

UEA Environmental Report

2010/2011



Contents Page

Forewords	1
About UEA	2
About this report	3
Our Environmental Impacts	4
Our Environmental Performance	5
Sustainable Environmental Management	8
Biodiversity & Landscape	12
Built Environment	15
Education For Sustainable Development	17
Energy & Climate Change	18
Emissions to Air	21
Procurement	22
Sustainable Food	23
Transport	25
Waste reduction & recycling	27
Water	29
Emergency Preparedness	30
Where we go from here	31
Key Documents, Websites and Contacts	32



CarbonCrew
Reducing Our Impact

CarbonCrew “encouraging people to do more”

Rob, CarbonCrew



Foreword by Vice-Chancellor Edward Acton

I am pleased to introduce the second annual environmental report from the University of East Anglia. Last year marked an important step for the University with the release of our first stand-alone environmental report facilitating open and informed discussion of our impacts on the environment. This report makes possible comparison with last year’s data and enables us to draw some important conclusions.

It is encouraging that many key performance indicators show significant improvement since last year, but we are clear that there are substantial further improvements still to make.

The University depends upon its staff and its students. This report is addressed to them as well as to other stakeholders and partners interested in our performance.

Professor Edward Acton
Vice-Chancellor

An online version of this report is available on our Environment and Sustainability webpages: www.uea.ac.uk/estates/environmentalpolicy where you will also find extra performance information. Stakeholder feedback via the website is welcomed.

Front Cover: Common Darter (*Sympetrum striolatum*), a dragonfly found in summer almost anywhere on campus, but commonest along the River Yare fringes.

Photograph courtesy of Dr Iain Barr, School of Biological Sciences

**Foreword by Dean of Social Sciences
Neil Ward**

Sustainability has always been a guiding precept for us at UEA. In times of increasing environmental awareness we look to make the transition from investing in landmark projects such as our award winning buildings to embedding environmental sustainability into all of our operations however insignificant they may seem when taken in isolation. It is by this principle that small but systemic changes add up to big reductions in the negative impacts that we have on the environment. (And this report will document some of the increasingly positive environmental impacts we have made and hope to continue with in future).

The sustainability team, whose sole purpose is improving environmental performance at the University is aided by the “CarbonCrew”, made up of volunteers from UEA staff and students, whose remit is raising awareness of environmental issues amongst the University population and systematically diffusing our environmentally sustainable values into processes and operations at our Norwich campus.

Professor Neil Ward
Dean of Faculty of Social Sciences and
Chair of UEA Sustainability Board

About UEA

The University of East Anglia (UEA) has long been recognised for excellence in both teaching and in student satisfaction. The 2011 National Student Survey once again puts us in the top 10 for student satisfaction¹ and we have maintained this place since records first began. We have moved up the Times Top 200 World University rankings (from 174 last year to 145 in 2011-12)². We have also moved up the Guardian UK University rankings, maintaining our top 20 position³.

Student and staff numbers remain relatively stable (around 14,000 students and 2,600 staff – full time equivalent). In 2011 we increased our floor area over 2010 by 2,700m² (226,000m² to 228,700 m²) with the construction of a gym extension to the SportsPark and increased teaching and office space with a second floor to Chancellors Drive Annex (see page 15). A major refurbishment project to integrate university services entailed 1,400 staff moves with 2500m² of refurbished space, reducing the amount of space used by 26% (see page 15).

Fig 1 Elizabeth Fry Building: Built in 1995, ‘remains a comfortable, low-energy building in relation to most of its peers’ (CIBSE Journal, March 2012)



Continued Commitment: Our architecturally distinguished campus, extensive, biodiverse grounds and unique energy generation facilities stimulate good stewardship and fuel our continued commitment to become an exemplar of good environmental practice.

We are eagerly anticipating a new Corporate Plan in 2012, and we will be working to ensure this is joined up with our sustainability aspirations.

Our Priorities: Greenhouse gas emissions continue to be high on the agenda for universities (and indeed for all UK businesses). 2011 marked a continuation of our landmark Carbon Reduction Plan with substantial progress made (page 18). But we are still addressing our impacts comprehensively to ensure we create value and competitive advantage from an exemplar approach.

Fig 2. Ziggurats: We must balance the impacts on the environment with those on our architectural heritage.



¹ www.thestudentsurvey.com/

² www.timeshighereducation.co.uk/world-university-rankings/

³ www.guardian.co.uk/education/table/2011/may/17/university-league-table-2012

About this report

This document is an open and honest account of our environmental performance and priorities. In last year’s report we described the historical context and detail of our environmental management strategy. This year we detail the progress made during the period Jan-Dec 2011. The format of the report follows that used in previous reports⁴ in order to aid comparison of data.

We are pleased to say that this report shows many of our aspirations and targets from last year have been fulfilled. It also introduces new targets for the coming year; ensuring that the cycle of continual environmental improvement keeps on turning at this university.

Scope of Reporting: This report covers all UEA activities on the Norwich campus. University Campus Suffolk (established 2005) and UEA London (established 2010) are not currently included as these are joint ventures.

Reporting Guidelines: The report uses standardised key performance indicator data (in line with the Global Reporting Initiative [GRI] guidelines⁵) presented in a manner that is easily understandable to our stakeholders⁶. It lists our impacts, how they are managed, and our targets for the future. It details plainly where we are on course for or are ahead of meeting our targets but also where further improvements are required.

We have made improvements to our data collection during 2011, enabling more areas to be reported in quantitative and comparable terms, but there are still a few areas where we are reliant on qualitative data (e.g. staff and student commuting) and we will be refining our monitoring

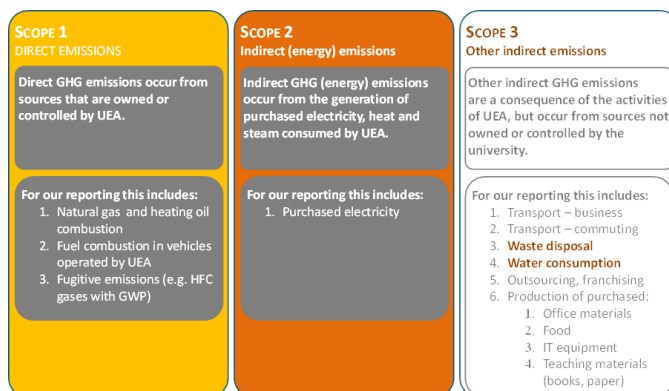
processes further over the coming year. A summary of key indicators is presented in Fig 4 (page 4).

Greenhouse Gas (GHG) Emissions Reporting: We report our GHG emissions according to the GHG Protocol⁷ (Fig 3). You will notice differences in the historical figures reported in our 2010 report. These are due to two factors:

- ⊙ Defra emissions factors used in our calculations have changed
- ⊙ We are now, more appropriately, required by HEFCE to use emission factors based on gross rather than net calorific value.

These changes have resulted in a lower carbon footprint.

Fig 3 GHG Protocol and UEA Reporting



Dr Gideon Middleton © g.middleton@uea.ac.uk

Reporting Periods: The majority of data is reported for August to July to tie in with Estates Management Statistics submitted annually to the Higher Education Funding Council for England (HEFCE). It will be indicated where this is not the case.

We share our progress with you in the following sections but you can also keep up to date on our Environment and Sustainability web pages: www.uea.ac.uk/estates/environmentalpolicy. Stakeholder feedback via the website is welcomed.

⁴ UEA IER (2009) and the 2010 UEA Environmental Report: www.uea.ac.uk/estates/environmentalpolicy

⁵ www.globalreporting.org

⁶ <http://www.uea.ac.uk/estates/environmentalpolicy/what-is-sustainability>

⁷ www.ghgprotocol.org/

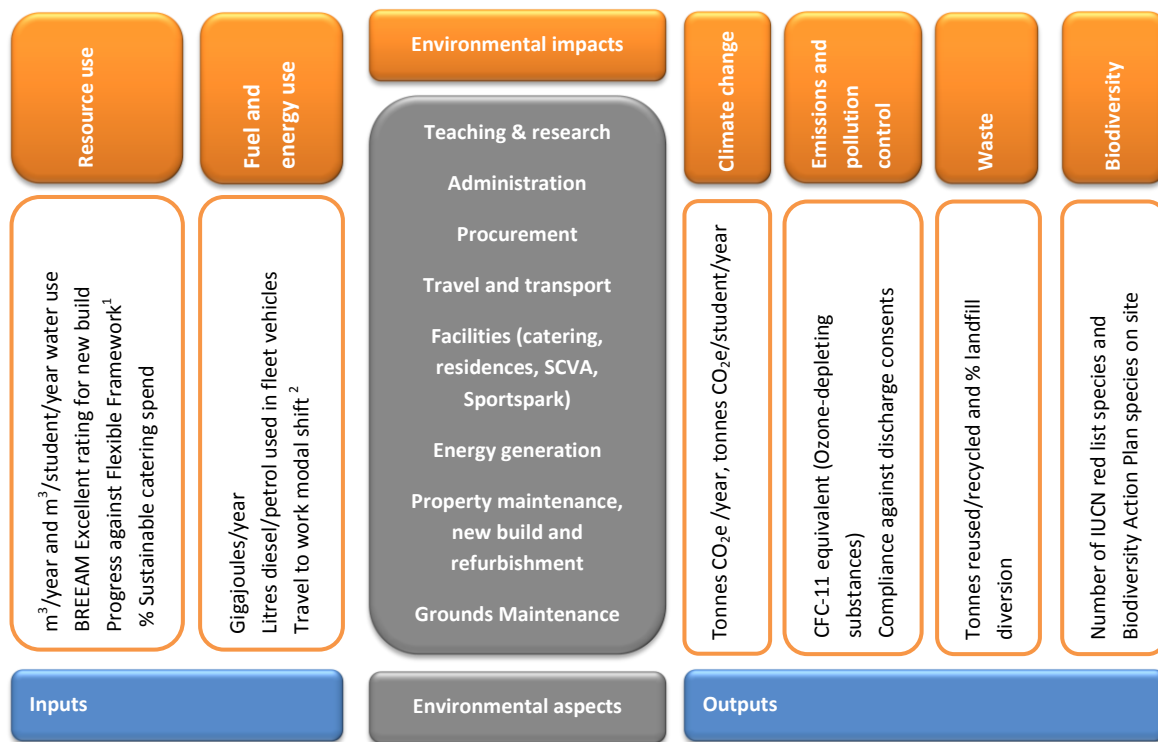
Our environmental impacts

Environmental Impacts and Aspects:

Environmental aspects are areas of our business that have the potential to affect the natural environment in either positive or negative ways. The 2009 UEA IER identified these through a systematic appraisal of our activities and these have been updated annually to take account of changes in working practices and new developments.

A simple representation of our key environmental impacts and aspects is shown in Fig. 4 below. Key performance indicators have been included to illustrate how we measure improvement. A more detailed summary can be found in our 2010 Environmental Report.

Fig 4 Key environmental aspects, impacts areas and performance indicators



¹ <http://spce.procureweb.ac.uk/resources/flexible-framework-toolkit>

² Modal shift is car travellers changing to rail, bus, walking or cycling, or not making a journey



Our environmental performance

Here are some of our highlights:

Biodiversity	3899 conservation volunteer hours, equivalent to £56,000 of staff time	157 listed/BAP species were recorded as actively using the campus during our biodiversity audit, completed in July 2011	Pg 13
Climate Change	388 tonnes of CO ₂ e and just under £115,500 per/annum saved through carbon reduction projects	1.6% decrease in CO ₂ e from direct emissions (scope 1 and 2) over 2009/10 levels	Pg 18
Purchasing	Claire Hibbert Sustainable Purchasing Officer took up post to lead improvement	New purchasing policy in place	Pg 22
Transport	£40,000 invested in free cycling support services from Dr. Bike and Cycle Recycle Ltd.	Increase in use of public transport through Investment in Park and Ride	Pg 25
Waste	The main waste contract achieved a cost saving of £14,000 in the 2010/11 budget year compared to 2009/10	14% increase in landfill diversion rate (excluding construction waste) over 2009/10 levels	Pg 27
Water	Water savings of 166 m ³ /day and £61,000 per annum achieved by implementing a leak survey	5% decrease in water consumption per student over 2008/9 levels	Pg 29

Last year we aspired to improving our environmental performance in line with our world leading climate and environmental science research and so far we are pleased with our progress. A snapshot of our 2011 performance against headline indicators is presented below.

GHG Emissions: Scope 1 data is based on; metering, oil delivery, vehicle refuelling invoices and refrigerant gas top-up invoices. Scope 2 emissions are based on metering. The data is presented in line with GRI indicator EN16, direct and indirect GHG emissions, and DEFRA KPI 1. More information can be found on page 18.

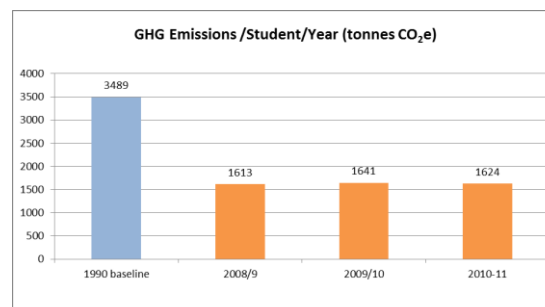
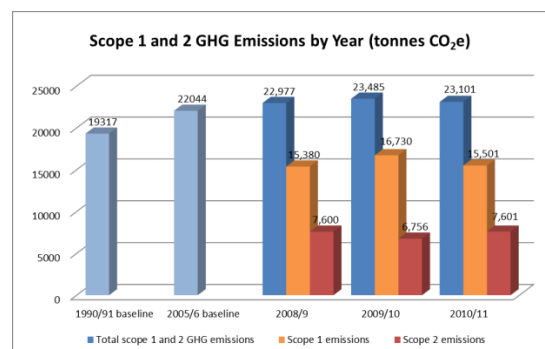


Table 1 GHG emissions key performance indicators

tonnes CO ₂ e	2008/9	2009/10	2010/11
GHG emissions (total scope 1&2)	22,977	23,485	23,101
Scope 1 emissions	15,380	16,730	15,501
Scope 2 emissions	7,600	6,756	7,601
GHG emissions/student	1.613	1.641	1.624

Energy Generation and Use: This data is based on metering and oil delivery invoices and is presented in line with GRI indicator EN3, EN4 direct and indirect energy consumption by source and DEFRA KPI 15 natural gas use and KPI 16 oil use. More information can be found on page 18.

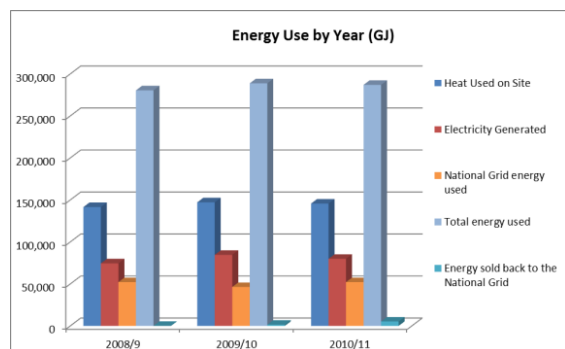


Table 2 Energy key performance indicators

Gigajoules	2008/9	2009/10	2010/11
Total electricity generated	74,709	84,636	79,290
Total heat generated	141,520	147,140	145,668
Total energy used*	280,426	288,822	286,998
Total electricity used**	121,883	124,140	125,276
Electricity used (National Grid)	52,238	46,359	52,154
Fossil fuels used (gas & oil)	313,049	342,885	321,168
Renewable energy generated	Not available	80	72

*electrical, heat, steam and cooling

** this data was wrongly reported as total energy used in our 2009/10 Environmental Report.

Waste Management: This data is based on weighbridge tickets & truck mounted bin weights and is presented in line with GRI indicator EN22, total weight of waste by disposal method and DEFRA KPI 12. More information can be found on page 27.

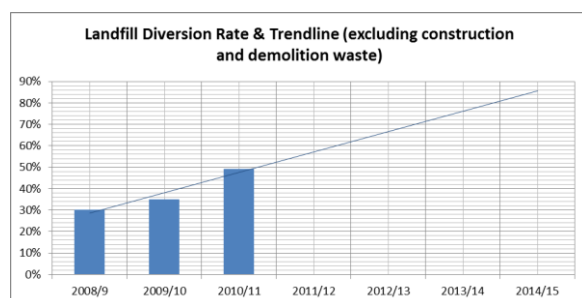


Table 3. Waste key performance indicators

tonnes	2008/9	2009/10	2010/11
Waste diverted from landfill*	30%	35%	49%
Waste reused/recycled*	438	359	588
Waste to landfill	1,013	653	625
Construction waste diverted from landfill	2.5%	68%	85.5%
GHG emissions from waste* (CO ₂ e) Scope 3	Not available	Not available	2,123

*excluding construction and demolition waste

Water: This data is based on invoices and is presented in line with GRI indicator EN8, water withdrawal by source DEFRA KPI 14. Historical data for water has been amended to account for consumption by INTO, a UEA tenant, which was previously included. Further improvements in data collection are anticipated as more meters are installed. More information can be found on page 29.

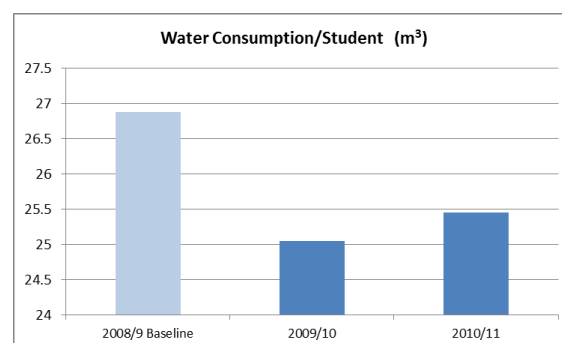


Table 4. Water key performance indicators

	2008/9	2009/10	2010/11
Total water used	382,987 m ³	358,542 m ³	362,097 m ³
Water used/student	26.88 m ³	25.05 m ³	25.45 m ³
GHG emissions (CO ₂ e) from water & wastewater (Scope 3)	344 tonnes	322 tonnes	325 tonnes
GHG emissions (CO ₂ e)/student	24.14 kg	22.50 kg	22.84 kg

Table 5. Summary of other key performance indicator

Key Performance Indicator	2008/9	2009/10	2010/11	Reporting Period	Data source	GRI/DEFRA indicator	pg
Staff given general environmental awareness training	0%	14%	71%	Jan-Dec	Awareness training log	N/A	8
Job specific environmental training (hours, number of staff trained)	Not available	Not available	86 hours 162 staff	Jan-Dec	Training log	N/A	8
Area of habitats protected with documented plan	0%	100%	100%	Jan-Dec	Grounds Maintenance and Conservation Plan	EN13	12
Number of IUCN Red List Species and national conservation list species on site	Not available	Not available	157	Aug-Jul	Biodiversity audit	EN15	12
Emissions of Ozone depleting substances CO2e	193 tonnes	515 tonnes	190 tonnes	Aug – Jul	Gas top-up invoices	EN19 DEFRA KPI 4	21
Emissions of Ozone depleting substances (CFC-11 equivalent)	1.5kg	3.7kg	0kg	Aug – Jul	Gas top-up invoices	N/A	21
Number of environmental complaints	Not available	61	25	Jan-Dec	Estates Concept database	N/A	8
Number of environmental compliments	Not available	23	18	Jan-Dec	Estates Concept database	N/A	8
% sustainable catering spend	Not available	Not available	45% of total spend	Jan-Dec	Invoices	N/A	23
Fuel used in fleet vehicles (petrol)	4,731 litres	3,997 litres	4,495 litres	Aug – Jul	Vehicle refuelling invoices	EN28	25
Fuel used in fleet vehicles (diesel)#	12,930 litres	12,097 litres	12,404 litres	Aug – Jul	Vehicle refuelling invoices	EN28	25
Travel to work: single occupancy car journeys	Not available	53% staff 13% students	Not available	Aug – Jul	Travel survey data	N/A	25
Number and volume of spills	0	0	1 (maximum 5 litres)	Jan-Dec	Incident reporting records	EN23	30
Environmental fines from regulator	£0	£0	£0	Jan-Dec		EN28	30

#historical data amended to include diesel consumption from Cleaning and Catering vehicles, previously not included.



Sustainable environmental management

What we have achieved

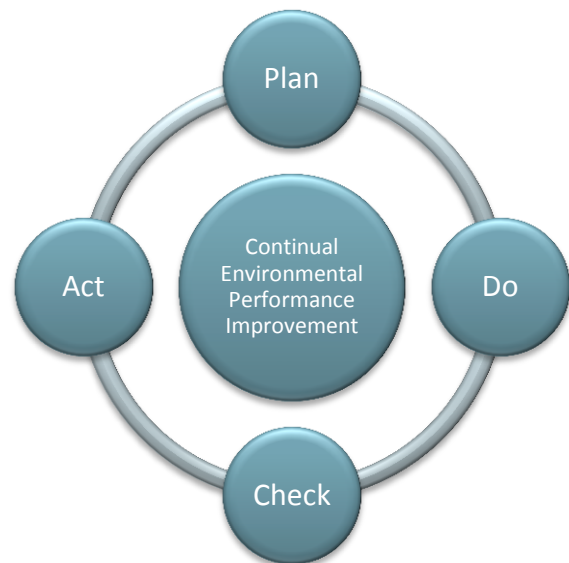
- We achieved EcoCampus Silver Award in March 2011
- We published our first Environmental Report in March 2011
- We officially launched our revised Environmental Policy (available at www.uea.ac.uk/estates/environmentalpolicy/Environmental+Policy+2011)
- We delivered general environmental awareness training to 71% of our staff; introduced an environmental module into staff induction; and, delivered 86 hours of job specific training to those staff whose work has a significant environmental impact
- We have increased CarbonCrew membership from 130 to 264, recruiting both staff and student volunteers
- In July the CarbonCrew conference celebrated the good work happening across campus. Green Impact Awards were presented to eight departments by Professor Edward. Acton, Vice Chancellor
- We have been working with managers to clarify the roles and responsibilities of all staff whose work has a significant environmental impact
- We improved our operational controls to manage our processes more effectively e.g. waste duty of care, pruning and mowing, site waste management plans for small projects
- We employed a sustainable purchasing officer (see page 22)
- We established a revised ethical investment policy which takes environmental considerations into account and have divested non-SRI (Socially Responsible Investment) funds. These will be invested in SRI funds during 2012
- We have established a UEA Gardening Club in the walled garden site at Earlham Hall (40 10mx5m garden plots, with more being developed)



There are a variety of benchmarking standards for systems to control the impact of organisations on the environment, one of which is ISO 14001, from the International Standards Organisation in Geneva; organisations certified to this environmental management systems (EMS) standard have audited systems in place to measure and control their impacts on the environment and achieve continual improvement (Fig 5). The EcoCampus scheme provides us with an approach to the staged implementation of an EMS within the ISO14001 framework.

We are committed to achieving ISO14001 certification by October 2012 and EMS implementation is progressing well reflected in our achievement of an EcoCampus Silver award in March 2011, and the award of a 'first class degree' in the People and Planet Green League (demonstrating our continual improvement from a 2:1 in 2010). Our original target date to achieve the Silver award in January 2012 was extended to provide sufficient resource to commission the biomass plant (see page 20).

Fig 5 The Schewert and Deeming cycle – the basis of continual improvement



	Targets achieved	On track	Close to target	Target behind schedule	Target not achieved	Target dropped
How we did in 2010/11	34 out of 67	10 out of 67	14 out of 67 14>70%, 6>90%	5 out of 67 >50%	1 out of 67	2 out of 67
How we did in 2009/10	15 out of 40	10 out of 40	2 out of 40 1>90%, 2>80%	7 out of 40 7<50%, 4<20%	6 out of 40	0 out of 40
% comparisons	51% 2010/11 38% 2009/10	15% 2010/11 25% 2009/10	21% 2010/11 5% 2009/10	7% 2010/11 18% 2009/10	1% 2010/11 9% 2009/10	3% 2010/11 0% 2009/10

Table 7. Target attainment 2009-2011

Environmental Policy: Our Environmental Policy⁸ was officially launched in 2011, although reported in 2010. The policy reflects our comprehensive and increasingly detailed management of the environment. We will be reviewing this in the light of the new Corporate Plan (available July 2012).

Leadership: In September 2011 Professor Neil Ward took over as Chair of Sustainability Board. Neil is Dean of Social Sciences and a member of Executive Team and will be leading the agenda supported by the Sustainability Team and a cross-departmental reporting structure⁹.

Table 6. Plans and strategies

	Plan/ Strategy	Action Plan	Responsible Special Interest Group	Plan Status
Communication & Engagement	Sustainability Communication Strategy	EMS Action Plan	EMS Implementation Team	Draft
Emergency planning	Environmental Incident Response Plan	EMS Action Plan	EMS Implementation Team	Complete
Biodiversity	Grounds Maintenance & Conservation Plan	Biodiversity Action Plan	Biodiversity Team	Under review
ESD	ESD strategy	EMS Action Plan	EMS Implementation Team	To be developed
Carbon Reduction	Carbon Reduction Plan		Carbon Reduction Team	Under review
Purchasing	Sustainable Purchasing Strategy	Purchasing Action Plan	Purchasing Special Interest Group	On-going
Catering	Sustainable Food Policy	EMS Action Plan	EMS Implementation Team	Complete
Transport	Travel Plan/Sustainable Transport Policy	EMS Action Plan	EMS Implementation Team	Complete
Waste	Waste Management Strategy	EMS Action Plan	EMS Implementation Team	Draft
Water	Water Management Plan	EMS Action Plan	EMS Implementation Team	To be developed

⁸ www.uea.ac.uk/estates/environmentalpolicy/Environmental+Policy+2011

⁹ www.uea.ac.uk/estates/environmentalpolicy/EMS+Mangement+Structure

SMART Targets: Due to the increasing quality of monitoring data being made available through the EMS, we have been able to establish SMART (specific, measurable, achievable, realistic and time-bound) targets for 2012 and beyond, which amongst other things will improve reporting. Some targets e.g. reducing emissions of GHGs are supported by strategies e.g. Carbon Reduction Plan. Action plans are in place to direct the focus of special interest groups who drive operational change; these bring together those with interests in specific issues from across the University (Table 6). The 2011/12 environmental programme¹⁰ sets out objectives, targets and responsibilities. Detail on our target attainment (Table 7) is presented in the following sections, where we also introduce you to our new SMART targets.

What We Haven't Achieved: We dropped two targets in 2011:

- Establishing Corporate Responsibility (CR) objectives and targets. This is linked to our only target not achieved – to deliver CR training to the Sustainability Board. Due to the change in Sustainability Board Chair training will now be delivered in 2012. This will enable Board members to make informed decisions on how the sustainability agenda develops at UEA. Our current target is to develop a

**71% of staff
have undertaken general
environmental awareness
training**

¹⁰ www.uea.ac.uk/estates/environmentalpolicy/Environmental+Programme+2011

tangible vision of a sustainable UEA by December 2012.

- GHG emissions from mobile plant. Initial investigations determined that establishing a baseline would be resource intensive and the significance of this source of emissions is small in relation to other sources. We have established an on-going policy of reduction e.g. solar powered leaf blowers have been purchased by the Grounds Department.

**264 CarbonCrew
with members in every
building on campus**

CarbonCrew: Our Environmental Champions, the CarbonCrew are an essential part of instilling behaviour change across campus. We celebrate their important roles with CarbonCrew Corner throughout this report.

Why did you decide to join the CarbonCrew?

“It’s about the future for your children, about what will be happening in 100 years time” - Renee, Catering CarbonCrew

“I have been a CarbonCrew member for 3 months now; I joined because I have always cared about the natural environment since I was at school and have been doing things to help at home too, not just for saving money in heating bills etc.” - Rob, Grounds CarbonCrew

“I could see that there was scope for change in the library building and was consequently interested in getting involved...We have set up a CarbonCrew Team in the library which now consists of 10 to 15 members” - Allison, Library CarbonCrew



CarbonCrew Corner

“I have made pledges on the CRed website including turning off PCs and lights when not in use and reducing car use”, I also help reduce the UEAs environmental impact by being aware of other people leaving on lights and equipment and helping to correct this”

“Goals for the next year include taking the GIA (Green Impact Awards) to the next level, and a new set of posters have been designed to help awareness of energy use and waste issues”

Rachel, Estates CarbonCrew

“CarbonCrew members approach me with new ideas or e-mail them to me. We have also set up a Facebook group for the CarbonCrew in the library where staff can communicate informally”

“Contact with the UEA Waste manager and environmental officer has been a great help for sharing ideas and we have found that other areas of campus may have similar (environmental) problems to our own and solutions can often be shared through the medium of the CarbonCrew”

Allison, Library CarbonCrew

“Discussions with CarbonCrew members from other departments has yielded some valuable ideas and following up on a suggestion I have been working to get extra bins put out after student club nights to reduce litter and encourage recycling of waste from these events”

“Encouraging people to do more; instead of throwing away glasses found around the site, I take them back to the bar and encourage my colleagues to do the same”

Rob, Estates CarbonCrew



Fig 6 The Vice Chancellor presents Green Impact Awards at the July CarbonCrew Conference

With support from the Low Carbon Innovation Centre (LCIC, part of Adap+) and UEA Volunteers service CarbonCrew has developed a significant presence on campus.

CarbonCrew has a new weekly slot on the staff e-bulletin and monthly CarbonCrew lunches take place to provide an on-going network to discuss action and find new ways to promote CarbonCrew; and importantly provide a feedback forum.

The CarbonCrew Pledge: Our CarbonCrew on-line pledging scheme is open to all staff and students and encourages members to pledge to make small changes in their daily activities that affect the environment. Since last year we have almost doubled the number of pledges (from 834 to 1471) saving an estimated 82 tonnes of CO₂e. The joint top pledges are to turn off room lights and turn off PC at night. The good news is spreading as Chester University's Carbon Cutter have adopted the LCIC's CRed pledge approach as part of a dedicated carbon reduction campaign across its four campuses. Make your pledge at www.carboncrew.uea.ac.uk or find out more on the Environment and Sustainability web pages.

Going Greener with the Union of UEA Students (UUEAS): The Student Union is taking responsibility for their own impacts and completed a comprehensive environmental review of their activities in October 2011. As many of their processes are closely linked to those of UEA e.g. energy and waste we will be working together to improve environmental performance in 2012.

Our objective is to integrate environmental management into day-to-day operations by establishing an EMS certified to ISO14001 for all our operations on campus, via the EcoCampus scheme.

Our current target is to achieve EcoCampus Gold Award by March* 2012

Some of our planned activities:

- ⊙ We will continue to work towards certification to ISO14001 and aim to achieve EcoCampus Platinum by October 2012 and ISO14001 by December 2012
- ⊙ We will develop an EMS database to better manage our data and ensure actions are effectively followed-up
- ⊙ We will implement an internal auditing programme
- ⊙ We will deliver job specific environmental training to staff whose work has a significant environmental impact; and, Corporate Responsibility training to the Sustainability Board, establishing the groundwork for development of a specific policy and strategy
- ⊙ We will continue to clarify the roles and responsibilities of all staff whose work has a significant environmental impact. Work is progressing steadily with HR Division to develop a code of conduct which will apply to all staff
- ⊙ We will formalise, consult on and implement a Communication and Engagement Strategy to ensure we reach all our stakeholders
- ⊙ We will continue our good practice in staff and student engagement, specifically; running the Green Impact Awards, raising the profile of the CarbonCrew and recruiting more volunteers

*our original target of Jan 2012 reported in 2009/10 has been extended in line with the two month extension for EcoCampus Silver

Biodiversity and landscape

What we have achieved

- ⊙ The Grounds Maintenance and Conservation Plan has been completed and was distributed to key stakeholders for comment in March 2011. Two responses, both very positive were received from; Norwich City Council and Norfolk Biodiversity Partnership. Work on delivering the plan is on-going, overseen by our Biodiversity Team
- ⊙ A Biodiversity Audit was completed in July 2011, The results are available in an easily accessible format on the Environment and Sustainability web pages
- ⊙ Targets and key performance indicators have been established to drive improvement
- ⊙ We have established a 10 year rolling programme of monitoring to assess the effectiveness of our actions
- ⊙ A procedure is in place for pruning and mowing to address issues of disturbance to nesting birds. This will be audited during EcoCampus Platinum implementation. One incident was reported in 2011 relating to disturbance to a blackbird nest during hedge trimming in April. Works were required due to health and safety reasons. Due to the thickness of the hedge, the nest was not identified during a pre-works nest inspection undertaken by trained staff
- ⊙ We planted over 600 native shrubs and will be planting 300 trees on campus during 2012. Many of these will be fruit trees (e.g. apple, pear and cherry); sequestering and storing carbon dioxide from the air and also providing a useful resource for both staff and students
- ⊙ Volunteers contributed 3899 hours to nature conservation work on campus; equivalent to £56,000 of staff time. Thank you

157 red list/BAP species actively using our campus

Biodiversity Audit: The results of our biodiversity audit show that the diversity of certain groups of species on campus compares very favourably with recognised nature reserves. This is largely due to sympathetic management and the diversity of habitats present. The audit recorded 63 species of breeding bird, including red listed species of conservation concern such as the cuckoo, song thrush, grasshopper warbler and marsh tit. There were a number of interesting visitors...We have breeding otter and high numbers of several bat species. Mink were recorded each year and along with several other invasive species will be closely monitored in the future. Butterfly species recorded included colonies of purple hairstreak and interesting visitors such as the swallowtail moth. Diversity was good with important populations



Fig 7. Dunnock: Amber listed species that is doing quite well at UEA pictured here caught as part of the ringing on campus. Around 20-30 pairs breed, nesting mostly in formal planting around buildings (this and following photographs courtesy of Dr Iain Barr, School of Biological Sciences)

of garden tiger, flame wainscot, cream bordered green pea and several other notable species. Rare (red data book species) Norfolk hawker dragonflies were first seen ovipositing in UEA broad in 2009 and the number of recorded sightings growing each subsequent year with 3 individuals seen together in 2011. Reptiles and amphibians are regularly sighted with grass snakes seen swimming in the summer on the river and in the broad and toads frequenting woodland near the river. More case studies can be found on our web pages: www.uea.ac.uk/estates/environmentalpolicy/uea-biodiversity

Table 8. Summary of all Taxa recorded at UEA

Group	Number of species recorded	Red list, BAP and notable species
Fish	18	1
Amphibians and reptiles	8	4
Birds	206	49
Mammals	35	6
Arthropods (including insects)	1881	95
plants	318	2
fungi	350	-
Other lower plants and allies	94	-



Roesel's Bush-Cricket: During the summer of 2011, a single Roesel's bush-cricket was discovered by the River Yare. The Roesel's bush-cricket was once restricted to the south east coast, but a macropterous form of this species, with extended wings, has expanded its range in recent years following warmer weather. It is best recognised by its song, which resembles that of the Savi's warbler.

This is a species likely to become more common at UEA with northwards range expansion and habitat management.

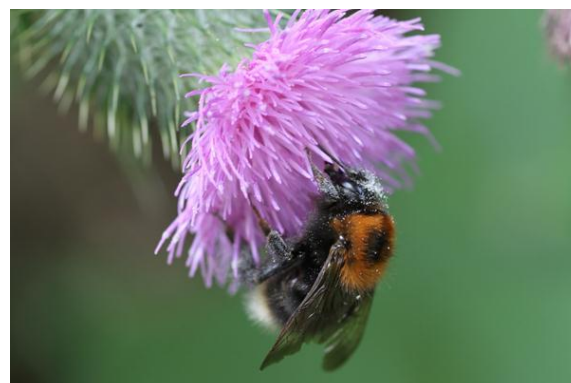


Fig 8. Bombus hypnorum the tree bumble bee: Another range expanding species that reached UEA in 2011 (having been seen in the surrounding area since 2009). This distinctive bee species can be identified by its ginger thorax and white tail.



Fig 9 UEA otter (Photo courtesy of James Armes)

Otter: Sightings at UEA have been increasing since 2007 when the first reliable report was received of a single large male otter. In 2011 a female otter was seen entering a holt and later that year three young otters were seen accompanied by the adult female. One of the young otters is extremely confident and recently has been seen by crowds at UEA.

Nature Conservation: We have been working hard with conservation volunteers maintaining and improving our grounds for biodiversity. Work to restore a water soldier pond, clearing overhanging vegetation and dredging will continue into 2012 and we will be monitoring to measure how effective these actions have been.



CarbonCrew Corner

“We have purchased electrical equipment such as a new [solar powered] leaf blower that is the first such tool used by any UK University, one electric truck has been purchased and there will be more coming in the future. The one we have at the moment has had some problems with people not knowing how to charge it properly but we are training up staff to ensure its efficient use in future”

“Student volunteers work with myself and a colleague in the grounds team on small to medium sites that they can complete without further assistance from the grounds team; they can then feel that they have really taken ownership of that particular area”

“We have cleared vegetation to open up the Water Soldier Pond (which was very overgrown); to help the Water Soldiers return to campus”

“Areas of marshland were getting overgrown and this valuable habitat was turning into a wet woodland but we have been clearing vegetation and highland cattle coming in soon will help to manage the area in a natural way; reducing the need for mechanised vegetation clearance. This reduces carbon emissions, helps to create uneven clearance that provides a variety of habitat and droppings will encourage insects into the area”

“We don’t prune any vegetation from the first of March to July to prevent the disturbance of wild birds and we section areas of grassland instead of cutting all in one go; this helps to encourage wild flowers in areas such as the Bluebell marsh”

Rob, Grounds CarbonCrew

In order to restore and maintain our fen habitats we instigated a programme of traditional reed cutting and management of encroaching scrub. In 2012 we are bringing in long horn Highland cattle and sheep to graze from June onwards (following the end of the British nesting season). This avoids the use of machinery; reducing fuel use and preventing compaction and risks from pollution.

UEA Wildlife Trail: Funded by a grant from the Big Lottery Fund’s Community Wildlife programme, UEA Wildlife Trail will officially open in early 2012. The trail, which takes users on a tour of the beautiful scenery around the campus and River Yare, explains the wildlife, biodiversity and conservation issues in the area. Four information boards detail the highlights. The trail has been developed by the Campus Conservation Project with staff and student members. Managed by UEA Volunteers the project has really taken off with weekly conservation work parties and wildlife surveys helping volunteers to learn useful skills and get involved. Pick up a trail guide at www.uea.ac.uk/volunteers/Wildlife+Trail+Leaflet.

Our key objective is to maintain and enhance biodiversity

Our current targets are to:

Reduce nutrient levels in the Water Soldier Pond to those beneficial for nutrient poor plants by September 2012

Develop thinning and directed access plan for New Plantations by December 2012

Halt scrub encroachment in University Fen, Bluebell Marsh and Butterfly Meadow by December 2015

Incorporate biodiversity enhancements in all new build projects by December 2015



Built Environment

What we have achieved

- ⊙ We have set a target to achieve BREEAM Excellent for all new build projects
- ⊙ The Thomas Payne Study Centre achieved a highly commended award for sustainability from the Royal Institution of Chartered Surveyors (RICS)
- ⊙ Our project environmental assessment procedure is being embedded into the project design and build process. This allows us to evaluate the environmental impacts of all projects, opportunities for improvement and to identify trends; GHG emissions from all projects in particular. We will be developing a maintenance specific assessment procedure during 2012 to ensure operational issues are addressed in a similar way
- ⊙ An integration project, refurbishing 2500m² of space, incorporated a number of environmental improvements including centralised printing. As part of the Library improvement project we refurbished existing furniture rather than buying new. In combination refurbishment projects like these will reduce the environmental impact of our older building stock whilst balancing those on our architectural heritage
- ⊙ We have implemented a range of operational controls in order to manage the environmental impacts of maintenance activity more effectively. These include oil delivery, storage and refuelling
- ⊙ We have committed Projects and Maintenance sustainability champions improving operational practices on a day to day basis
- ⊙ Our management of contractors now includes environmental awareness at induction and regular auditing onsite
- ⊙ We have established an on-going training programme for maintenance and projects staff e.g. monthly Continued Professional Development (CPD) lunchtime sessions, and biodiversity awareness training. The CPD sessions have proven to be an important forum for communicating information on proposed and planned projects, ensuring environmental considerations are taken into account at the earliest opportunity

New Build: During 2011 two new build projects were completed; a gym extension to the Sportspark and a second floor to Chancellors Drive temporary Annex (CDA). The 1,745m² CDA extension completed in September 2011, comprises a significant carbon increase project. As such it required the installation of lighting sensors and heating controls to minimise the impact of electrical heating and poor insulation. Metering data since commissioning suggests an energy use ratio of over 130 kWh/m²; this compares to 104.45 kWh/m² for our energy efficient, Zuckerman Institute of Connective Environmental Research (ZICER) building.

Sportspark Gym: Completed in August 2011 at a cost of £2 million, the Gym is a 1,300m² extension to the existing Sportspark, creating a purpose built Olympic gymnastics centre for community and University use (and bat boxes as a biodiversity enhancement). Construction using glulam columns with cross laminated timber (CLT) infill panels reduced the volume of timber required; which was sustainably sourced in order to minimise embodied carbon. Its low weight meant that a high degree of offsite manufacture was possible, requiring only limited new site skills, and providing dry, fast on-site construction.

The building has a high thermal performance with a maximum air leakage of building envelope of 3.57 m³/h/m² of building envelope at 50 pa. Thermal model output indicates an expected heat use of less than 27 kWh/m²/y.

4,124 tonnes of waste was generated through the project, largely due to the significant amount of earth that needed to be removed to provide a level site. However 97% of this waste was re-used off site with only 3.2 tonnes of the remaining 124 tonnes being sent to landfill, the rest being recovered at a licensed facility. This is remarkable for a building of this size and was a benefit of using CLT and appointing a conscientious main contractor.

Commitment to BREEAM Excellent: Following a comparative study of available sustainable building standards undertaken by the LCIC¹¹, all future new builds will achieve at least a BREEAM Excellent¹² rating. We aim to achieve this using the Termodeck approach (see below) for a planned extension to the Norwich Medical School building - Building 57 (providing seminar space for up to 500 students over 4 floors) and using Passivhaus¹³ technology for a new Low Carbon Enterprise Centre.

The Purchasing team will be providing procurement support to the Estates Design Office throughout the tender process for the Low Carbon Enterprise Centre: a new exemplary low carbon building. We will be specifying a Passivhaus and BREEAM Outstanding building; the first of its kind at any UK University and a true exemplar nationally. The team will be analysing whole life costs of the building; from embedded carbon in the proposed building materials to the end use and functioning of the building.

Refurbishment: Prior to the change in lighting the Level 3 corridor in the Registry building was using approximately 1300 watts, did not provide very good lighting (an average lux level of 85 – 90 lux) and because there were no automatic controls, the lights were often on 24 hours a day, costing over £1,000 per year to run.

The refurbished corridor now features LED lighting, using a total of 600 watts, less than half the

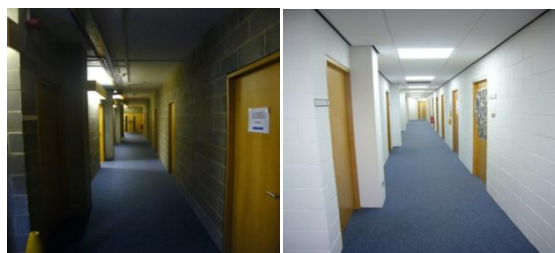


Fig 10. Before and after pictures show what can be achieved with a change of lighting and a lick of paint

¹¹ <http://www.lcic.com/>

¹² <http://www.passivhaustrust.org.uk/>

electricity when previously operating, and providing much better light levels (an average lux level of 220 – 240 lux). This corridor now has presence detectors controlling the lights, so they are now off over night and at weekends, reducing operating costs to under £200 per year. The expected life of the new lamps is four times that of the old bulbs, reducing time spent by Maintenance changing bulbs.

Monitoring Effectiveness: LCIC have recently been awarded funds via the Technology Strategy Board (the UK's national innovation agency) to carry out a 2 year study of the building performance of our Thomas Paine Study Centre (TPSC): The fifth building in the series built using the 'Termodeck' principle providing ventilation through hollow-core floor slabs. Earlier buildings in the series, Elizabeth Fry and ZICER, have been the recipients of several awards and the subject of numerous studies; they are renowned as exceptional low energy buildings. The University has the highest concentration of this type of energy efficient building in a temperate climate anywhere in the world. The aims of the study will be to show whether the low energy, low carbon expectations for TPSC have been met.

Our key objective is to effectively control the environmental impacts of facilities maintenance, campus development and refurbishments

We have set ourselves an on-going target for all new build projects to achieve BREEAM excellent or above (Building Research Establishment Environmental Assessment Method for buildings)

A refurbishment BREEAM model is expected in early 2012 and a refurbishment target will be set once this has been reviewed

Education for Sustainable Development

What we have achieved

- ⊙ We have funded a teaching fellowship to establish the baseline for developing a formal strategy. We have extended the target date for strategy development to accommodate this research
- ⊙ We have continued to embed sustainability into the development of new courses. During 2011 a postgraduate course in Energy Engineering with Environmental Management, delivered by the School of Mathematics took their first entrants. In 2012 a MA/MSc course in Environmental Science and the Humanities, delivered jointly by the Schools of Environmental Science, History, Literature and Creative Writing and Philosophy, will take its first entrants
- ⊙ The Strategic Carbon Management MBA and Sustainable Healthcare Education Network continue to grow

ESD, Employability and the Student Experience: HEFCE and the Higher Education Academy (HEA) have called on universities to embed sustainable development more strategically into the overall student experience. This means using learning, teaching and curricula to ensure that graduates are globally-aware and sustainability-literate. Employers demand sustainably-literate graduates and students want relevant and future-proofed skills. The gap in sustainability knowledge and skills

Fig 11. Engineering students visit the Biomass gasification plant



will become one of the most pressing challenges facing UK businesses in the next five years¹⁴.

In order to meet these demands we have funded a teaching fellowship, Greening tomorrow's leaders: involving students and academics to develop sustainability curricula across disciplines. The research will map existing provision at UEA and articulate key themes. 'Route maps' will be designed in each discipline: Laying the groundwork for articulating whether and how each of the academic disciplines would like to relate to sustainability concerns.

Community Engagement: Since 2008 CUE (Community University Engagement) East¹⁵, our Beacon of Public Engagement has been leading activity amongst UEA students and academics. In December 2011, UEA's new Engagement Executive met for the first time. This Executive, chaired by Professor David Richardson, Pro-Vice Chancellor for Research, Enterprise & Engagement, is tasked with monitoring, coordinating and promoting engagement activity at UEA. Membership of the Executive includes representatives of all faculties, a wide range of departments and UUEAS.

Our key objective is to embed sustainability into teaching, learning and research

Our target is to map existing ESD provision and establish discipline specific 'route maps' by December 2012

We will develop and implement a formal ESD strategy by December 2013

¹⁴ Ipos MORI, June 2010

¹⁵ www.uea.ac.uk/ssf/cue-east



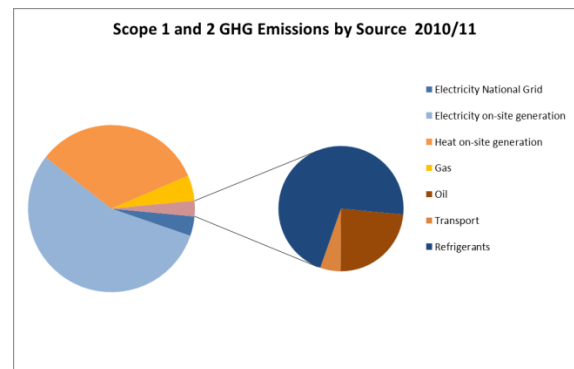
Energy and Climate Change

What we have achieved

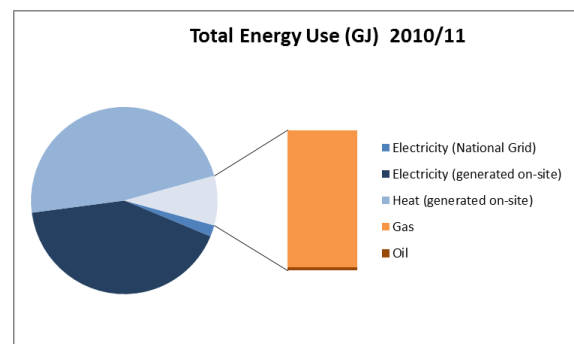
- ⊙ Emissions of CO₂e have stabilised demonstrating a decoupling of emissions from growth. The Carbon Reduction Plan sets out how our targets will be achieved.
- ⊙ Specific carbon reduction targets have been set for scope 1 & 2, and scope 3 GHG emissions, and energy use
- ⊙ Refrigerant gases have been incorporated in our carbon footprint (see page 21)– our targets remain the same
- ⊙ CO₂e emissions from waste have been included in our scope 3 carbon footprint (see page 27)
- ⊙ We have established a programme of monitoring all electricity meters on campus with building specific data being regularly reported to the CarbonCrew
- ⊙ We have started a programme of smart meter installation across campus
- ⊙ 388 tonnes of CO₂e and just under £115,500 per/annum has been saved through carbon reduction projects
- ⊙ Completed projects in 2011 include:
 - ⊙ Panel system added and heating improvement made to the Teaching Wall to improve thermal performance
 - ⊙ Centralised power down software installed to control servers
 - ⊙ Installation of occupancy sensors on all offices and corridors in the Arts building resulting in a 19% saving in electricity use (Jun-Dec 2011)
 - ⊙ Roof insulation across campus is almost complete
 - ⊙ A new Uninterruptable Power Supply (UPS) installed in server room 1 resulting in a 14% reduction in energy use due to improved efficiency of the new unit and air conditioning no longer being required
- ⊙ We have identified more new projects in our Carbon Reduction Plan – these are being evaluated for carbon and cost savings
- ⊙ Our Salix ‘green revolving fund’ annually generates over £100,000 for reinvestment in carbon reduction projects

1% reduction in carbon emissions/student on 2009/10 levels

Carbon Footprint: Our carbon footprint for 2010/11 is 23,102 tonnes CO₂e (down by 1.6% on 2009/10). Our carbon intensity is 1.624 tonnes CO₂e/student. Progress against our 35% reduction target is gathering speed; early signs for 2012 show a continuing downward trend and we hope to report significant reductions in 2012.



Our buildings are the most significant user of electricity and heat, and contributor to our carbon footprint. We are working hard to manage demand and have set new electricity and heat reduction targets to drive action. We are also anticipating the commissioning of our biomass gasification plant which will ensure the longer term sustainability of our energy supply.



We currently generate around 68% of our own energy (electrical, heat and steam) from high efficiency combined heat and power; close to our target of 70%. Our oil use is down by 72% on 2009/10 levels due to the closure of Earlham Hall (a listed building) which is awaiting refurbishment: We aim to connect this to the district heating system to minimise future impacts. Total energy use is down by 0.6% over 2009/10 levels, but we still have much to do to achieve our targets.

Carbon Reduction Plan: We will be launching a revised plan in 2012 to address changes in our baseline e.g. the inclusion of refrigerants and waste and also address new challenges such as the two proposed new buildings on campus (page 16).

Carbon Increase Projects: Besides new buildings, technology presents a further challenge. In 2012 we will be spending £1.5m on high performance computing equipment and £0.5m on data storage, which will increase power usage for High Performance Computing (HPC), often referred to as Escience or cluster computing. The Carbon Reduction Team are currently establishing systems to monitor power usage of equipment and are reviewing options for efficient cooling of data centres.



Fig 12. Infra-red aerial image of UEA campus taken in January 2011: This clearly illustrates the long term challenge of our 1960's buildings, and the importance of our programme of long term improvement.

CarbonCrew Christmas Chocolate Drop: On 21st December 2011 almost 800 chocolates and cards were delivered in 8 buildings across campus to staff that had turned off their PC's. Our thanks go to all staff involved in organising this event.



CarbonCrew Corner

“We have set a smart target for building heating to maintain a temperature of 21-23 degrees C and people have volunteered to be thermometer monitors and check this temperature twice daily. CarbonCrew members take responsibility for the heating issues of their own areas to avoid overheating and situations where the radiators are going full pelt but the windows are open”

“We have set up an office shutdown plan where people take responsibility for turning off equipment at the end of the day and we have quarterly spot checks to discourage repeat offenders”

Allison, Library CarbonCrew

“As part of my role in the CarbonCrew I send round an e-mail every month that goes round the estates building, catering and security departments. This includes electricity usage graphed for that month along with waste data on landfill and recycling rates. We have had a big push for people to turn off their PCs in the evening before leaving the office and to turn lights off when not in use; it helps that people can see a visible impact in the monthly usage figures I circulate”

“I put together a shutdown schedule for use in the Easter Holidays to ensure that everyone in the Estates building has properly shutdown electrical equipment that would otherwise be a drain on power”

Rachel, Estates CarbonCrew

Biomass Gasification: We have made significant progress with our biomass gasification plant but are disappointed to report that it is still not fully operational. Running on natural gas the biomass plant has produced 19,008 gigajoules of electricity and 24,765 gigajoules of heat.

Biomass gasification is a particularly good technique because: it uses waste from other industry (woodchip sourced within 50 miles) to produce cheap, green electricity and heat; and, it produces biochar as a by-product which has many further uses, including carbon storage. We look forward to the positive impact the biomass system will have in reducing our emissions to air and our electricity bills and believe that technology such as this provides an excellent example of how a waste product can be turned into useful energy, both helping the environment and providing an opportunity to reduce energy costs.

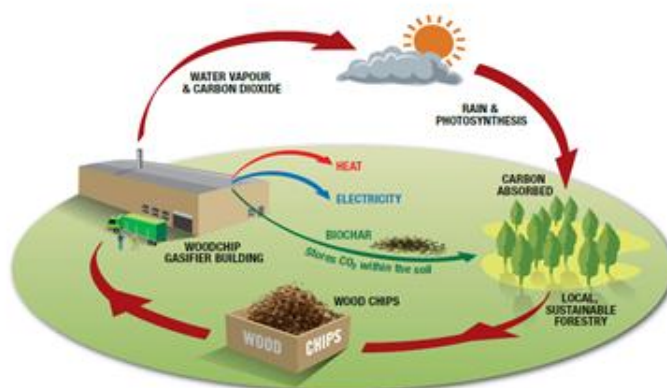


Fig. 13. Biomass gasification process:

Our key objective is to minimise our consumption of non-renewable energy and gross emissions of greenhouse gases

Our current targets are to:

- **Reduce our CO₂e emissions from direct activities by 35% compared to a 1990 baseline by March 2015**
- **Generate at least 70% of electricity used on the main campus averaged over each academic year up to July 2015**
- **Reduce electricity used on the main campus by 15% compared to a 2008/09 baseline by July 2015**
- **Reduce heat used for heating and hot water by 10% compared to a 2008/09 baseline by July 2015**

Note: Targets against a 2005/6 baseline from 2011 to 2020 have also been set in line with the HEFCE Carbon Reduction Strategy:

- 22% by 2011/12
- 44% by 2014/15
- 50% by 2016/17
- 60% by 2019/20

Post 2020 the University recognises the need for significant and long term reductions in GHG emissions. As a result we will look to exceed the national GHG emission target of 80% by 2050. We will set a series of 5 year GHG reduction targets to ensure our carbon footprint is less than 20% of the 1990 footprint by 2050

Emissions to Air

What we have achieved

- ⊙ We have planned maintenance schedules and have prioritised the phase out of all systems containing Ozone-depleting substances (ODS)
- ⊙ We have established a procedure to control maintenance and gas handling activity undertaken by contractors/sub-contractors: Who are REFCOM^{16a} certified and their staff are trained to the required standards in gas handling, brazing etc. We monitor their work and check all method statements, and qualifications etc.

Refrigerant Gases: These have been a focus of our work during 2011. Their use is a highly regulated area¹⁶ and requires robust operational controls.

Our use of refrigerant HCFC-22 contributes to ozone depletion and is categorised as a class II ozone depleting substance (ODS) by the Montreal Protocol (with an Ozone depleting potential¹⁷ of 0.055 CFC-11 equivalent). During 2010/11 we emitted zero kg CFC-11e of HCFC-22.

Our aim is to phase out the use of HCFC-22 by 2014 but we will stop using scrubbed HCFC-22 and new HCFC-22 will not be permitted. Where we have HCFC-22 units operating without fault, they will remain in use past 2014 but will be replaced by

^{16a} <http://www.refcom.org.uk/>

¹⁶ E.g. Energy Performance of Buildings (Certificates & Inspections) (E&W) Regulations 2007/991 (as amended) Environmental Protection (Controls on Substances that Deplete the Ozone Layer) Regulations 2011/154

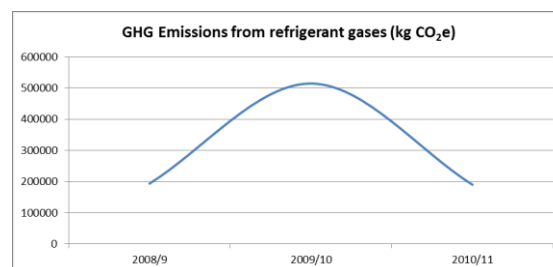
¹⁷ Ozone depleting potential (ODP) is a relative index indicating the extent to which a chemical product may cause ozone depletion. CFC-11 provides the reference point for comparison of emissions from different products with ODP, where CFC-11 has an ODP = 1.0. Global Warming Potential is a similar index which refers to the extent to which a substance contributes to global warming, using CO₂ as the reference value. Where CO₂ has a GWP=1.

new units thereafter on failure or reduced performance.

There is no single preferred replacement, gases are dependent on the type of unit, but new units tend to use R410A or R407C.

Table 9. Refrigerant Gas Emissions

Refrigerant Loss (kg)	GWP	2008/9	2009/10	2010/11
HCFC-22	1700	28	67	0
HFC-134a	1300	6	0	1
R404a	3300	18	0	6
R407c	1610	36	219	91
R410a	1725	0	3	1



High emissions of R407c in 2009/10 can be attributed to the decommissioning of a large refrigeration plant, demonstrating the significant potential of these plant to increase our carbon footprint.

Our key objective is to minimise emissions of airborne pollutants

Our current target is to achieve zero emissions of HCFC-22 (R22) refrigerant by July 2014



Procurement

What we have achieved

- ⊙ Sustainable Purchasing Officer in post March 2011
- ⊙ A revision of the Sustainable Purchasing Policy has been undertaken. This now needs to be endorsed by Executive Team
- ⊙ We are already being considered a leader amongst Higher Education Institutions in implementation of the Flexible Framework.
- ⊙ We have sustainable purchasing champions (their roles have been published on the Purchasing web pages)
- ⊙ The Purchasing team have worked hard to promote the e-procurement system. In January 2011 90 orders were placed through the system, by December 2011 this had increased to 439 orders in that month. The team are promoting this paperless method of purchasing and between August 2011 and December 2011 trained 178 new users
- ⊙ We engaged with a number of suppliers in 2011 in order to document their sustainability credentials, including Fisher Scientific, Sigma Aldrich, Ricoh, Viglen, Coca Cola, Brakes, Peros, Dale Power, Initial Rentokil, Enterprise, Thrifty and many more. This information is now detailed in web based Buyers Guides. Sustainability is also now a feature of all contract review meetings
- ⊙ The Purchasing Office has been working closely with the Catering Department which has led to a number of successes e.g. by switching a single frozen product from a leading brand to a comparable Brakes own brand the team will save £3,758 over the coming year as well as requiring 3,600 litres less frying oil

178 staff trained in e-procurement

Framework for Purchasing: We are committed to sustainable procurement which means only purchasing goods and services which are really needed and buying items whose production, use and disposal minimise negative impacts on the environment and society. In order to achieve this we have adopted the DEFRA approved Flexible Framework; developed for Government by the Sustainable Procurement Task Force¹⁸.

Purchasing Policy: Our new purchasing policy is an initial step to adopting the Framework and to targeting previously uncoordinated purchasing highlighted in the UEA IER (2009). It emphasises not only the role of the Purchasing Office but of all staff who make purchases. To ensure this policy is implemented we are establishing Sustainable Procurement Champions across campus and developing an online training package to be delivered during 2012. The policy emphasises the importance of non-economic factors when making purchasing decisions and aims to directly reduce the negative environmental and social impacts of purchasing and also achieve common market place changes. Through working with the SUPC (Southern Universities Purchasing Consortium) we can apply significant market pressure for the increased production of sustainable products and services. Table 10 outlines the factors which should be given full consideration in purchasing decisions. The new purchasing CarbonCrew bug aims to remind staff that purchasing decisions need to consider these factors.

¹⁸<http://spce.procureweb.ac.uk/resources/flexible-framework-toolkit>

Table 10. Factors requiring full consideration in purchasing decisions

Environmental Issues	Social Issues	Economic Issues
-Impact on soil, water and air pollution	-Promoting fair employment practices	-Whole life costing
-Use of raw materials (including packaging)	-Promoting workforce health and welfare	-Achieving value for money
-Use of energy	-Fairtrade and ethical sourcing practices	Ensuring suppliers agreements are competitive and fair to promote business viability
-Use of water	-Encouraging a diverse base of competitive suppliers	-Supporting social enterprise and improving local skills
-Waste and by-products (including final disposal)		
-Protecting habitats and biodiversity		

Example Supplier Engagement: We have been working with our preferred supplier for stationery and consumables, Office Depot, to identify opportunities for improvement. This engagement identified toners as an area where we could switch to a remanufactured product reducing our environmental impact and achieving cost savings. We have since met with the manufacturer to review the life cycle of the product, and have identified 148 brand toners with a remanufactured alternative. We have been using our e-procurement system to identify and challenge orders for brand toners and will continue to work with users to encourage the switch.

Our key objective is to minimise our consumption of non-renewable and environmentally sensitive resources by embedding integrated life-cycle approaches in our decision making

Our current target is to achieve flexible framework level 3 by August 2012

Sustainable Food

What we have achieved

- We launched our Sustainable Food Policy and action plan to deliver measurable targets for example: using local producers; minimising food miles; and, effective sustainable procurement
- We have reduced our food miles by introducing local producers to the catering offer
 - All eggs used in food produced in the catering department are from free range eggs produced in Suffolk
 - Meat and cheese products are certified with the welfare standard of Red Tractor, are locally sourced and always from the UK
 - Milk is sourced locally from an East Anglian co-operative. We don't currently buy organic milk as we cannot guarantee that it is from the UK
- We sold over 430,000 Fairtrade snacks and beverages in 2011
- We have stopped using large mineral water bottles for Hospitality and introduced our purified water system with reusable glass bottles
- We have been managing our operational impact by e.g. introducing more effective waste systems to monitor and reduce the waste we produce, reducing paper cups (see page 28) and trailing low energy light bulbs in Vista catering to reduce excessive heat issues and reduce energy consumption

Sustainable Food Policy: In September 2011 we launched our Sustainable Food Policy¹⁹. This recognises that we can exert considerable influence through our buying power to encourage healthy and sustainable food production and consumption and gives preference to products and services that are manufactured, and can be used and disposed of, in an environmentally and socially responsible way.

¹⁹ www.uea.ac.uk/estates/environmentalpolicy/sustainable+food+policy



Fig 14. Keepcups, reducing the impact of catering: light, unbreakable, and at the end of their (long) lifetime they are recyclable; available

from all UEA catering outlets at a cost of £5 (with a first free drink included). Keep Cup users receive a 15p discount each time they use it, with a 50p discount on Wednesdays (see more on page 29).

At the same time we also launched our Sustainable Seafood Policy, guided by the Marine Conservation Society and the Marine Stewardship Council; and we are working with our national suppliers to ensure a range of sustainable seafood choices are available from the recommended fish supply list.

Alternatives to Bottled

Water: Since June 2011 we no longer buy or sell purchased mineral water in Hospitality. A water purification system from EcoPure Water allows us to offer purified water in branded reusable bottles.



We have also installed water fountains in our Catering outlets so that customers can take fresh water as an alternative to purchasing bottled water when buying meals in the catering outlets.

Our key objective is to minimise our consumption of non-renewable and environmentally sensitive resources by embedding integrated life-cycle approaches in our decision making

Our current target is to achieve a minimum of 60% of total catering food spend on sustainable produce on an on-going basis



Fig. 15 The Catering Team



CarbonCrew Corner

“We have two restaurant staff and one kitchen porter, who attend meetings. It’s good that the porters are involved as there is a lot of potential waste from processes they deal with. All staff have an induction to their employment where they are informed about the UEA policy of doing the best we can for the environment”

“Over the past year we have come a long way in reducing waste and in reducing the purchasing impacts of the catering department”

“Much of our packaging now goes back to the supplier instead of being thrown away”

“We now segregate our waste in catering both front of house and in the kitchens”

“We use compostable disposable cups and trays for take away, but one of our biggest successes has been the use of Keep Cups, which have taken off big time”

“We have weekly meetings and all keep in touch with other departments. It’s good to know what elsewhere in the University is doing. We heard about the success with recycling plastic film at the library; and as we use a lot of films in catering our aim is to start a similar scheme here within the next year”

Renee, Catering CarbonCrew



Transport

What we have achieved

- ⊙ We received a “highly commended” in the innovation category at the National ACTTravelwise awards in November 2011. for the “Making the Connection” number 30 bus service that aims to help those living in outlying towns and villages commute to UEA without need of the motor car
- ⊙ Travel Coordinator, Dawn Dewar, won ACTTravelwise National Travel Planner of the Year
- ⊙ We have set new GHG reduction targets for fleet vehicles, Baseline data is currently being collected in order to set reduction targets for business travel and commuting
- ⊙ Progress against the modal shift target has not been effectively monitored. A survey undertaken in early 2011 returned a very poor response rate (n=1097) and provided no real measure of progress. An alternative method of data collection via Survey Monkey is currently being developed
- ⊙ As part of our on-going commitment to cycling we have invested £40,000 in order to continue to provide Dr Bike cycle checks on campus (available Tuesdays, Wednesdays and Thursdays during term time and Wednesdays during vacation) and new free services by Cycle Recycle Ltd., which include: a 40 point cycle health check, oil & air, and free labour for cable and brake pad replacement. A universal cycle pump is kept at the security lodge for those cyclists that find themselves stuck with a puncture but no pump
- ⊙ We are currently working in partnership with the First Bus Group to help increase the quality of services to campus and auxiliary University locations. We are in the process of seeking bus service users to form a committee group that will meet with the company to discuss services and provide feedback
- ⊙ On average 1 person a day registers to find someone to share a journey with and 22 new journey share groups were registered for a car share permit in October 2011 alone
- ⊙ We have replaced our diesel Catering delivery van with a blue motion low emissions van with stop start technology

Managing GHG Emissions from Business Travel:

Following recent guidance from HEFCE work on travel has focussed on scope 3 GHG emissions. Work is on-going to establish baseline emissions for all transport paid for by UEA and commuting.

The collation of baseline data on business travel has been onerous due to the decentralised nature of travel purchasing activity. Currently, members of staff make their overseas travel arrangements (and sometimes those of students on field trips) by means of a purchase order, purchase card or through expenses. Several different travel agents are used, as well as direct bookings with airlines, hotels, rail companies etc. There is no central record of business trips, their cost or environmental impact. We currently estimate that the University spent approximately £2.2m on business travel for the year ending 31 July 2011.

During 2012 we will be looking at the feasibility of changes to travel expenses forms enabling a central monitoring system and compiling a business case to employ a travel management company in order to better manage data and achieve reductions in emissions.



CarbonCrew Corner

“I have used the UEA Smart Share for the past year now, starting when the University raised the prices of car-parking in a move to encourage more sustainable travel. I come from 7 miles away and my car share partner lives around 15 miles away. We take it in turns to drive and the system works well; saving money on petrol and reducing my environmental impact is definitely worthwhile”

Rachel, Estates CarbonCrew

35% reduction in car parking spaces on campus

Park & Ride: August 2011 saw the closure of the 580 space overflow car park located adjacent to Norwich Research Park; a year earlier than anticipated: Made possible by the introduction of Park & Ride services from the Costessey Park & Ride site in April 2011. Students who had been the key users of the car park were required to use Konect Service 604 to the main campus or service 10 to the Hospital from the park and ride facility. We directly subsidise Service 604 and through negotiations with Norfolk County Council have been able to achieve a reduced rate of £1 for parking and bus fare for passengers to campus. The increase in demand for both Service 10 and 604 led Konect Bus to replace the standard double decker buses with “bendybuses”; some 300 passengers a day use the two Park & Ride services.

Our key objective is to minimise our consumption of non-renewable energy and gross emissions of greenhouse gases

Our current targets are to:

- **Establish baseline carbon emissions for business travel (paid for by UEA) by April 2012**
- **Establish baseline carbon emissions for commuting by April 2012**
- **Achieve single occupancy car journeys; 52.8% staff and 6% students by July 2012**
- **Reduce fleet vehicle fuel use of 35% over 2008/9 levels (4,731l petrol, 12,930l diesel) by July 2015**



CarbonCrew Corner

“Printing double sided documents has been one of our main aims over the past year and we have set the two office printers to do this as a default option. We have been encouraging staff to use the scanners we have in the office so that documents may be sent electronically as pdf documents rather than sending out paper copies. We now keep track of printer use and monitor the proportion of times when double sided printing has been undertaken”

“We have set targets to increase double sided printing by 5% over a one year period, at the same time reducing paper use in the printers and scanners by 5%”

“We have been experimenting with paperless meetings where the agenda is displayed on a central monitor rather than staff each having their own notes”

“One of the biggest deliveries we have at the library are of journals wrapped in plastic film. We were aware of all of this rubbish coming in and from talking to other CarbonCrew members we found that this could be recycled. We initially started collecting this ourselves and taking it to be recycled locally but from talks with the UEA waste manager we have been able to expand this idea over other areas of campus and centralised collections will be taking place over the next year. Since the scheme was started we have recycled 68Kg of plastic film in the library and although this may not sound like a lot it is very light material so this weight represents a very high volume that would otherwise be sent to landfill”

Allison, Library CarbonCrew



Waste Reduction and Recycling

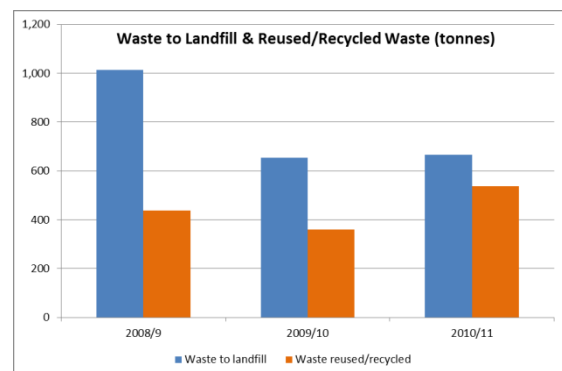
What we have achieved

- ⊙ The University landfill diversion rate is consistently over 40%. During the summer months it reached 60%. This is set to increase further as food waste composting is rolled out across campus. A new waste strategy is currently being drafted to document plans for this and other waste streams
- ⊙ Our furniture reuse scheme diverted 26.33 tonnes of waste from landfill
- ⊙ We have increased glass and drinks carton waste recycling by introducing collections by our main waste contractor. This has also benefitted other local businesses by improving available recycling services
- ⊙ The Big Clean Up collection scheme set up for student departures was very successful this year, diverting approximately 6 tonnes of waste from landfill and raised over £1,500 for Student Union funds
- ⊙ Our Catering department have been working hard to reduce waste by e.g. reducing paper cups and minimising sandwich packaging, using recyclable packaging, and working with suppliers to reduce packaging on products and establish take back schemes for packaging reuse e.g. cardboard boxes
- ⊙ We have established a Waste Duty of Care compliance audit programme and a Waste Duty of Care Policy is being finalised to ensure all staff are aware of their responsibilities
- ⊙ We have introduced a Site Waste Management Plan procedure for all construction and refurbishment projects
- ⊙ UEA now hold a waste carrier's licence in line with The Waste Regulations 2011
- ⊙ Current work is focussed on engaging student residences more effectively in recycling and coordinating a programme of improvement between the Students Union, Accommodation Office and the CarbonCrew
- ⊙ We supported a postgraduate student dissertation project: Understanding recycling and recycling communication in university settings: A case study at the University of East Anglia. The findings are being used to improve our engagement strategy

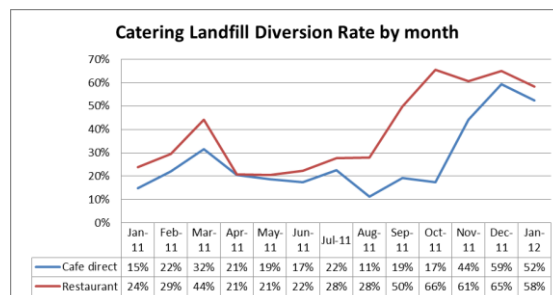
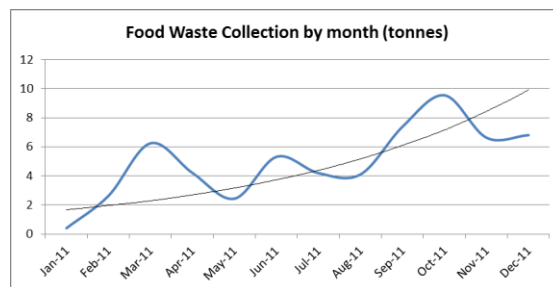
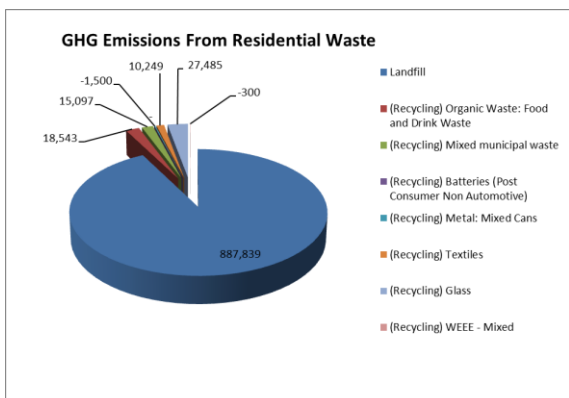
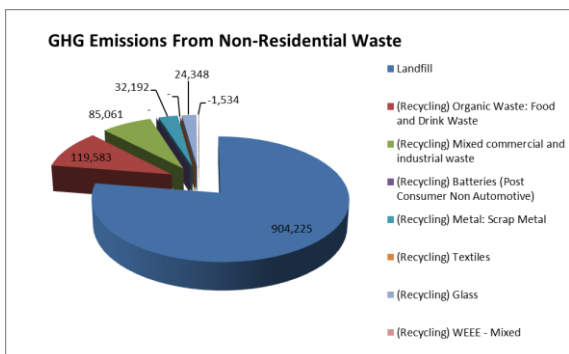
85.5% landfill diversion rate of construction waste

Reduce, Reuse and Recycle: The Waste Regulations 2011 introduced a requirement to apply the waste hierarchy (reduce, reuse, recycle) to all wastes. We are currently preparing a new Waste Strategy in order to deliver our targets in line with this requirement (expected in early 2012). We weigh the majority of waste we produce; this gives us excellent data from which to develop specific improvement actions.

Our average landfill diversion rate of 49% puts performance on track to meet our 2015 target of 70%. During 2010/11 we produced almost 20% more waste than in 2009/10 (excluding construction and demolition waste). This increase is partly due to more waste streams being recorded, and partly due to the Integration Project (page 15) which produced a significant amount of waste from staff moving offices; much of which was reused or recycled.



Our GHG emissions from waste demonstrate the need to minimise waste disposed of to landfill and look for closed loop recycling options. These factors are being drawn into the new Waste Strategy.



Composting Food Waste: Food waste is now collected for composting in almost every non-residential building on campus. Trials are on-going on residences with the aim of rolling segregation out to all residential blocks during 2012.

Our Catering department have been working hard to minimise their waste outputs, of which food comprises a significant proportion. Improved stock control has reduced waste at source and increased waste segregation and locating segregated waste bins in the main restaurants has resulted in recycling rates achieving over 60%.

Fig 16 Food waste collection vehicle



UEA Keep Cups: 2011 marked the start of the UEA Keep Cups scheme. In 2010 we used over 163,000 paper cups along with thousands of other paper based disposables. Most of this ended up in landfill representing a massive waste of resources. We have been actively working to reduce this impact. We minimise demand (and waste) by encouraging a ‘bring your own mug’ culture. The launch of Keep Cups to the campus in May 2011 has been very successful (by December we had sold 1855 with over 3,000 transactions). We have also introduced compostable cups to ensure we avoid waste to landfill.

Hazardous Waste: Our production of waste electronic and electrical equipment (WEEE) has increased significantly over 2010/11. This is

Table 11. Hazardous waste production

kg	2008/09	2009/10	2010/11
Fridges/freezers	3,640	1,785	4,230
WEEE	700	650	8,817
Batteries	401	1,143	1,350
Tubes/lamps	800	1,898	2,287
Printer cartridges	Not available	420	800
Chemical waste ¹	Not available	805	3,242
Asbestos	Not available	920	962

¹ includes waste oil

attributed to improved recording as all computing equipment is now disposed of centrally by the Waste Manager; previously only small items would have been captured in this data. The increase in waste chemicals is due to the closure of our main chemical store. Chemicals are now ordered as required.

Local Action: in summer 2011 UEA Library started collecting polythene covers which numerous journals are delivered in. The scheme has since been expanded with additional bins for staff to add their own plastic films (including plastic bags, food wrappings, mailing wrappers etc.); so far, recycling 22.95Kg. The University is now looking to extend this scheme to further areas of campus.

A CarbonCrew initiative to recycle used milk bottle tops deserves a special mention. Although these may seem small items that some people would consider insignificant; in one week two black bin bags of bottle tops were collected from the Sainsbury's Centre for Visual Arts (SCVA) building and donated to the recycling project of a local special needs school who in turn receive small donations of educational equipment from the recycling company.

Our key objective is to minimise the production of waste through reduction, reuse and recycling

Our current targets are to:

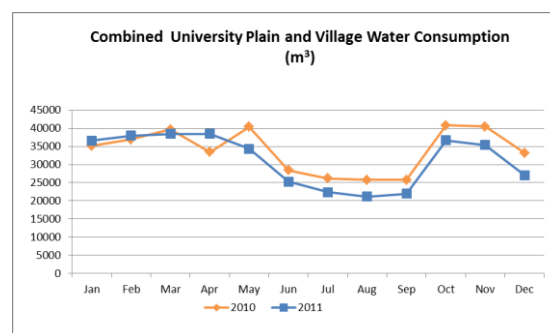
- **Achieve a 70% landfill diversion of UEA waste (excluding construction waste) over 2009/10 levels by July 2015**
- **Reduce kgCO₂e emissions from UEA waste (excluding hazardous and construction waste) by 48% over 2010/11 levels by July 2015**
- **Achieve an 85% landfill diversion of UEA construction waste over 2009/10 levels by July 2015**
- **Send 100% of food waste for composting by July 2013**

Water

What we have achieved

- ⊙ We have undertaken a comprehensive leak survey of the campus, and will complete a survey of The Village (residences) during 2012
- ⊙ We have undertaken a water meter audit and have established a programme of water meter installation to monitor our consumption more effectively through our Building Management System
- ⊙ A survey of male toilets on campus was completed in November 2011 in order to prioritise individual improvement projects
- ⊙ A shower head usage review is currently underway to investigate alternatives to reduce consumption
- ⊙ Regular monitoring of our mercury discharge consent (10mg/l with a load of 5 gms/year) has shown levels are currently as low as practicable (0.1gms/year).
- ⊙ We have established a dedicated, consented vehicle washing area
- ⊙ We have improved communications with our water supplier ensuring a proactive approach to water and waste water management

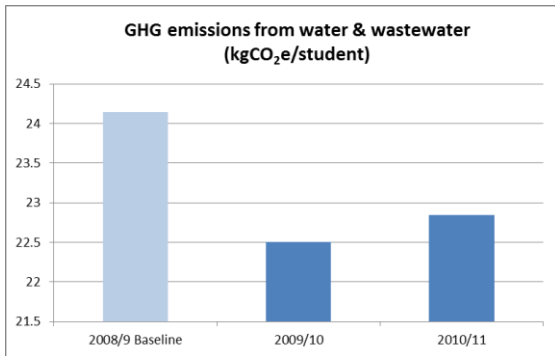
Water Use: Water consumption per student and related (water and wastewater) carbon emissions decreased by 1% in 2010/11 over 2009/10 levels; consumption per student increased by 0.4m³. In April work started on repair of four major leaks identified via a comprehensive leak. This has resulted in water savings of 166 m³/day and significant financial savings, the reduction will be captured in the 2011/12(Aug –Jul) reporting period.





Saving 166m³ of water a day from repairs to major leaks

Water Management Planning: During 2012 we will be developing a coordinated and resourced water management plan to ensure our water consumption reduction target will be achievable. This will be a priority once the waste management strategy has been completed.



Our key objectives are: to prevent ground and water pollution and, minimise our consumption of non-renewable and environmentally sensitive resources by embedding integrated life-cycle approaches in our decision making

Our current targets are to:

- **Reduce water consumption by 10% per student over 2008/9 levels by July 2013**
- **Reduce CO₂e emissions from water and waste water by 10%/student/year over 2008/09 levels by July 2013**

Emergency Preparedness

What we have achieved

- ⊙ We have implemented an environmental emergency plan and are currently delivering training on environmental response to our staff
- ⊙ We have implemented an incident reporting system which is being promoted through our website and training
- ⊙ We have put operational controls in place for high risk areas, e.g. oil delivery and refuelling, inspection of oil and chemical storage areas, construction/refurbishment waste. We will audit these during 2012, as part of EcoCampus Platinum implementation, to ensure they are working effectively

Managing Risk: Emergency situations often provide the greatest business and environmental risks to organisations. At UEA we have a good track record, with £0 fines from environmental regulators in the past 2 years of reporting. We had one spill in February 2011; a spill of sump oil from a taxi which struck a bollard on the main road through campus. The size of the spill is unknown but an engine sump typically holds four to five litres. Absorbent granules were applied by Security staff and the spill did not enter surface water drains.

We are keen to maintain and improve our performance and last year finished work on our Environmental Emergency Plan, which complements the UEA standard emergency plan. This enables us to effectively respond to environmental incidents on Campus and staff are undertaking training to tackle incidents such as petrol/oil spillages.

We have also introduced an Incident Reporting Form for use by all staff so that we are better placed to collate statistical information on incidents and learn from the handling of them. This is available from the Environment and Sustainability web pages.

Our key objective is to prevent pollution and appropriately manage environmental risks from accidents incidents and emergencies

Our current target is to achieve zero recorded spills and zero fines from environmental regulators on an on-going basis

Where we go from here

Our Vision of the Future: We would like to see higher education establishments taking a lead in the fight against climate change, fulfilling their role as providers of both education and inspiration to students and staff alike. We see UEA at the head of this movement and will do everything in our power to maintain and increase our position in terms of the environmental standings of the university through landmark projects and through systematic organisational change. We aspire to make considerable progress over all areas of environmental management and to facilitate the diffusion of this way of thinking to our 14,000 students who we are confident will provide the next generation of leaders in terms of environmental mitigation and improvement.



CarbonCrew
Reducing Our Impact

Key documents (available at www.uea.ac.uk/estates/environmentalpolicy/key-documents)

UEA Environmental Report 2010

UEA Environmental Policy

UEA Aspects register 2011

UEA Initial Environmental Review 2009

UEA Carbon Reduction Plan

UEA Grounds Maintenance & Conservation Plan

UEA Transport Policy 2010

UEA Waste Strategy

UEA Waste Guide 2011

UEA Travel plan

Contacts-

Martyn Newton, sustainability Manager: 01603 592052, m.newton@uea.ac.uk

Sustainability Hotline: 01603 593535, sustainability@uea.ac.uk

Environment & Sustainability Website: <http://www.uea.ac.uk/estates/environmentalpolicy>

Postal Address: University of East Anglia, Norwich, NR4 7TJ, UK.

Main Switchboard: 01603 456161

CarbonCrew: www.carboncrew.uea.ac.uk

Authors: UEA Sustainability Team and Pro-Vision Environmental
March 2012