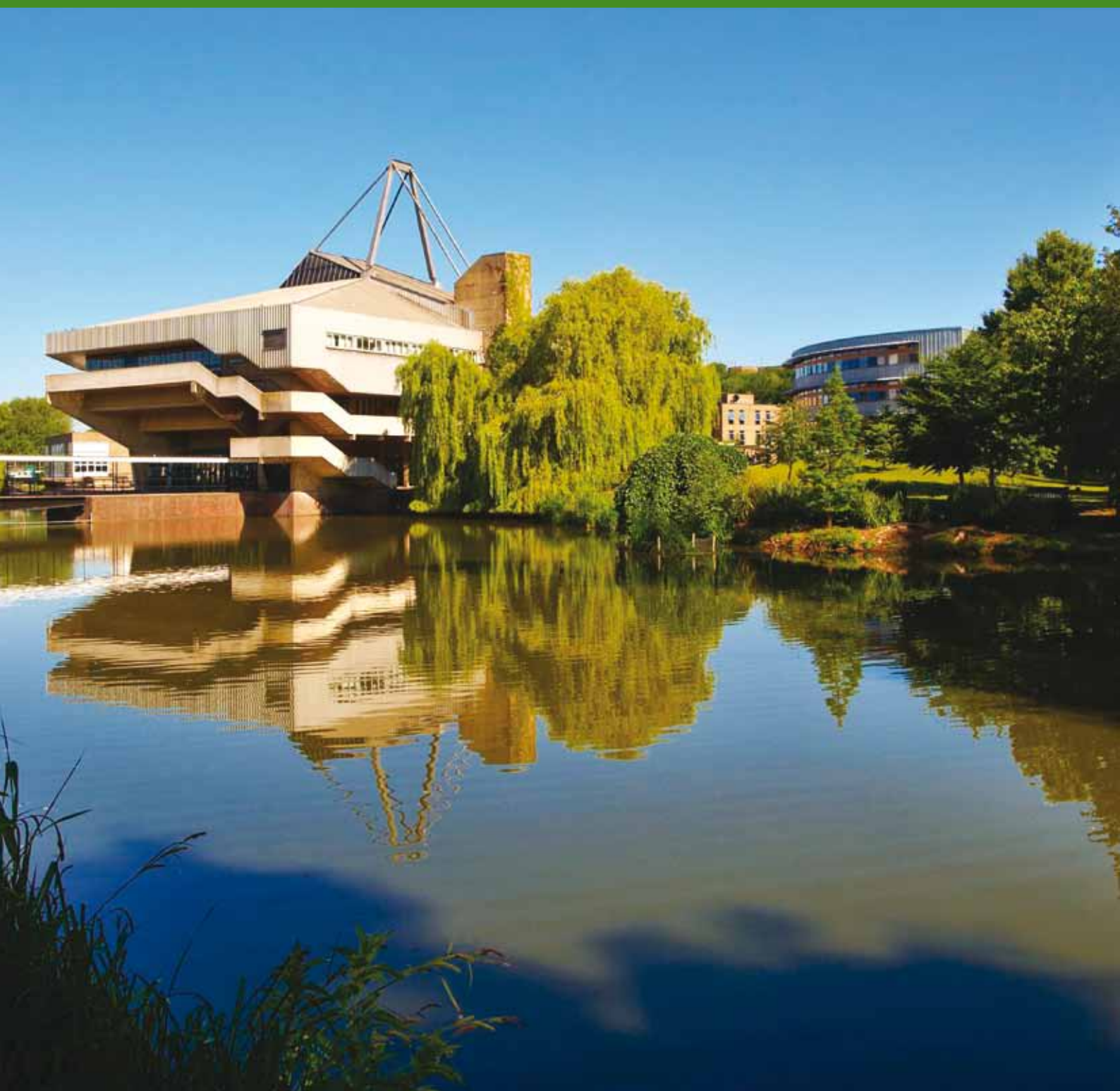


THE UNIVERSITY *of York*

# Carbon Management Plan 2011 – 2020





# Contents

Foreword by the Vice Chancellor .....	1
Executive Summary .....	2
1. Introduction .....	4
2. Overview of Strategy.....	7
3. Sustainable Development Objectives and Targets.....	8
3.1 Objectives.....	8
3.2 Targets.....	8
4. Carbon Emission Baseline Data.....	9
5. Carbon Reduction Targets .....	10
6. Implementation Plan .....	11
7. Scope 3 Emissions .....	23
8. Monitoring and Reporting.....	25
Appendix 1 – Graph of Forecast Carbon Emissions Reduction .....	26





# Foreword by the Vice-Chancellor

Climate change is widely accepted as one of the greatest threats facing the world today. The University of York is committed to sustainable development and good carbon management. This commitment goes beyond just complying with our legal requirements and has been enshrined as one of the four core strategic objectives defined in the University Plan 2009 to 2019, which sets out our vision, values and objectives over the next ten years.

This Carbon Management Plan underpins the University's commitment to sustainable development and carbon reduction. Achieving the targets included in the plan will represent a significant challenge given the plans for the University's expansion and growth in student numbers, but I am confident that we will be successful in delivering our ambitions and achieving our vision.



**Professor Brian Cantor**

*Vice-Chancellor*

*University of York*



# Executive Summary

The University of York is required to provide a Carbon Management Plan that complies with Higher Education Funding Council for England (HEFCE) requirements and represents the institution's commitment to achieve the HEFCE target reduction of 43% in annual carbon dioxide emissions by 2020 against a 2005 baseline.

This plan includes:

- A baseline assessment of the University's scope 1 and 2 carbon emissions for 2005
- Carbon reduction targets that will deliver this requirement
- An implementation plan that will deliver these savings
- Clarity on responsibility for carbon reductions

This plan complies with all of these requirements.

The baseline assessment of emissions for 2005 was 25,032 tonnes of carbon. In line with HEFCE requirements this emissions figure includes all of the University managed estate but excludes third part managed property such as residences.

From this baseline the net carbon emissions reduction target is 10,764 tonnes. Also in line with HEFCE requirements any University growth between 2005 and 2020 has to be accommodated as additional carbon reductions. The University has assessed the growth potential required as an additional 7,682 tonnes of emissions; therefore the gross reduction target is 18,446 tonnes.

Included in this document is a detailed implementation plan that is forecast to deliver carbon reductions of 20,476 tonnes per annum. Not only does this meet the HEFCE target but it also betters the target given as part of the University's Capital Investment Framework (CIF 2) submission. This improvement provides some headroom for increased potential growth.

The principal responsibility for the achievement of this plan resides within the Directorate of Estates and Campus Services.

The plan includes an assessment of the University's scope 3 emissions in 2005 although HEFCE has yet to determine the methodology for measuring this across the sector.

It is intended that this plan will be reviewed annually and updated in line with the changing requirements of the University and the policy framework of HEFCE.

Overall this plan is credible, fundable and deliverable.



---

*Overall this plan is credible,  
fundable and deliverable.*





# 1. Introduction

In the 2008 Climate Change Act (CCA), the UK Government committed to a long-term carbon reduction target of 80% by 2050 against 1990 levels, with an interim target of a 26% reduction by 2020. The 2009 budget increased this to 34% by 2020. A further increase to 42% has been recommended by the Committee on Climate Change (CCC).

The Department for Innovation, Universities and Skills' grant letter to HEFCE for 2009-10 required the higher education (HE) sector in England to implement a carbon reduction target of at least 80% by 2050 against 1990 levels. HEFCE has announced that, from 2011, capital allocations will be linked to carbon reduction. HEFCE, Universities UK and GuildHE have published their 'Carbon reduction target and strategy for higher education in England' (HEFCE 2010/01). Institutions are required to develop individual carbon management plans and to report on progress and the results achieved.

---

*Institutions are required to develop individual carbon management plans and to report on progress and the results achieved.*

Key sources of carbon emissions from the HE sector are listed in Table 1-1.

**Table 1-1: Carbon emission sources from the HE sector**

Source	Description	
Energy – fossil fuel combustion (gas, coal, oil) and electricity use	Building related: <ul style="list-style-type: none"> <li>■ Non-residential buildings – teaching, research, catering, sports, other</li> <li>■ Residential buildings – student and staff accommodation</li> </ul>	
	Non-building related: <ul style="list-style-type: none"> <li>■ Campus lighting, sports grounds</li> </ul>	
Transport	Land transport – car, rail, bus, other	Includes: Institutions' own vehicle fleet Business travel – management, research, teaching Commuting – staff and students
	Air travel – domestic flights, international flights	
Other	Water, waste, procurement (assets, goods and services), land use	

The World Resources Institute (WRI) developed a classification of emission sources into three scopes (descriptions of which sources fall into which 'scope' are in Table 1-1). This approach has been widely adopted, including by the UK Government. Table 1-2 shows total CO<sub>2</sub> emissions attributable to the HE sector for 1990 and 2005.



**Table 1-2: HE sector carbon emissions – scopes 1, 2 and 3 (1990, 2005)**

Scope	Description	Examples	HE sector
<b>Scope 1: Direct emissions</b>	Direct emissions occur from sources that are owned or controlled by the HEI	Direct fuel and energy use Transport fuel used in institutions' own vehicle fleets	<b>1990: total CO<sub>2</sub> equivalent – 1.782 MtCO<sub>2</sub></b> Of which: 1.102 MtCO <sub>2</sub> from electricity (62%), 0.452 MtCO <sub>2</sub> from gas (25%), 0.173 MtCO <sub>2</sub> from burning oil (10%) and 0.037 MtCO <sub>2</sub> from coal (2%); and 0.018 MtCO <sub>2</sub> from direct transport emissions (1%) <b>2005: total CO<sub>2</sub> equivalent – 2.046 MtCO<sub>2</sub></b> (15% increase compared with 1990)
<b>Scope 2: Electricity indirect emissions</b>	Emissions from the generation of purchased electricity consumed by the HEI	Purchased electricity	
<b>Scope 3: Other indirect emissions</b>	Scope 3 emissions are a consequence of the activities of the HEI, but occur from sources not owned or controlled by the HEI	Water Waste Land-based business travel Commuting (both staff and students) Air travel (international students; international student exchange; business)	<b>1990: total CO<sub>2</sub> equivalent – 0.738 MtCO<sub>2</sub></b> <b>2005: total CO<sub>2</sub> equivalent – 1.293 MtCO<sub>2</sub></b> (75% increase compared with 1990)
		Procurement	

From 2011, capital allocations will be linked to carbon reduction and HEIs in England are required to develop carbon management plans that include:

- a) A carbon management policy or strategy – this could be part of a wider environmental/sustainability policy.
- b) A carbon baseline for 2005 that covers all scope 1 and 2 emissions. This year is being used as a baseline because it is used for reporting against UK targets, and the SQW\* report demonstrated that robust data for scope 1 and 2 is available for that year at institutional level. This will provide consistency across the sector against which progress can be monitored and reported. Institutions are encouraged to measure a baseline for scope 3 emissions and in the longer term we will expect these to be included.
- c) Carbon reduction targets. These must:
  - cover scope 1 and 2 emissions, although institutions may choose to set additional targets for wider aspects
  - be set against a 2005 baseline. Institutions may choose to set their reductions in context by setting additional targets against an alternative baseline year
  - be set to 2020, because this is the timescale for interim government targets. This will provide consistency across the sector against which progress can be monitored and reported. Institutions may also set interim milestones
  - be publicly available.
- d) An implementation plan to achieve absolute carbon emission reductions across scopes 1, 2 and 3 including timescales and resources. These may cover capital projects and actions to embed carbon management within the institution, for example, through corporate strategy, communication and training.
- e) Clear responsibilities for carbon management.
- f) A commitment to monitor progress towards targets regularly and to report publicly annually.
- g) The carbon management plan and targets must be signed off by the governing body.

Institutions are required to calculate a carbon baseline for 2005 (taken as the 2005–2006 academic year) to provide consistency across the sector against which progress can be monitored and reported. 2005 is being used as a baseline as this year is used for reporting against UK targets and robust data for scope 1 and 2 is available for this year across the sector.

This Carbon Management Plan has been prepared to comply with these requirements and clearly express the University of York's commitment to achieve the required levels of carbon dioxide reductions.

\* SQW (2009) research into a carbon reduction strategy for Higher Education in England: A report to HEFCE







## 2. Overview of Strategy

This Carbon Management Strategy has been developed to express the University of York's commitment to carbon reduction and comply with HEFCE requirements. Carbon reduction makes good business sense in these times of high volatility in the fossil fuel market.

The development of this strategy has taken the following factors into account:

- The overall energy usage by the University and future plans for growth
- The carbon reduction targets that have been set
- The 2005 baseline for carbon usage
- Sources of alternative supplies of low carbon energy in line with the University's Renewable Energy Strategy
- The condition of existing supply equipment and infrastructure
- The volatility of the fossil fuel energy supply market.

The following areas have been considered in developing the means of achieving the required levels of carbon reduction:

- Improving the monitoring of energy usage to provide feedback and measure actual performance of initiatives
- Behavioural change as a consequence of better energy usage information and targeted campaigns
- Improving the overall energy performance of the existing estate by upgrading buildings and infrastructure
- Replacement of older energy supply equipment with modern high performance plant
- Introducing other sources of low carbon energy supply.

Following discussions with HEFCE it has been agreed that the Carbon Management Plan should be based upon the following:

- The University's owned and operated estate including academic and residential
- Residential property managed by a third party is excluded
- Fixed baseline and targets for scope 1 and 2 reductions in line with HEFCE norms
- Growth projections for the estate between 2005 and 2020
- Information contained within our CIF 2 submission.

This strategy reflects the University's current thinking based on present day knowledge and policy frameworks. However it is likely that over the ten year period of its implementation there will be changes of circumstance through government policy and the global energy supply market. This strategy will need to be adaptable and subject to an annual review to ensure that it reflects the right course of action to meet the University's strategic objectives set within the context of HEFCE requirements.

# 3. Sustainable Development Objectives and Targets

The University is committed to sustainable development and good carbon management. This is reflected within the Sustainability Policy that was adopted in 2004 and included within the Outline Planning Application that supported the major expansion plans onto Heslington East. The commitment to sustainability is also included as one of the four core strategic objectives defined in the University Development Plan 2009 to 2019, which sets out the vision for the University over the next ten years.

## 3.1 Objectives

The sustainability policy statement is currently being redrafted into a full policy document, which will replace the existing Sustainable Development Policy. Carbon management will be a major element of the policy with stated objectives as follows:

- To progressively reduce our carbon footprint in order to meet the UK Government's statutory requirements.
- To develop intermediate and long term CO<sub>2</sub> emissions targets in line with UK Government and HEFCE requirements.
- To deliver new buildings that meet a BREEAM<sup>1</sup> rating of 'Very Good' with a target of achieving 'Excellent'.
- To maintain the long-term viability of the University by providing a flexible and sustainable energy supply in the future.
- To develop on-site low carbon/renewable energy capability to meet at least 10% of the energy requirements of new buildings.
- To maintain continuity of energy and utilities supply.

## 3.2 Targets

The University's overall target contained within the CIF 2 submission is to reduce carbon emissions by 48% by 2020, compared to the 2005 baseline. With HEFCE's endorsement the University is embarking on a major programme of expansion on Heslington East. Construction of this new development commenced in 2009 and therefore none of this new development is included within the 2005 baseline. Although the buildings on Heslington East are being constructed in line with modern building codes, the accommodation of this additional footprint within the targeted carbon emissions presents a major challenge. Therefore in parallel with absolute targets we will be looking at carbon reductions on a pro rata basis with the forecast growth of staff and student numbers.

---

*The University's overall target contained within the CIF 2 submission is to reduce carbon emissions by 48% by 2020*

<sup>1</sup> Building Research Establishment Environmental Assessment Method



# 4. Carbon Emission Baseline Data



The following table and chart shows the University carbon footprint from 2005 through to 2009 for scope 1 and 2 emissions. HEFCE have stipulated that the baseline for measuring carbon reductions is 2005/06.

	2005/06	2006/07	2007/08	2008/09	2009/10
Electricity	12,856	12,244	13,531	13,428	14,083
Heating	12,142	10,946	12,156	11,889	11,664
University Vehicles	34	34	34	34	34
<b>Total</b>	<b>25,032</b>	<b>23,224</b>	<b>25,721</b>	<b>25,527</b>	<b>25,781</b>
FTE Students	9,696	10,108	10,276	10,817	12,298
FTE Staff	2,413	2,673	3,149	3,243	3,297
Total FTE	12,109	12,781	13,425	14,060	15,595
Carbon Emissions per FTE	2.067	1.817	1.916	1.816	1.653

*Tonnes of CO<sub>2</sub> equivalent emissions*

The recommended approach by HEFCE is to monitor emissions from scope 1 & 2 with scope 3 as part of a future monitoring programme.

# 5. Carbon Reduction Targets

HEFCE has set the following Carbon Reduction Targets for all HEIs:

- To achieve a reduction of 43% by 2020 set against a 2005 baseline
- Interim targets to gauge progress against this objective of 12% by 2012 and 29% by 2017.

Against a Scope 1 and 2 benchmark of 25,032 tonnes this gives the following absolute targets:

- Absolute reduction target of 10,764 tonnes for 2020
- Interim reduction target of 3,004 tonnes for 2012
- Interim reduction target of 7,259 tonnes for 2017.

Within the CIF 2 submission, the University included a stretched target of achieving a 48% reduction in carbon dioxide for 2020 and this remains our objective, even with the additional expansion the University has achieved and is planning since 2005. This gives a reduction target of 12,015 tonnes in 2020.

These targets are net and need to include any growth in the University's estate; this growth has been estimated as requiring an increase in emissions of 7,682 tonnes against the 2005 baseline. Taking this into account means that the gross required saving to meet the HEFCE target is 18,446 tonnes and to meet the University's CIF 2 target, 19,697 tonnes.

With these net target reductions the University's actual emissions are required to be 14,268 tonnes to meet the HEFCE target and 13,017 tonnes to meet the University's CIF 2 target.






# 6. Implementation Plan

The University's Carbon Implementation Plan is built around five main themes. These are:

<p>Improve Usage Information and Monitoring</p>	<p>It is only possible to provide information on achievement against targets and the success of specific initiatives if we have the correct monitoring and reporting processes in place. This detail will also provide valuable feedback to users about their energy consumption levels.</p>
<p>Behavioural Change</p>	<p>The University has been successful in targeting specific behavioural change through campaigns. The provision of additional usage information will allow these campaigns to be more targeted and allow an element of competition to be included.</p>
<p>Improve the Energy Performance of the Estate</p>	<p>The University of York was founded in the 1960s and has a legacy estate. Even with the developments over the rest of the 20<sup>th</sup> century, energy efficiency was not a high priority in design. Significant progress to date has been made in introducing 21<sup>st</sup> century technology and standards to improve the overall energy performance of the estate and this is planned to continue.</p>
<p>Upgrade Existing Energy Supply Capability</p>	<p>The University's main source of heat energy is through the central boiler house which also dates back to the 1960s. There has not been any significant upgrade of this facility and modern technology provides considerably more efficient ways of producing heat and electricity. The original philosophy for distributing heat around the campus was through a district system. It is now time to upgrade and extend this capability.</p>
<p>Introduce New Low Carbon Sources of Energy</p>	<p>The University is keen to introduce diversification within the energy supply market and this is to include sources of renewable energy. This set of initiatives includes the introduction of wind turbines and biomass boilers.</p>

The implementation plan gives details of the particular initiatives that come under these headings. The responsibility for the implementation of each initiative has been identified along with a time frame for implementation. This has been used to generate a graph of forecast emissions savings against the baseline, with growth added and no savings. This is included within appendix 1. Finally, estimated costs for implementation have been included. These are integrated into our budgetary processes to ensure sufficient financial resources are made available to achieve the plan.



---

*In summary, the forecast savings from these initiatives amount to 20,476 tonnes of carbon dioxide by 2020*



In summary the forecast savings from these initiatives amount to 20,476 tonnes of carbon dioxide by 2020 broken down as follows:

Initiative	Savings (tonnes)	% saving
Improve Usage Information and Monitoring	943	5
Behavioural Change	858	4
Improve the Energy Performance of the Estate	4,814	23
Upgrade Existing Energy Supply Capability	10,393	51
Introduce New Low Carbon Sources of Energy	3,468	17

The growth projections for the University include:

- The first phase of the Heslington East development, including a state of the art facility for the Department of Theatre, Film and Television
- A new Sports Village including a swimming pool
- The York Plasma Institute
- Expansion of the Centre for Hyperpolarisation
- An array of additional research and teaching facilities
- An allowance for four additional academic buildings with a total floor area of 20,000m<sup>2</sup>.

It is forecast that collectively this level of development will result in an additional 7,682 tonnes of carbon dioxide emissions.

This gives a forecast net reduction of 12,794 tonnes against the 2005 baseline, which is in excess of the HEFCE target and the University's target as declared within CIF 2.

## Implementation Plan – Improve Usage Information and Monitoring

Description	Further Details	Cost (£k)	CO <sub>2</sub> Saving (t)	Planned Delivery Date	Lead
<b>1. Improve Usage Information and Monitoring</b>					
<b>1.1</b>	<b>Enhance metering strategy, includes the following:</b>				
1.1.1	Enhance smart metering provision	300	514	2012	Environment and Energy Manager
1.1.2	Remote monitoring of usage	50		2012	Environment and Energy Manager
1.1.3	Accurate feedback of energy reduction initiatives			2012	Environment and Energy Manager
1.1.4	Visibility to users of ongoing energy consumption			2012	Environment and Energy Manager
1.1.5	Additional metering for residences	100	429	2012	Environment and Energy Manager
1.2	Energy audits of all buildings with associated improvement plans	50	0		Environment and Energy Manager
<b>Total</b>		<b>500</b>	<b>943</b>		

## Implementation Plan – Behavioural Change

Description	Further Details	Cost (£k)	CO <sub>2</sub> Saving (t)	Planned Delivery Date	Lead	
<b>2. Behavioural Change</b>						
2.1	Targeted campaigns eg Student Switch Off and Green Impact	Provide incentives to staff and students for improved energy performance, through energy awareness campaigns targeting students in University residences and staff through the network of Energy Co-ordinators and the 'Green Impact' scheme.	50	429	2015	Environment and Energy Manager
2.2	Training in building use by staff and students	Develop building user guides together with training videos for staff and students to ensure building systems are used effectively and efficiently.	25	429	2015	Environment and Energy Manager
2.3	Incorporate energy awareness in staff and student inductions	Ensure staff and students are made aware of the University's carbon reduction initiatives and targets and their role in achieving these targets.	10	0	2015	Environment and Energy Manager
<b>Total</b>			<b>85</b>	<b>858</b>		







## Implementation Plan – Improve the Energy Performance of the Estate

Description	Further Details	Cost (£k)	CO <sub>2</sub> Saving (t)	Planned Delivery Date	Lead	
<b>3. Improve the Energy Performance of the Estate</b>						
3.1	Building fabric upgrades to CLASP buildings	Improvements to thermal performance of Heslington West buildings as a consequence of the refurbishment programme (windows, walls and roofs). The budget for this is in the refurbishment programme.	0	546	2020	Director of Estates and Campus Services
3.2	Replace Chemistry B and C Blocks (40% saving)	Ensure energy efficient options and equipment are embedded in building design.	N/A	285	2014	Director of Estates and Campus Services
3.3	Library refurbishment fabric improvements	Influence the use of energy efficient options within the overall refurbishment project, ie replacement of windows therefore improving thermal efficiency overall.	N/A	92	2011	Director of Estates and Campus Services
3.5	Improvements to lighting systems and controls, including external lighting	Review all lighting systems and controls throughout to achieve an overall carbon reduction through the replacement and retrofitting of luminaires and lamps utilising new technology, ie LED lamps, etc.	700	704	2016	Environment and Energy Manager
3.6	Improvements to building management systems and heating controls	Consider the use of new technology in order to achieve a reduction in energy use through an integrated solution using wireless technology, web based solutions and other smart building technology options.	1,000	1,105	2015	Environment and Energy Manager

Description	Further Details	Cost (£k)	CO <sub>2</sub> Saving (t)	Planned Delivery Date	Lead	
<b>3.7</b>	<b>Biology 20% energy reduction target through following measures:</b>					
3.7.1	Reduce total supply air by 15% (target)	Set a target to achieve a reduction of total supply air to the Biosciences building by 15% through a reduction in the required air changes in individual rooms.	20	242	2015	Environment and Energy Manager
3.7.2	Improve heating and chilled water pump motors - use EFF1	This will involve replacing existing pumps with more efficient models as they reach the end of their life – the timescale will depend on the age of the pump at present but this strategy can be applied widely across Heslington West and further savings would be expected.		24	2015	Environment and Energy Manager
3.7.3	Reduce general extract by 25% (target)	Set a target to reduce general extract by 25% in the Biosciences building by the introduction of inverter drives.		211	2015	Environment and Energy Manager
3.7.4	Switch off Fan Coil Units (FCU) out of hours - 33% of time	This is only applicable in some areas and in buildings operating 24/7.		45	2015	Environment and Energy Manager
3.7.5	Permanent switch off air curtains	Switch off air curtains where possible, ie where the location of reception areas allows this to be done.		88	2015	Environment and Energy Manager
3.7.7	Allow cooling set-points to drift - 10% (target)	Allow cooling set points to drift by a 10% margin.		42	2015	Environment and Energy Manager
3.7.8	Replace inefficient -80°C freezers with high efficiency models	Set up a programme to replace most inefficient -80°C freezers with high efficiency propane refrigerant models using Salix funding.	60	35	2012	Environment and Energy Manager
3.8	Chemistry 10% energy reduction target based on savings achieved in Biology	Over the past three years a reduction in energy use of 10% has been achieved in the Biology Department through various projects led by the Departmental Energy Manager. Similar projects will now be carried out in the Chemistry Department.	20	220	2015	Environment and Energy Manager
3.9	Implement efficient fume cupboard design criteria	Reduction in face velocities in fume cupboards from 0.5 to 0.3m3/s in teaching areas and 0.4m3/s in research areas.	TBC	150	2013	Head of Estates Development
3.10	Reduce heating temperatures by 1°C	Turn heating temperatures down by 1°C through Building Energy Management System settings where possible and achieve an overall saving.	10	172	2012	Environment and Energy Manager



Description		Further Details	Cost (£k)	CO <sub>2</sub> Saving (t)	Planned Delivery Date	Lead
3.11	Develop sustainable design criteria for maintenance, refurbishment and new build projects	Design of new buildings and refurbishments will consider the resource efficiency when in operation and low carbon forms of construction. Buildings will be designed to cope with the potential future effects of climate change and offer a flexible working environment to deal with the changing demands of the University.	20	0	Jul-12	Environment and Energy Manager
3.12	Time clocks or PIR on vending machines across campus	Consider installing time clocks or PIR on vending machines across campus, specifically cold drinks machines.	12	62	2012	Environment and Energy Manager
3.13	IT efficiency measures	Consider IT efficiency measures, eg more efficient servers, PC hibernation, shared virtual data centre, free cooling options and centralisation of all stand-alone server rooms across campus.	170	176	2020	IT Services, Head of Networking
3.14	Voltage optimisation	Following the completion of the recent voltage optimisation project in Biosciences, achieving a reduction of 8%, implement further projects across campus (Physics, Chemistry, Biology, Biosciences included).	760	616	2015	Environment and Energy Manager
<b>Total</b>			<b>2,772</b>	<b>4,815</b>		





## Implementation Plan – Upgrade Existing Energy Supply Capability

Description	Further Details	Cost (£k)	CO <sub>2</sub> Saving (t)	Planned Delivery Date	Lead	
<b>4. Upgrade Existing Energy Supply Capability</b>						
4.1	Replace existing CHP unit with 1 x 2MW units	Reinvestment in onsite generation.	3,000	3,532	2011	Director of Estates and Campus Services
4.2	Replace existing CHP unit with 1 x 2MW units	Reinvestment in onsite generation.	2,500	3,532	2012	Director of Estates and Campus Services
4.2	Replace existing boilers	Replace existing boilers with 3 x 12MWth boilers to improve overall efficiency from 65% to 85%.	7,000	1,968	2014	Director of Estates and Campus Services
4.3	Extend district heating system and replace 50% of independent gas boilers	To reduce overall independence on gas boiler while maximising the central boiler plant and district heating system to its potential, at the same time as reducing overall carbon emissions.	3,500	1,361	2014	Director of Estates and Campus Services
<b>Total</b>			<b>16,000</b>	<b>10,393</b>		

## Implementation Plan – Introduce New Low Carbon Sources of Energy

Description	Further Details	Cost (£k)	CO <sub>2</sub> Saving (t)	Planned Delivery Date	Lead	
<b>5. Introduce New Low Carbon Sources of Energy</b>						
5.1	Introduce 1 MW biomass boiler plant	Investment in renewable energy solutions for the University to meet its commitment to the strategic objectives in terms of carbon savings.	1,500	484	2012	Director of Estates and Campus Services
5.2	Introduce 1 MW biomass boiler plant	Investment in renewable energy solutions for the University to meet its commitment to the strategic objectives in terms of carbon savings.	1,000	484	2015	Director of Estates and Campus Services
5.3	Provision of 1 x 2.5MW wind turbine	Investment in renewable energy solutions for the University to meet its commitment to the strategic objectives in terms of carbon savings.	3,000	2,500	2017	Director of Estates and Campus Services
<b>Total</b>			<b>5,500</b>	<b>3,468</b>		

## Implementation Plan – Summary

Description	Cost (£k)	CO <sub>2</sub> Saving (t)
1. Improve Usage Information and Monitoring	500	943
2. Behavioural Change	85	858
3. Improve the Energy Performance of the Estate	2,772	4,815
4. Upgrade Existing Energy Supply Capability	16,000	10,393
5. Introduce New Low Carbon Sources of Energy	5,500	3,468
<b>Total</b>	<b>24,857</b>	<b>20,477</b>



# 7. Scope 3 Emissions

The following table and chart shows the University's scope 3 emissions from 2005 through to 2009.

	2005/06	2006/07	2007/08	2008/09	2009/10
Business Travel	5,372	5,372	5,372	6,349	5,372
Commuting	2,765	2,765	2,765	2,765	2,765
Waste	235	235	235	235	235
Water	175	155	148	141	146
<b>Total</b>	<b>8,547</b>	<b>8,527</b>	<b>8,520</b>	<b>9,490</b>	<b>8,518</b>

Tonnes of CO<sub>2</sub> equivalent emissions

## 7.1 Business Travel

The data for emissions from business travel has been obtained from information collected through the University's central booking system and includes travel by rail, air and car.

The University will continue to promote the use of the central booking system so that more accurate and comprehensive data for business travel can be collected. Once this is in place, targets can be set to reduce carbon emissions from business travel and measures put into place to achieve the targets.

## 7.2 Commuting

The data for commuting is based on a previous travel survey. A further detailed travel survey has recently been carried out and more accurate information on commuting will therefore be available shortly. This will allow a more accurate assessment of measures promoted through the University travel plan, eg car share, public transport, encouraging walking and cycling. A more accurate measurement of the impact of overseas student travel will also be undertaken.

## 7.3 Waste

The University has made significant progress in increasing recycling rates over the past years. A more accurate data collection process has been put into place through the current waste disposal contract and this will allow a comprehensive assessment of waste recycled. This will also allow a thorough review of waste produced and opportunities to reduce, re-use, recycle or recover.

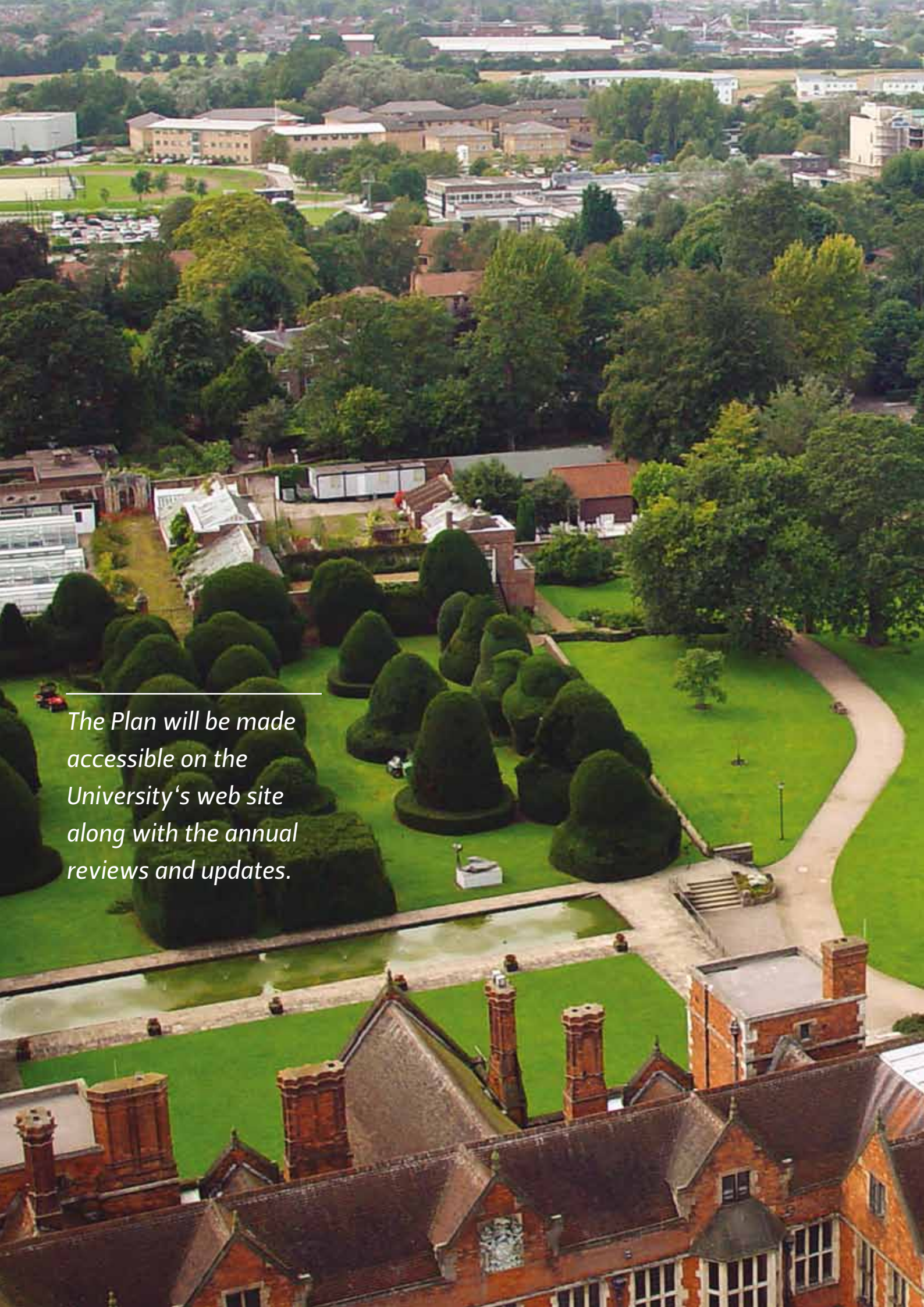
## 7.4 Water

Water consumption at the University will continue to increase resulting from the University's growth, especially when the Sports Village has been completed. Measures to reduce water consumption might also result in energy savings. Comprehensive energy audits planned to be carried out for the buildings will include water consumption.

## 7.5 Summary

A number of measures are already in place to help reduce scope 3 emissions, eg through the University Travel Plan, the waste management contract and other projects. A more detailed assessment of scope 3 emissions will ensure more accurate information is available and it will then be possible to set realistic targets to reduce carbon emissions.





---

*The Plan will be made accessible on the University's web site along with the annual reviews and updates.*

# 8. Monitoring and Reporting

The Carbon Management Plan will be subject to a monthly review for progress as part of the governance procedures for the Directorate of Estates and Campus Services. It will be included as a standing item within the Director's report to the University's Campus Development Steering Group, which reports to the University's Policy and Resources Committee.

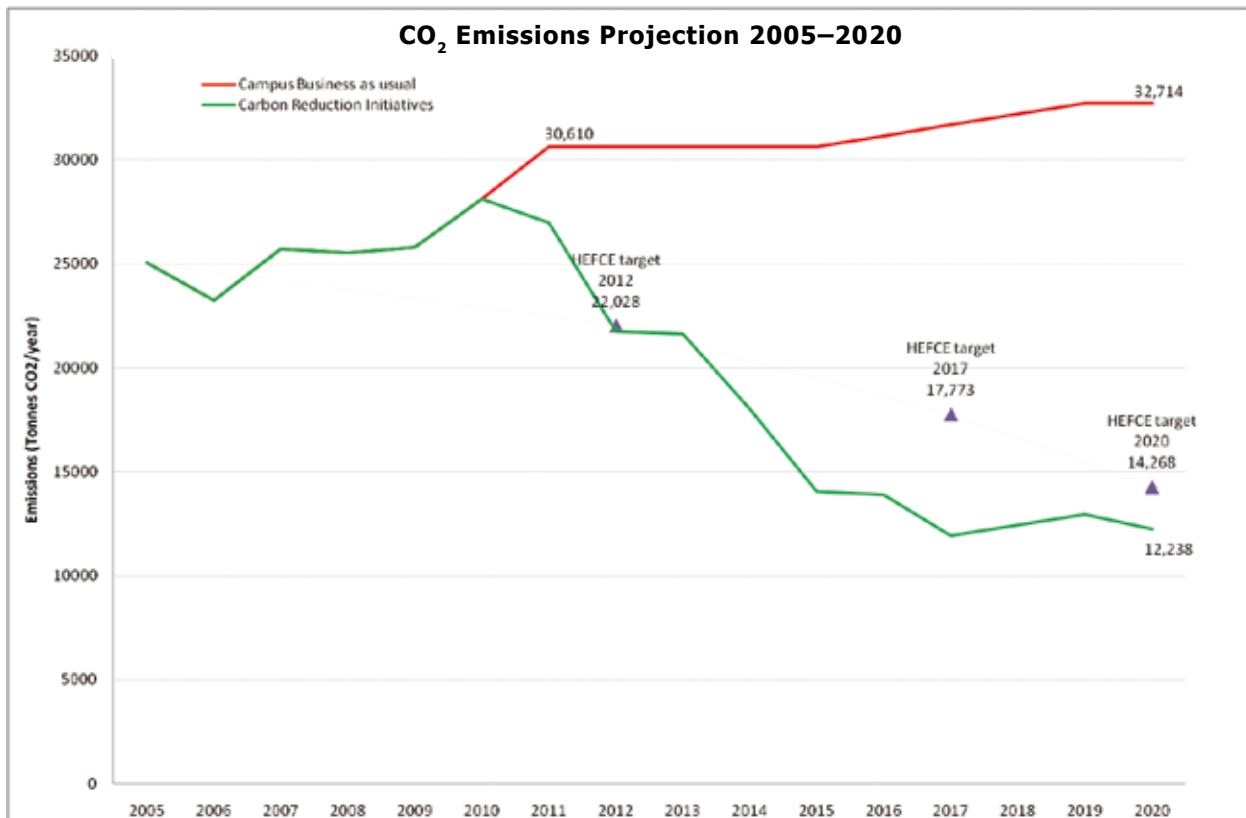
It will be subject to an annual review and where necessary revisions made to it. It will also be a key risk for the University's corporate risk register and any potential failure of meeting the HEFCE targets will be elevated through the University's governance procedures.

The Plan will be made accessible on the University's web site along with the annual reviews and updates.



# Appendix 1

Graph of the University's Forecast Carbon Dioxide Emissions Over Time







## THE UNIVERSITY *of York*

University of York  
Heslington  
York YO10 5DD  
[www.york.ac.uk](http://www.york.ac.uk)