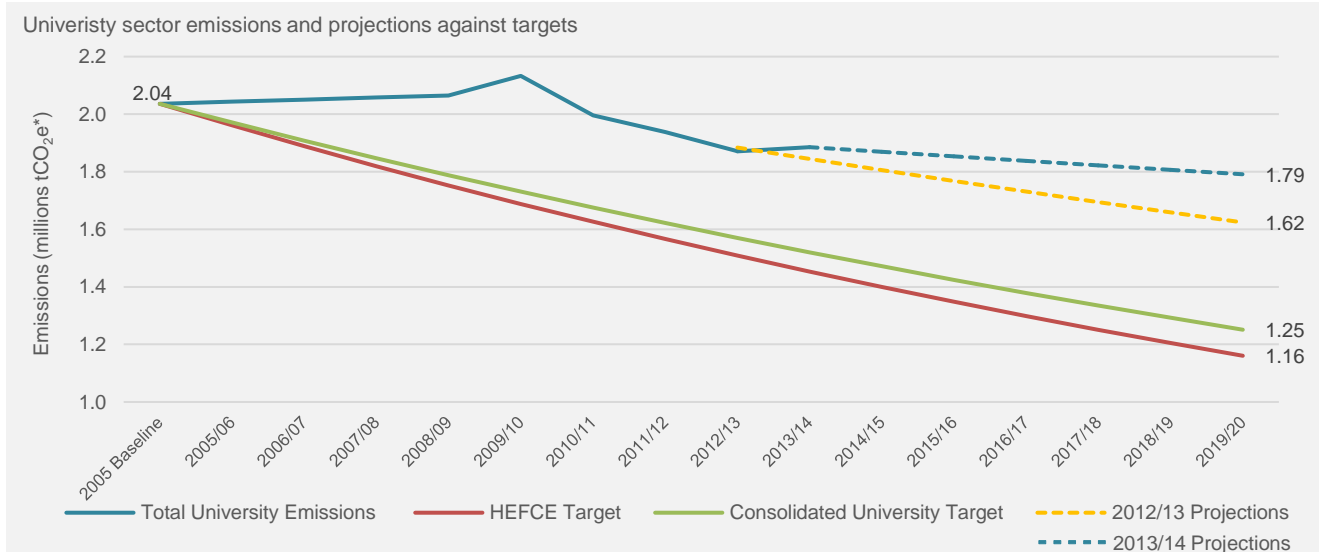
Thumbnail image showing a portion of the performance tables, including the 'Change in absolute emissions (tCO₂e)' table.

Finding 1

Universities **fall** even further **behind** their sector reduction target

If emissions continue to fall at the current rate, the sector will only achieve a 12% reduction in 2020 against the 2005 baseline.

This is less than a third of the HEFCE target and half of the reductions predicted in 2013/14.



emissions in 2013/14 (tCO₂e)

1,885,433

emissions increase (tCO₂e)

14,526

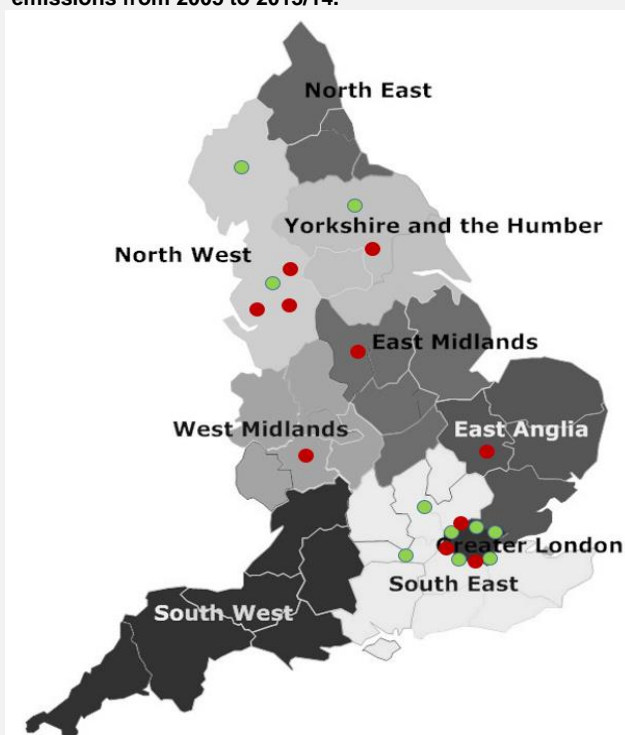
reduction from 2005

7%

projected reduction by 2020

12%

Location of universities with the largest and smallest emissions from 2005 to 2013/14.



London Universities feature heavily in both the lists of top and bottom performers.

The London Metropolitan University is the top performer having reduced its emissions by 51% compared to 2005.

The worst performer is the London School of Hygiene and Tropical Medicine, which has increased its emissions by 66% compared to 2005.

Total University Emissions Increase in 2013/14

For the first time since 2009/10 total university sector emissions increased. Emissions rose by 14,526 tCO₂e to 1,885,433 tCO₂e between 2012/13 and 2013/14.

Total sector emissions have only fallen by 7% since 2005 well behind the trajectory needed to achieve the 43% reduction target for 2020.

If reductions continue their current trajectory, the sector will only achieve a 12% reduction in 2020 against the 2005 baseline. This is less than a third of the HEFCE target and half of the reductions predicted in 2012/13.

Top and Bottom Emitters

The University of Cambridge was the largest emitter of carbon in 2013/14 (84,992 tCO₂e), it has increased its emissions by 19% since 2005.

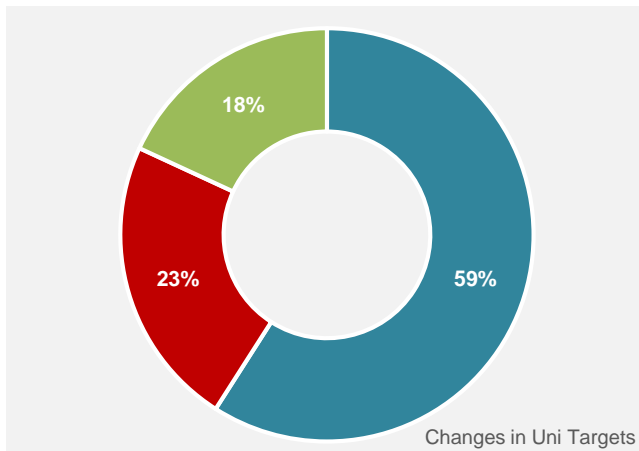
Rose Bruford College had the smallest carbon footprint in 2013/14 (558 tCO₂e). It has decreased its emissions by 42% since 2005.

*Emissions from 2008/09 to 2011/12 are in tCO₂ and emissions from 2012/13 to 2013/14 are in tCO₂e. The 2005 baseline is in tCO₂e. There are minor differences in the methodology for projections in the 2012/13 analysis and the 2013/14 analysis. This is set out in the Methodology Sheet.

Finding 2

Almost a **quarter** of institutions have **reduced** their emissions targets

Comparisons of carbon reduction targets published by HEFCE with the latest reduction targets in the 2013/14 HESA estates management record (EMR) show that 23% have reduced their carbon reduction targets. 18% have increased their target and the remaining university targets remained unchanged.



reduced target

29

Despite reducing their targets, 18 universities of the 29 are still not projected to be on track to meet their 2020 carbon reduction target.

increased target

23

23 universities have increased their target, demonstrating a commitment from some institutions to go beyond their initial commitments.

not changed target

75

The target remains unchanged for 59% of English universities.

weighted av. target

39%

The weighted average target of 39% has been calculated by aggregating all universities' expected emissions reductions in 2020. This represents the collective university reduction target for the sector as a whole.

The non-weighted average target is the mean of all English university targets.

non-weighted av. target

37%

lowest uni target

3%

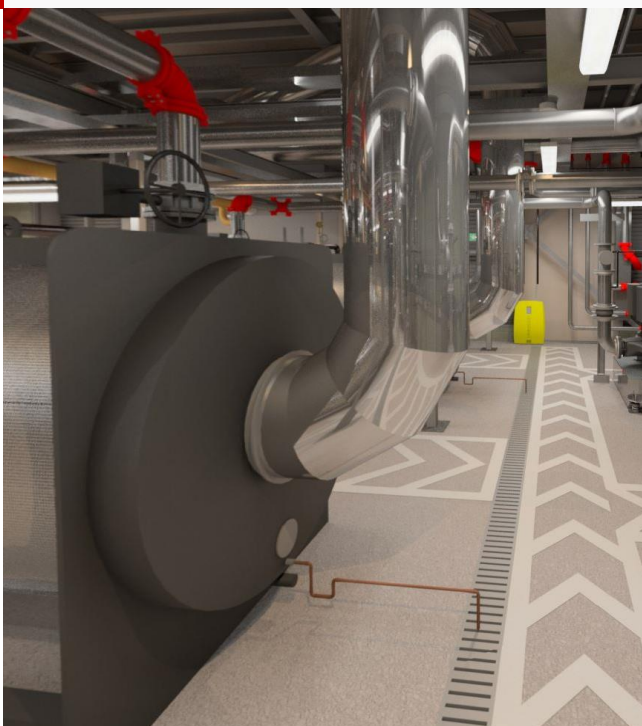
Newman University College has the lowest carbon reduction target of the sector at 3%.

The most ambitious targets have been set by University of Leicester, the University of Warwick and the University of East Anglia at 60%.

highest uni target

60%

Spotlight: The University of Reading



Reading Energy Centre District Heating System

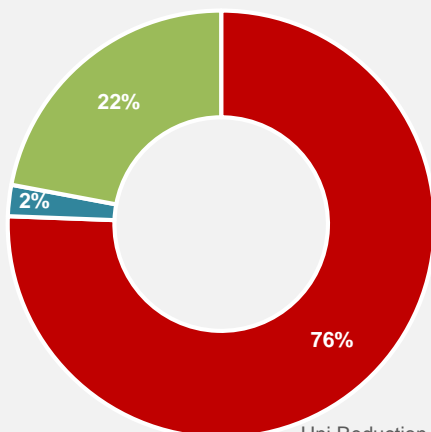
The University of Reading is a Top 10 performer for both absolute carbon emission reductions and emissions reductions by income. From 2005 to 2013/14 its emissions have fallen by 41% and it is currently on track to exceed its 2020 emissions reduction target.

"We are very pleased with the carbon reduction progress made so far at Reading. Our new Energy Centre and district heating system will provide additional recurrent savings when it is completed next month."

Looking forward, we are developing plans for further technical improvements and behavioural projects that will help to contribute towards achieving our 2020 targets."

Steve Boon
Facilities Maintenance Director

76% of universities are **not** projected to meet their 2020 emissions **target**



Uni Reduction Projections

Finding 3

Based on reduction trends to date carbon emissions have been forecast out to 2020 for each of the 127 HEFCE funded universities.

If universities continue to reduce emissions in line with historical data, three quarters of universities will not meet their emissions target. A step change is required.

not on track

96

Almost 80% of the sector are not projected to meet their 2020 target.

on track to exceed

28

Although 22% are projected to exceed their targets, 11 out of the 28 universities analysed have reduced their 2020 emissions targets.

on track

3

De Montfort University, Royal College of Music and the University of East London are currently on track to meet their 2020 targets.

Universities on track to exceed 2020 target



The 28 English universities that are projected to exceed their 2020 emissions reduction targets are clustered in Greater London, the West Midlands and the North West of England.

Spotlight:

London Metropolitan University

The London Metropolitan University is the best overall performer in the sector, coming first for absolute reductions and reductions by floor area. From 2005 to 2013/14 its emissions have fallen by 51% and it is currently on track to exceed its 2020 emissions reduction target of 46%.

"We're immensely proud of our efforts to reduce the University's emissions, the result of which is the culmination of four years hard work by every part of the University including academic and professional staff, students and our students' union."

We're not complacent however, and have some big plans for our future. This year we're utilising renewable energy for ourselves for the first time by installing solar panels on our Science Centre, reviewing lighting across the institution, and managing a project to improve the energy efficiency of one of our buildings."

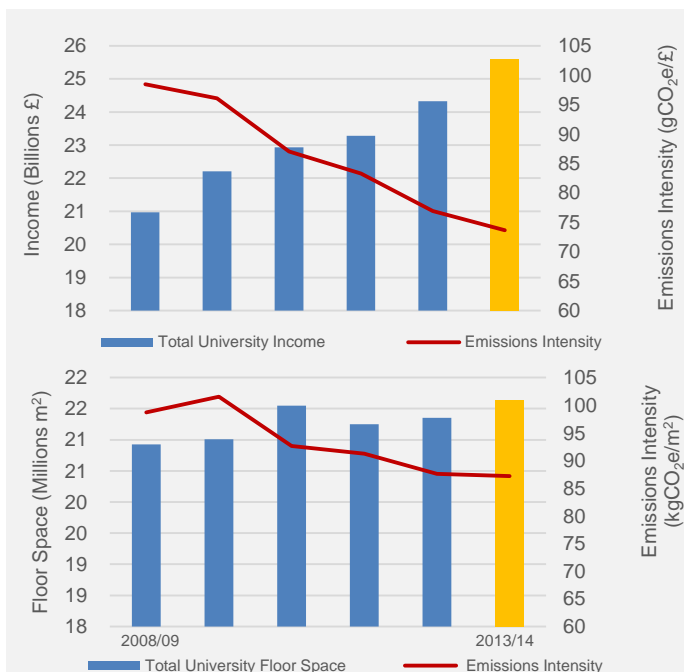
Rachel Ward
Sustainability Manager

Finding 4

Universities are **improving efficiency** within their estates, both in relation to income and floor area

Sector income and floor area have been increasing steadily since 2008/09.

Universities have improved efficiency within their estates, both in relation to income and floor area.



Commercial Growth

University sector income has grown by 22% from 2008 to 2013/14. Similarly, floor space (m²) has grown by 3% from 2008 to 2013/14.

Long Term Efficiency

An analysis of emissions in relation to revenue and floor area show that rising incomes and floor area have not resulted to an equivalent increase in emissions. Since 2008, university emissions intensity has fallen by 25% when measured against income (£) and 12% when measured against floor area (m²).

Spotlight: Royal Agricultural University



The Royal Agricultural University the top performer is the sector for emissions reductions by income. From 2008 to 2014 the university has reduced its emissions intensity by 52% .

"We are absolutely delighted to see this result, which reflects the enormous effort the RAU has put in to reducing carbon. Over the past 5 years we've installed a 500kW biomass boiler, air source heat pumps and two new solar PV arrays which have had a significant impact on our reduction, as has as the effort from everybody across the University to reduce their own impacts. We have also recently executed a major upgrade of our historic oil boilers to a new highly efficient gas system, with a thermal heat store and connection for a future biomass boiler. Although we still have a way to go to hit our absolute carbon targets by 2020, we are confident that our carbon reduction plans will ensure that we continue to be an exemplar for our students."

Pearl Costello
Environmental Officer

The university sector faces the same defining sustainability challenge as our economy at large: how to achieve meaningful carbon reductions in absolute terms whilst growing?

Since the implementation of carbon management plans, institutions have put into practice effective carbon and energy reduction programmes incorporating renewables, efficiency programmes and behavioural change initiatives. These programmes have successfully delivered reductions in emissions intensity each year since 2009, both in terms of gross internal area and revenue. Absolute emissions reductions are well behind target.

Whilst some universities have delivered impressive absolute reductions since 2005, the sector as a whole has only achieved a 7% reduction to date and total emissions in fact rose in 2013/14 from the previous year. Based on these trends, emissions reduction projections out to 2020 suggest that the sector will only achieve a 12% reduction, well behind the HEFCE target of 43%.

The significant commercial growth seen across the sector is likely to be an important factor, but with more than 75% of universities set to not achieve their own targets, institutions behind targets should examine their carbon strategies and the effectiveness of their implementation to get back on track.

Review your performance to date:

Undertake a comprehensive review of your carbon management plan, analysing emissions performance to date and the factors that have helped and hindered reductions.

Check whether initiatives implemented to date have achieved the expected reductions and explore what you can change to improve effectiveness.

Analyse new carbon reduction opportunities

Review what other energy and carbon reductions opportunities are available and update your carbon reduction programme.

Benchmark against peers

Benchmark performance and programmes against other institutions and other sectors. Incorporate best practice and innovation into your carbon management plan and share lessons learned with peers.

Review the business case for carbon and broader sustainability

Review and update the business case for carbon and sustainability, including the financial, commercial and reputational drivers and risks. This may include revising the commercial case for abatement initiatives and opportunities for new revenue streams or funding.

Assess impact of commercial strategy

Assess the impact of commercial growth on carbon reductions to date and develop an aligned carbon and commercial strategy.

Check your target

Review your carbon reduction target and ensure that it aligns with your energy and carbon reduction programme and future growth plans.

Update your carbon management plan:

Update your carbon management plan, ensuring it aligns with your targets, commercial strategy and broader sustainability strategy. Incorporate any changes to your reduction programmes and review progress on a regular basis.



About us

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Sustainable Strategy

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With a service offering that covers business strategy, management systems and solution implementation, Brite Green delivers business-focussed solutions that drive business performance.

We have considerable experience in carbon and environmental management in universities, including carbon management plan design and implementation.

To find out more about Brite Green's services, please [contact us](#).