IARU Individual campus sustainability reports, 2013

Introduction

The member Universities have provided short reports on their respective campus sustainability programs in 2013. Focus of those reports is on environmental achievements (e.g. reduction of greenhouse gases, etc.). Often, member universities publish other, more comprehensive reports on their sustainability achievements. These reports can be downloaded from the individual university websites.

The provided reports show there is an ongoing commitment to achieving the institutional goals despite regional pressures and global financial impacts. They further show, that focus of activities towards a sustainable university and campus are very diverse among all member Universities. Whereas energy efficiency and the reduction of CO_2 emissions are still main fields of activities on the campus – student and employee engagement programs, outreach and sustainability in research get more important with a better visibility. However, target setting in these fields might be much more demanding.

In most of the reports you find a summary on the following programs, actions or achievements:

- Key achievements/programs in the field of sustainability for the last 12 months (2013)
- Sustainability targets and goals
- Performance against selected sustainability targets (incl. greenhouse gas reduction targets)
- Student activities (E.g. programs, projects, etc.)

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University of Oxford: Key achievements and programs in the field of sustainability

Carbon reduction

- Setting up of a scope 3 emissions working group which will report to the Sustainability Steering Group on progress in terms of gathering data and setting reduction targets
- Approval of spending of up to £500k on carbon reduction projects, to be signed off by the Director of Estates
- Commissioning of a review of the existing Carbon Management Strategy by the Carbon Trust, completed in 2013, with recommendations for the development of a methodology to identify and implement projects to reach University targets for 2015/16 and 2020/21.
- Progress of Carbon Management Strategy update to ensure scope 3 emissions are included and have a reduction target
- Libraries project completed and resulting in 834 tonnes of carbon being saved
- Installation of a 25mx18m overnight lid (two automated, self-rolling covers) for the University Sports Centre swimming pool, saving approximately 25.2 tonnes of CO_2 per year

Water

- Currently on track to deliver the 11% reduction in water consumption by 2015/16 target thanks to the Water Management Strategy
- Submetered all buildings and supplies at Begbroke Science Park
- Installation of waterless urinals at Begbroke Science Park

Travel

- Draft of the Estates Transport Strategy Baseline Report, including priorities for the strategy with regards to transport options, and an inclusion of benchmarking and best practice from external institutions from the Russel Group of Universities and others
- Nearly 1000 staff have signed up to a discount travel scheme (easitOXFORD)
- Nine travel roadshows happened with approximately 450 staff and students engaged
- 160 personalized travel plans were delivered to staff

Waste, recycling and reuse

- Completion of the final selection stages of a waste contract allowing for better reporting of the production of the University's waste, an increase in the University's recycling rate and a better understanding of the positive impacts of waste reduction strategies, by moving to a 'pay by weight system of collection, giving more incentive for departments to recycle
- Adopting an online waste reuse service, giving users the ability to advertise and search for items online more comprehensively but also see the total financial and carbon savings linked to the scheme

Sustainable buildings

- Continuation with the BREEAM framework and goal of building/renovating according to the BREEAM 'Excellent' target

Sustainable purchasing

- Development of a Procurement Strategy 2013-2017 which includes a policy, involvement of people (staff), a risk assessment tool covering social, economic and environmental factors, supplier engagement to ensure that sustainable procurement becomes 'business as usual' and indirect carbon emission reporting arising from purchasing

Biodiversity

- Creation of the Biodiversity Working Group
- Commissioning of a Biodiversity Strategy with BSG ecology, with a completed draft as of June 2013
- Commencement of a £28,000 project to enhance three ponds in Wytham Woods, which house a large population of great crested newts

Education

- See 'Student Activities' below.
- Creating a Facebook and Twitter page for the University's Environmental Sustainability Office

Sustainability targets and goals

The targets of the University remain the same (although HEFCE have indicated that universities should be reviewing their carbon targets):

- Reducing scope 1 and 2 **CO_2 emissions** by 11% by 2015/16 (from 2005/6 baseline levels)
- Reducing scope 1 and 2 **CO_2 emissions** by 33% by 2020/21 (from 2005/6 baseline levels)
- Reducing **water** consumption by 11% by 2015 (from 2009/10 baseline levels)
- **Building/renovating** to meet the BREEAM 'Excellent' rating

Performance against selected sustainability targets

It was recommended in the Carbon Trust Report on the Carbon Management Strategy, in order to reach the 2020 target, a reduction of 26,394 tCO2e in total is required from the 2011 emission levels.

The recommended rate of annual decrease by the Carbon Trust of 2%/year until 2015 has seemingly not been met this year but has been exceeded in previous years.

In terms of water consumption, the University is on track to reaching the reduction target.

In terms of the BREEAM 'Excellent' rating standard, some buildings appear to have not achieved it but that is the result of them being renovation projects, and as the current BREEAM assessment does not differentiate, it was difficult to achieve the criteria that are set out as if for new constructions. This will hopefully change when the BREEAM assessment scheme is updated **Student activities**

Net-Positive Student

- An online tool aimed to help students identify their key areas of interest with regards to sustainability and then from that generate customized suggestions in line with the student's interest for involvement locally and making a positive impact individually
- Categories include:
    - Environmental
    - Social
    - Economic
- It was launched at the end of the year (October 2013)

Student Switch-Off

- Launched in conjunction with the National Union of Students, UK and the Oxford University Student Union, it is a UK-wide initiative that is based on small competitions that ultimately aim to raise awareness of ways to save energy – from switching off lights to wearing more layers instead of turning the heating on.
- Over 4,000 students completed an on-line Climate Change Quiz linked to the Student Switch Off Facebook page.

Green Impact

- An initiative that involves university departments taking step changes to reduce their environmental impact. The initiative is based around a workbook and departments work towards bronze, silver or gold. Twenty departments covering circa 4,700 staff. Departments are supported by students trained as project assistant, covering environmental management skills, environmental communications, group work, time management. There are also students trained as auditors who go on to conduct real audits, gaining invaluable experience.

Other

The university is working towards the international standard for Environmental Management Systems ISO14001:2004; as part of this a comprehensive review of the University's Environmental Sustainability Policy was conducted for the first time since its implementation in 2008, to assess compliant to the standard. It was found that the policy was not compliant with ISO 14001 section 4.2 Environmental Policy, and lacked evidence of pollution prevention. As such the policy was amended and it now includes the following areas;

- Energy and carbon management
- Emissions and discharge
- Waste and material resources
- Water
- Education, research and knowledge transfer
- Sustainable travel
- Sustainable buildings
- Biodiversity
- Sustainable purchasing
- Community

The Environmental Management System has begun to be rolled out across the University's functional estate, beginning with the Malthouse, University Offices at Wellington Square, Manor Road and St Cross Buildings, University Museum, Pitt Rivers Museum and Old Road Campus buildings.

National University of Singapore: Annual Submission for Campus Sustainability

NUS' physical expansion in the preceding three years ie 2010-13, has resulted in 12 new buildings with a total Gross Floor Area (GFA) of 350,000 m^2; the majority of these buildings is located in University Town, a sustainably-designed and built precinct. Despite this growth, NUS' carbon emissions for FY 2012 is 12% lower than the projected levels for Business-As-Usual (BAU), and it is on track to meet the 2020 target of 23% below BAU.

It is anticipated that the capacity building – and the associated growth – will be modest in the coming years, with the focus shifting to campus rejuvenation and further optimizing space use and energy management. This in turn in turn have a positive effect on our meeting or exceeding the 2020 carbon emissions target.

Built Environment

With the introduction of the Building Construction Authority's Green Mark Scheme since 2005, NUS' requirements for more stringent ESD requirements on new and existing buildings have led to a total of 18 buildings / precinct being certified, of which 7 of them have achieved the highest Platinum level.

There is also a phased plan to target Green Mark certification for all large existing buildings i.e. those with air-conditioned GFA >10,000 m^2, to be of GoldPlus standard by 2020. The projected energy efficiencies resulting from this certification, are also a mitigating factor in reducing the university's carbon emissions.

The Terrace Canteen at the Faculties of Business and Computing, became the third canteen to be certified as an Eco-Food Court, after The Deck canteen at the Faculty of Arts and Social Sciences, and TechnoEdge canteen at the Faculty of Engineering.

Energy

The Energy Task Force comprising representatives from the Offices of University Campus Infrastructure, Estate and Development, Safety, Health and Environment, Housing Services and Environmental Sustainability was formed in 2012, to reduce energy consumption and improve energy efficiency on campus. The introduction of more energy efficient buildings, installation of new technology and an increased awareness of the NUS community to be more mindful of energy usage, have helped to level off the 2013 energy consumption in spite of a net increase in built space on campus.

Other energy efficiency projects already undertaken include chiller plant upgrades at selected faculties, lift upgrades and converting street lighting to the more efficient LED-type.

Water

All the 12 new buildings comply to the (voluntary) Water-Efficient Building standards of PUB, Singapore's water agency. There are plans to certify the remaining existing buildings on campus to be of WEB standards, by 2010 or earlier.

Recycling

The campus recycling rate is 13.2 % for FY2012. New sources of recycling waste streams are being explored including used banners and electronic waste. In the past year, there has also been stepped up recycling efforts in large-scale events on campus, such as those involving more than 1,000 people like runNUS and Rag & Flag Day.

Natural Spaces

There is a growing emphasis on roof-top and vertical greening. The Education Resource Centre (ERC) at University Town received a Skyrise Greenery Award 2013 in the school category, granted by the National Parks Board, for its extensive rooftop garden.

A community herb garden was initiated at the rooftop of the Ventus building, home to the University Campus Infrastructure offices, to generate interest in nature appreciation.

NUS Community Outreach and Student Activities

Various outreach initiatives under the "SustainABLE NUS" campaign – comprising five themes : Energy, Water, Recycling, Mobility and Spaces - were rolled out in 2013. The SustainABLE Water Day in March encouraged the NUS community to save water. This collaboration with the Office of Housing Services and Office of Student Affairs, involving 11,000 students residing in 14 residences and halls on campus, was held in conjunction with Singapore World Water Day to bring across the message that every drop of water is precious and worth saving.

Complementing the sustainability efforts of the staff, students have also added to the vibrancy of the environmental scene on campus. In particular, the Students Against Violation of the Earth (SAVE) takes the lead in meaningful projects to educate the community on various aspects of sustainability. For Climate Action Day (CAD) 2013, the students launched Green Wardrobes – a used clothes recycling initiative and planted 50 trees to commemorate Singapore's 50 years of greening the country.

The SAVE-led initiative of a mandatory levy of 10 cents per plastic bag given out to customers - at the university canteens, bookstores, and a growing number of retail outlets on campus - has seen a 70% drop in plastic bag usage since its introduction in 2009. The monies are channelled to the NUS Sustainability Fund, which funds eco-friendly projects by NUS staff and students, up to a cap of S$5,000 each. The first two supported projects were awarded in 2014.

Sustainability Learning / Education

A team of 30 NUS students from four faculties took part in the Solar Decathlon Competition 2013, held in Datong, China. Tasked with designing and constructing an operational solar-powered house, the students were challenged to incorporate innovate and sustainable design solutions – suitable for an urban and tropical setting and within living space constraints – in a learning experience beyond the classroom. This design and build process was also integrated with the core curriculum of the students' professional training and provided them with an opportunity to experience first-hand a practice-oriented, project based learning process.

At the end of the competition, the building was dissembled and shipped back to NUS campus to be reinstated as a learning facilities and permanent showcase of sustainable design and innovative technologies in the tropics.

International Sustainability Conference

As a founding member of the International Sustainable Campus Network (ISCN), NUS co-organized the 7th ISCN Conference in June 2013 to promote sharing of best practices on campus sustainability. The Conference attracted some 100 participants from regional and global universities, to discuss building holistic sustainability programs that balance sustainability and growth, and make an impact beyond the campus settings.

Yale University: Sustainability: Highlights from 2013

For Yale, 2013 was an exciting and eventful year. We completed the *2010 – 2013 Yale Sustainability Strategic Plan* and launched the *2013 – 2016 Yale Sustainability Strategic Plan.* Our new plan was announced in October by our new president, Dr. Peter Salovey. This transition of leadership was timely for sustainability at Yale. President Levin was deeply committed to sustainability and worked hard to establish Yale as a global leader based largely on his understanding of the economic impacts of climate change. Accordingly, the emphasis for sustainability at Yale was largely focused on the physical operations of the campus. In addition to addressing the operational components of the university functioning, we are now taking on more of the behavioral and systemic challenges. This resonates well with President Salovey's expertise as a behavioral psychologist.

2010-2013 Yale Sustainability Strategic Plan

Yale's first sustainability plan contained 43 goals with varying degrees of ambition. Figure 1 is an image extracted from the final progress report for that plan. It shows that we achieved 34 of our goals, 5 required revisions, and we did not achieve 4. Highlights from this plan include:

- Despite continued growth on campus, we exceeded our goal of a 4% reduction of energy use and achieved 5% reduction.
- We reduced our total waste by 24.4%. With the introduction of composting in the dining halls, our diversion rate went from 22.8% to 40.1%. Our rate recycling rate was 28%.
- While we fell far short of our 25% paper reduction goal with just a 7.3% reduction, over 99% of the paper purchased contained recycled content. In addition, we installed an application that tracks individual print habits and tallies on over 8,000 computers throughout campus.
- Several notable sustainable land management transitions happened, including the establishment of several urban meadows and a rain garden, as well as a second on-campus farm that is being used for research and community outreach.
- Yale Facilities drafted and adapted a set of three planning documents based largely on student research:
  - Framework for Campus Planning: Sustainability Supplement
  - Sustainable Stormwater Management Plan 2013-2016
  - Water Management Plan 2013-2016
- Sustainable transportation at Yale got a boost with the advent of a new bike share program.

Figure 1 : Summary of Accomplishments from the *2010-2013 Yale Sustainability Strategic Plan*

2013-2016 Yale Sustainability Strategic Plan

Developed with a steering committee of top officials from throughout the university, the *Yale Sustainability Strategic Plan 2013-2016* contains 24 goals that are organized into five system-based

meta-categories: Energy & Greenhouse Gas Emissions; Natural & Built Environment; Materials Management; Food & Well-Being; Sustainability Leadership & Capacity Building. Outlined below are the institutional goals within each meta-category.

Energy & Greenhouse Gas Emissions

- Reduce energy consumption and greenhouse gas emissions 5% below 2012 levels by June 2016. This will result in a 20% total reduction in greenhouse gas emission from 2005 levels.
- Increase the renewable energy portfolio to represent 1% of the total electricity generated on campus by June 2016.
- Reduce University greenhouse gas emissions from University fleet vehicles by 80 tons of carbon dioxide equivalent per year below 2012 levels by June 2016.

Natural & Built Environment

- Develop and implement sustainable land development and maintenance practices on the Yale campus by June 2016.
- Establish baseline for stormwater reduction and define a campus specific reduction target by June 2016.
- Reduce potable water use on campus 5% below 2012 levels by June 2016.
- Lessen Yale's impact on New Haven traffic congestion and vehicle emissions by reducing single occupancy vehicle use by faculty and staff to campus 2% below 2012 levels by June 2016.
- Earn a minimum of LEED Gold certification and achieve Yale-specific required credits on all new construction and selected comprehensive renovations; ensure that all other construction adheres to Yale's Sustainable Design Requirements.
- Plan campus development in alignment with recommendations of the Framework for Campus Planning: Sustainability Supplement

Materials Management

- Achieve a 10% reduction in paper purchases and a 10% reduction in office supply purchases from 2012 levels by June 2016.
- Establish sustainable procurement standards by June 2014.
- Establish and commit to purchasing and disposal practices that meet industry standard sustainability practices for Information Technology at Yale by June 2014.
- Achieve a 50% waste diversion rate by June 2016 via reuse, recycling, and/or composting strategies.
- Implement strategies to reduce municipal solid waste with the intention to commit to an institutional total volume waste reduction target by January 2015.

Food & Well Being

- Ensure that 37% of the food purchased and served by Yale meets one or more of the following sustainability criteria: local, eco-sensitive, humane, or fair.
- Increase the purchase and preparation of plant-based foods in Yale Dining by 15% over 2012 levels by June 2016.
- Reduce sodium content in on-campus food offerings to 2,200 milligrams daily by June 2016.
- Reduce cleaning chemical usage on campus 30% from 2012 levels by June 2016.
- Organize an exploration of initiatives within the university that promote both human well-being and ecosystem vitality by June 2014.

Sustainability Leadership & Capacity Building

- Establish a portfolio of Sustainability Action Plans for a professional schools and departments by December 2013.
- Promote sustainability as a core business value at Yale by June 2016.
- Create a regional food alliance with area farmers, and institutions, the Yale Sustainable Food Project, and Yale Dining to discuss new approaches to food distribution by June 2014.
- Establish a culture of green information technology at Yale through a portfolio of training, certification programs, and consistent online messaging to all computer- using members of the Yale Community by June 2016.
- Expand Green Certification Programs by June 2016.

Application of Sustainability at Yale

The culture of sustainability at Yale comprised of diverse and creative initiatives at various scales and in a range of contexts. Some highlights from 2013 are included here.

In the Classroom

In 2013 the Yale Faculty of Arts and Sciences approved a new undergraduate program in Energy Studies that promotes a multidisciplinary approach to the linked challenges of energy and climate. Energy Studies Scholars acquire the broad knowledge and skills needed for advanced studies and for leadership and success in energy-related fields. Nearly sixty students with majors in more than a dozen departments are enrolled in the program.

Across Campus

Yale held two week-long Celebrate Sustainability events in 2013, the aim of which was to rasie awareness throughout campus. Highlights included an exhibit in the center of campus of an inflated ball that reprented one ton of carbon and a geographically-accurate model of a local river built with plastic bottles.

Figure 2 : Ton of Carbon on Yale's Cross Campus

In Departments

Goals at the institutional scale are critical, but do not full take into account the myriad cultures that comprise a campus. With the aim of creating localized authority and accountability, in 2013 the Office of Sustainability committed to developing Sustainability Action Plans for each of Yale's 13 professional schools as well as the museums and a select number of additional high impact departments. To-date, school plans are in place or in development for Divinity, Forestry & Environmental Studies, Law, Management, Music, Drama, Public Health, Engineering & Applied Science, and Architecture. In parallel with this, the Office of Sustainability has begun partnering with operational units of the university. As of this writing, Sustainability Action Plans have been submitted to the officers in charge of Finance and Business Operations and the General Counsel's Office.

In the Community

The Yale Community Carbon Fund (YCCF) seeks to extend practical sustainability initiatives to low income New Haven residents through advancing residential energy efficiency and facilitating local energy efficiency research. In 2013, YCCF has held a number of renewable energy and energy efficiency workshops for Yale employees and students and collaborated with a faculty member in the Anthropology Department to oversee several group of students who conducted class research projects on residential electricity use.

In the Region

In recognition of the complexity of food sustainability, in 2013 Yale Dining convened a group of 13 universities and 3 hospitals along with food distributors and producers to discuss how sustainability is defined in the context of institutional food. Based on this, the next step will be to use a small set of high-volume, high-impact products for a pilot wherein the institutions will agree on common definitions for sustainability and those criteria will be communicated to distributors and producers. The aim of this exercise will be to streamline demand and therefore improve pricing.

In the World

During the 2012 Rio+20 Conference, Yale co-hosted a Global Coalition workshop where students from 16 universities around the world proposed sustainability projects for their campuses that would yield measurable positive impacts. The students were asked to report on their progress monthly for one year: the conclusion was a final report in June 2013.

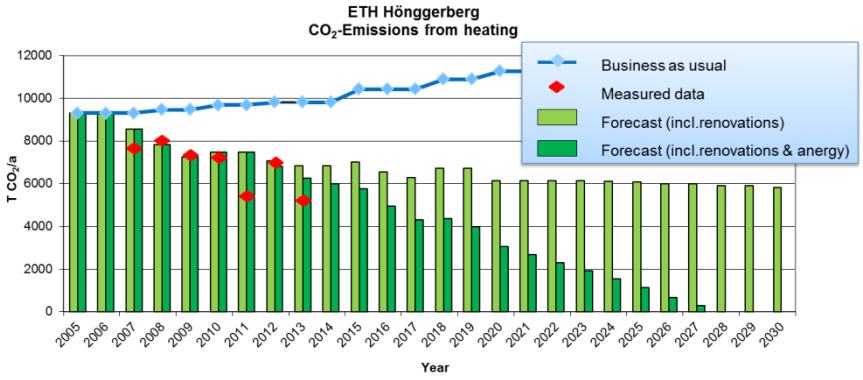
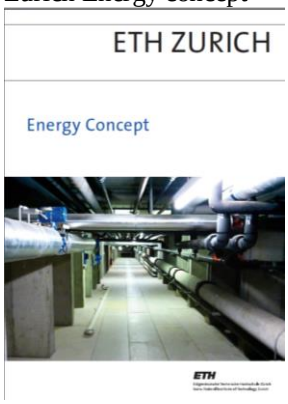
Student activities (E.g. Programs, Projects, etc.)

Highlights of student activities from 2013 include:

- Nourish New Haven: Divinity School students convened community groups and food justice leaders for two days of programming about local access to food.
- Yale Food Systems Symposium: Forestry & Environmental Studies students convened a group of experts and practitioners to discuss sustainable food systems in the larger context.
- Yale Environmental Film Festival: students hosted fifth annual Environmental Film Festival,the aim of which is to showcases the arts through incisive, cutting edge films that raise awareness of environmental and related social issues.
- Yale Athletics: in its report, *Collegiate Game Changers*, the Natural Resources Defense Council featured Yale's Bulldog Sustainability program.

ETH Zurich: Progress report on environmental achievements

Performance against selected resource and energy efficiency targets

Selected Targets	Results / Comments
Reduce direct CO_2 emissions from the ETH Hönggerberg campus to 50% by 2020 (4000t/year).	
ETH Zurich's 2nd Sustainability report 	• This report is the second sustainability report published by ETH Zurich which fully integrates the requirements of the Global Reporting Initiative (GRI) B Level and the ISCN-GULF Sustainable Campus Charter reporting frameworks. As the previous report was released in the spring of 2010, this report adheres to the biennial reporting timeframe and covers the 2011 and 2012 calendar years. • The topics outlined in the GRI framework cover a broad range of sustainability metrics related to economic, environmental, and social (including labor practices and decent work, human rights, society, and product responsibility) performance which is applicable to various industry sectors. Conversely, the ISCN-GULF Sustainable Campus Charter reporting framework focuses on sustainability metrics specific to universities according to the three overarching ISCN principles. • Following the guidelines of both of these frameworks allows ETH Zurich to transparently disclose its most fundamental sustainability efforts at the campus level in addition to describing engagements with the public and private sectors.
Implementation of ETH Zurich Energy concept 	ETHZ publishes its first progress report on the implementation of the energy concept since its introduction in January 2013 *(internal publication only)*. Main Achievements in the 7 fields of activity: • Starting from 2014 – ETH Zurich procures electricity, based on 100% renewables for all real estates in the city of Zurich (represents 85% of the total electricity demand) • Establishment of two new SWISS competence centers (Supply of Electricity and Efficient Mobility) incl. also new postgraduate courses. • Code of Conduct (see also belo) • Establishment of new "living Lab" projects (e.g. house of natural resources) • Elaboration of a strategic plan (2020+) to ensure an ecologically and economically beneficial energy supply of the central campus (incl. cooling, heating and heat recuperation). • Implementation of a LifeCycleCosting tool in the real estate department. • New Strategy for the continuous improvement (energy efficiency) of infrastructure operations.
New organization of the environmental management at ETHZ	Formation of a new committee, leading the environmental management of ETH. The committee is reporting directly to the Vice president for personnel and resources. The new "Umweltfachkommission" consist of members of infrastructure divisions, ETH Sustainability and 3 departments (Chemistry and Applied Biosciences, Physics and Environmental Systems Science). The new committee

	will define the new environmental targets for ETHZ (period 2014 – 2016) and also updates the environmental mission statement.
ENERGY EFFICIENCY CHALLENGE	The introduction of the Code of Conduct (CoC) – Energy Efficiency goes hand in hand with the implementation of measures that directly or indirectly reduce energy consumption. It serves as an awareness raising campaign at ETH addressing both employees and students. The CoC – Energy Efficiency is implemented in groups. It is primarily geared towards chairs and infrastructural departments, but also groups with special functions such as IT Support Groups, the extended departmental management etc. If a group decides to implement the CoC – Energy Efficiency, it is encouraged to select measures jointly from the CoC – Energy Efficiency and plan their implementation. It is important for the entire group to be involved in determining and planning measures as this increases their acceptance and thus the probability of their successful implementation.

New buildings / Infrastructure

- The new supercomputing centre is one of the most energy efficient data centres in the world (PUE<1.25) – this is possible due to an unique cooling system, using water from the lake of Lugano. Further, the newly installed supercomputer "Piz Daint" demonstrates significant improvements in the energy efficiency. This efficiency puts in at number four on the Green500 list of most energy efficient supercomputers, but it is the only one in the top ten with petaflop-magnitude speed.
- New LEE building is (office building) almost completed – following "MINERGIE®-ECO" standard. The ECO adds to the required, minimal energy use also ecological requirements, such as recyclability, indoor air quality, noise protection etc. to the regular MINERGIE®-Requirements.
- ETH Zurich is in the process to adapt the German DGNB-Labor standard to Swiss conditions. This offers the possibility to be at the forefront for the construction and design of sustainable Lab-buildings, which are responsible for an increasing demand of resources (chemicals, gases and water) and energy (mainly electricity) in the next future.
- Anergy grid in operation for the first cluster (3 buildings connected). Set-up of monitoring process.
- New conceptual approach for the heat production in the central campus. As a final goal the construction of a so called "Thermotunnel" has been set. This means that most of the energy (for cooling and heating) is from the the Lake of Zurich, adjusted by highly efficient heating pumps. However, the implementation takes years to complete – therefore the whole project will be implemented in stages.

Greenhouse Gas emissions and energy savings

ETH Zurich's total use of electricity increased from 2012 to 2013 to 113 GWh (+ 1%). This was mainly due to an increased demand in electricity for buildings and research infrastructure. The demand for heating increased from 50.7 to 53.8 GWh (+5.5%). There is one main reasons for this increase in 2013. In 2013, we had the coldest winter in Zurich since 2010. However, the production of heating energy is more and more transferred to the reuse of waste heat and the use of the Anergy net. As new and renovated high efficiency buildings will be added to the energy budget over the coming years, relative energy use figures, mainly for heating, are expected to improve significantly in coming years.

In 2013, carbon emissions from fossil fuels like natural gas and oil burned in own facilities were 5631 tons expressed in CO_2-equivalents. Here, the efforts of ETHZ to reduce the emissions of CO_2-equivalents are clearly visible – In 2013, ETHZ emitted least CO_2-equivalents by burning fossil fuesl since the beginning of recording. Indirect emissions caused by ETH Zurich's consumption of electricity were 1585 tons. For assessing the overall carbon footprint of ETH Zurich, also further emissions caused outside of the organization's boundaries are considered, for example emissions from

student and staff commuting and business travel. This part is responsible for more than 19209 tons expressed in CO_2-equivalents (see Figure 1 for details) and the trend of the last years show a clear indication for a further rise in future.

Figure 3 Energy and CO_2 balancing of ETH Zurich's real estate portfolio, including all buildings in the canton of Zurich, but excluding the new supercomputing center (CSCS).

Electricity	2008	2009	2010	2011	2012	2013
Total electricity consumption	107.9	109.8	113.1	111.0	111.8	113.0
Percentage from renewable sources	*92%*	*94%*	*89%*	*23%*	*24%*	*62%*
Total produced on site	*6.2*	*3.5*	*2.3*	1.1	0.2	0.2
Production from combined heat and power unit (CHP)	6.0	3.3	2.1	0.9	0.0	0.0
Production from photovoltaic cells	0.2	0.2	0.2	0.2	0.2	0.2
Total electricity purchased	*101.7*	*106.3*	*110.8*	109.9	111.6	112.83
Electricity purchased for buildings	89.3	94.0	96.6	98.5	101.5	103.24
Electricity purchased for Walche heat pump	12.4	12.3	14.2	11.4	10.1	9.59
Heating						
Total heat consumption of ETH Zurich (net energy)	54.8	52.8	51.1	45.3	50.7	53.8
Percentage from renewable sources	*57%*	*51%*	*55%*	*43%*	*42%*	*55%*
Total heat produced (net energy)	82.9	80.7	81.9	70.7	77.9	83.1
Sale of heat to third parties (net energy)	-28.1	-27.9	-30.8	-25.4	-27.2	-29.2
Total heat produced (net energy incl. external purchasers)	**82.9**	**80.7**	**81.9**	**70.7**	**77.9**	**83.1**
District heating	16	16.7	11.7	11.2	21.6	21.8
Walche heat pump	30.8	26.4	33.9	31.5	27.3	26.3
Fossil fuels						
Gas (excl. gas for CHP electricity)	40.0	40.4	38.5	26.6	25.5	31.2
Oil	0	0	0	4.2	5.9	0.04
Non-fossil fuels						
Woodchips	0.6	0.7	0.7	0.5	0.5	0.5
From heat recovery	9.6	6.8	6.6	7.9	8.9	11.8
Losses during conversion	-14.1	-10.2	-9.5	-11.1	-11.8	-8.5
Relative amounts						
Electricity consumption [kWh/FTE[1]], excl. power for heat pum	6681.9	6391.7	6176.1	5880.7	5826.2	5780.6
Heat consumption/energy-consuming area [kWh/m2]	88.5	84.8	82.5	73.1	80.2	83.0
Total energy consumption/FTE [kWh/FTE]	10516.1	9852.7	9369.3	8554.9	8732.5	8789.4
Total energy consumption/energy-consuming area [kWh/m2]	242.6	241.5	242.0	233.9	241.1	242.6
Emissions of CO2 equivalents						
Total CO2eq emissions	23'613	23'902	25'258	23'652	25'773	26'487
Direct CO2eq emissions						
Gas and district heating	8840	8178	7806	4937	4655	5620
Oil	0	0	0	1109	2088	11
Coolants (recorded once in 2009)	n.a.	62	62	62	62	62
Indirect CO2eq emissions						
Purchased electricity	1377	1445	1462	1609	1606	1585
Commuter traffic (recorded once in 2008)	1714	1714	1714	1714	1714	1714
Business travel	11682	12503	14214	14221	15648	17495

Selected student projects / Initiatives

Imp!act Workshop	• Workshop (Imp!act) organized together with EUFORIA for the development of project ideas for a sustainable campus. Main focus for project ideas were in the field of mobility, waste and meeting places. Held in October 2013.	**imp!act: the project**
weACT	• weACT supports and motivates people in changing their everyday habits towards a more sustainable lifestyle. One campaign was conducted in 2013. A bigger campaign will be organized in 2014 – called Energy Efficiency Challenge. See more on: www.weact.ethz.ch	

e-Velolink	• Link the two Campus of ETHZ by means of electric bikes (E-Bikes) incl. a sophisticated rental system. • Our mission is to enable ETH members to commute between the ETH campuses, Hönggerberg and Central Campus, in a flexible and relaxed way.	e-VeloLink
Sustainability weeks	• Yearly Sustainability week, initiated by students of the neighboring university of Zurich. Students and institutes from ETH Zurich are now an integral part of the organization.	NACHHALTIGKEITS WOCHE

UNIVERSITY OF CAMBRIDGE **University of Cambridge: Report to the IARU Presidents' for 2013**

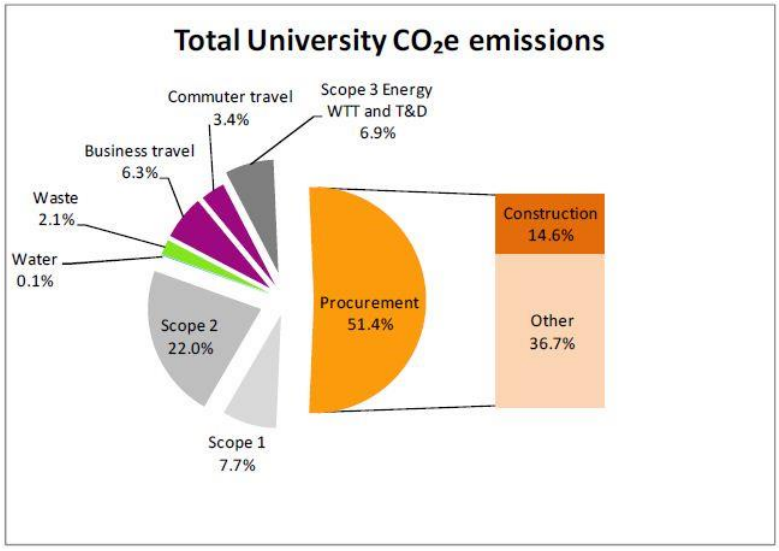
Key performance indicators

	2012-13	2011-12	2010-11
Energy consumption (kWh)	234,581,685	214,995,908	214,060,116
Scope 1 and 2 carbon emissions (tonnes)	75,755	72,462	71,017
Scope 1 and 2 carbon emissions per FTE staff and students (tonnes/FTE)	2.82	2.72	2.63
Scope 1 and 2 carbon emissions per £M of income, adjusted for inflation (tonnes/£M)	103	103	103
Water consumption (m^3)	342,106	319,370	378,071
Water consumption per m^2 (m^3/ m^2)	0.57	0.50	0.60
Total waste produced, including construction waste (tonnes)	9,114	4,416	1,998
Waste recycled, including construction waste (tonnes)	6,425	2,586	1,092
Percentage of waste recycled, including construction waste (%)	70	59	55

Carbon footprint

In 2013, the University of Cambridge commissioned an assessment of its scope 3 emissions resulting in an overall picture of the University's carbon emissions. The figures are calculated using UK Government (Defra) guidelines and based on the CO_2 equivalent (CO_2e) emissions, which include direct CO_2 and other greenhouse gases which contribute to climate change. In 2012-13, the University's total carbon footprint was 245,000 tonnes, comprising:

- Scope 1 and 2 emissions (energy use): 75,000 tonnes
- Scope 3 emissions (includes emissions associated with waste, water, business travel, commuting and procurement): 170,000 tonnes. This figure will become the Scope 3 emissions baseline to allow comparative analyses in future.



Staff commuting

The University of Cambridge is a member of the Cambridgeshire Travel for Work (TfW) Partnership. Each year, the University participates in the TfW staff commuting survey. Modal splits and comparison to other TfW employers' results are contained in the following table.

Mode	**2011 Survey Results**	**2012 Survey results**	**2013 Survey results**	**All TfW employers in Cambridge 2013**
Bicycle	41%	41%	40%	26%
Drive (alone)	24	24	26	41
Car share	8	7	7	9
Public bus	9	8	8	7
Train	6	6	6	5
Walking	9	10	10	7
Participation rate	*18*	*24*	*29*	*27*

Key initiatives

Environment and Energy Section

In May 2013, a new Environment and Energy Section was created in Estate Management to support the University's commitment to reducing carbon emissions and to encourage sustainable behaviour across academic, teaching and administrative functions. This Section, now consisting of nine members of staff, co-located the previously separate Environment and Energy offices, and made five new appointments including a Head of Environment and Energy who is a member of the Estate Management Senior Management Team. The Environment and Energy section is responsible for leading the development and implementation of a comprehensive long term sustainability policy and strategy.

Review of Environmental Policy

The University is currently reviewing its Environmental Policy as the current policy dates back to 2008 and is in need of modernising as the University continues to face up to the challenge of maintaining its global position while operating in a sustainable way. The review is being overseen by a Review Committee, chaired by the Pro-Vice-Chancellor for Institutional Affairs, and all staff and students of the University are being invited to have their say by taking part in an online questionnaire, signing up to focus groups or supplying written evidence. The outcome of the review will be an environmental sustainability policy covering teaching, research and administrative functions of the University, set in the context of sustainability in the wider sense and reflecting that the University has policies in other areas of sustainability. The committee will also decide if other, related policies such as the Travel Plan should be revised, and if new policies need to be created to complement the environmental policy. The review is due to be completed in late 2014.

Energy and Carbon Reduction Project

The Energy and Carbon Reduction Project (ECRP) was established in 2011 to support delivery of the aims and targets set out in the University's Carbon Management Plan. It is a ten year programme, with an annual budget of £2m. The driving principle behind ECRP is to explore how the University might decouple its energy use from an increase in the level and type of scientific and technical research that is undertaken at Cambridge. The University has been exploring this issue through the ECRP to date by piloting energy and carbon reduction measures across some of its most energy intensive buildings. Some examples of projects undertaken to date are:

- A web-based energy dashboard providing real-time energy data has been implemented in four departments. This may be rolled out to other large energy usage departments.
- The Gurdon Institute used the web-based energy dashboard to facilitate an energy-reduction competition between laboratories in the building. Over a 9 month period the 16 laboratories averaged a 19% reduction in energy consumption, with the winning lab achieving a reduction of 52%.
- Trialing the use of LED lighting in plant growth chambers. Trials undertaken to date suggest that fluorescent lights could be replaced with LEDs without an adverse impact on the biological parameters of plant growth.
- Installation of evaporative cooling in departmental server rooms.
- Switch Off Week in February 2013, to raise awareness and encourage staff and students to switch off lights and equipment when they are not needed and to promote energy conservation generally. A second Switch Off Week is planned for Michaelmas Term 2014.

Moving forward, the aim is to extend the reach of ECRP further beyond the pilot sites, by rolling-out successful projects and working intensively with additional departments.

EcoCampus

The University's Environmental Management System has achieved EcoCampus Silver and is progressing towards Gold certification.

Sustainable Construction

The University's Estate Strategy includes a requirement to carry out a Building Research Establishment Environmental Assessment Model (BREEAM) assessment on all new buildings of over 1000 m², with a target to achieve a rating of 'Excellent' with a minimum rating of 'Very Good' in cases where there are good and explicit reasons why an excellent rating could not be achieved. In cases where BREEAM Excellent is not achieved, the project is expected to achieve an excellent rating in the energy and carbon category and the savings made from reducing the overall target from Excellent to Very Good must be spent on additional energy saving/carbon reduction features.

Environment and Energy Coordinator Network

A new network of departmental Environment and Energy Coordinators (EECs) was launched in September 2013. Each EEC acts as champion for environmental issues within their department and as a point of contact between the Environment and Energy Section and department staff, students and senior management. The network currently has over 80 EECs.

Green Impact

Green Impact is the University's environmental accreditation scheme designed to promote, support and recognise the achievements of departments in adopting more environmentally sound approaches to their working practices. Groups of staff and students form teams and sign up to an online workbook that acts as a framework for environmental improvements. The teams aim to achieve the bronze, silver or gold awards through fulfilling a variety of clear environmental criteria. There are formal opportunities for students to get involved as Green Impact Project Assistants to help Departments through the Green Impact workbook and Green Impact Auditors. Fourteen departments participated in 2012-13 and 30 departments have registered in 2013-14. This year, a specific set of criteria was created to target environmental improvements within Colleges and 10 Colleges are taking part.

Living Laboratory for Sustainability

The Living Laboratory for Sustainability aims to improve the sustainability of the University by providing opportunities for students to use the estate to test and research real world environmental problems and at the same time develop knowledge and skills. The Living Lab provides support, resources and funding for academic projects, small-scale volunteer projects and internships.

NETpositive

Cambridge is one of five universities to pilot the NETpositive student engagement tool this academic year. Students sign up online and select generic sustainability-related statements that they identify with, such as ‘I probably waste energy in my department’ or ‘I'm concerned about where the things I buy come from’. These then combine with demographic data to create a personalised action plan for students to record and improve their sustainable actions and level of understanding.

Further information on initiatives at the University of Cambridge is available at www.environment.admin.cam.ac.uk.

University of Copenhagen: Presidents report - Sustainability activities UCPH

Energy consumption/CO2 emission reductions targets

UCPH has achieved the 1th generation Green Campus target of reducing energy consumption and CO2 emissions to a level 20% below that of 2006, measured as energy consumption per man year for staff and students.

In 2012 – one year before deadline - the CO2-emssions target was achieved and the energy efficiency target was achieved in 2013:

- CO2-emissions per man year was reduced with 29% compared to 2006.
- Energy consumption per man/year was reduced by 20,6 % compared to 2006

Energy investment projects for USD 25 million have since 2009 been identified. By 2013 the majority has been implemented. The energy savings and efficiency improvements will lead to savings of approx. USD 7.3 million annually.

The CO2-reduction and energy efficiency results have been accomplished by targeted activities:

- **Technical energy saving projects**
  The majority of investments have been directed in to laboratory buildings and activities, being the major energy consumers. The projects cover heat and ventilation systems, heat recovery, light and energy management control systems, fume hood automatics, solar panels, centralized server facilities, etc.
    - In 2013 investments of approx. USD 7.6 million was completed, leading to annual energy savings of USD 1.9 million.
- **Energy management**
  Increased focus on energy consumption in daily operations by facilities. The initiatives have particularly addressed lighting control, lowering of temperatures at night and improved control of ventilation.
  In 2013 web-based monitoring of building energy consumption for all major buildings was completed.
- **Green Action programme for energy efficient behaviour**
  By focusing on every day energy-efficient habits among staff and students, Green Action has succeeded in making a significant contribution to the total reduction. On-going campaigns and awareness raising activities addresses particularly closing fume cupboards and switching off equipment when it is not in use. Throughout the campaigns + 200 green ambassador employees and several green student teams have been involved. The annual energy savings due to improved behaviour is estimated to > USD 1 million/annually.

- **Green procurement of ULT-freezers**
  In 2013 a supply contract which integrates environmental considerations were signed with two vendors of Ultra Low Temperature (ULT) freezers (-80 Celsius/-112 Fahrenheit). The contract was conducted through a bidding process and the winners offered the lowest unit price, calculated via Total Cost of Ownership including energy consumption.
  The supply contract on ULT freezers entails a total purchase of between 50 and 100 freezers annually in four size categories. The result of energy requirements has been an average energy saving of 30 % compared to other freezers on the marked. Furthermore the offered prices are very attractive being 50% below standard market price for the offered models.

With an annual purchase of 50 energy efficient freezers instead of standard freezers, the monetary savings will be of approx. USD 2,5 million over 4 years, based on average market price and energy consumption.

- **Sustainable new buildings**
  2 mayor new laboratory buildings (46.000 m2 and 50.000 m2) and several smaller laboratory buildings are under construction or planning. All buildings are planned and constructed with considerable focus on sustainability, including 50 % reduction in energy consumption for process ventilation compared to similar buildings, green roofs, rainwater storage and use, use of district cooling, increased use of core facilities and more.
- **Seewater based district cooling for Northern Campus at University of CPH**
  Implementation on of seawater based district cooling supplied to the largest campus area at UCPH (Northern Campus) is progressing. The project is expected to reduce energy consumption and CO2 emissions related to cooling with 60-70 %.
- **Green Campus 2020 – strategy for sustainability and resource efficiency at UCPH**
  The first generation targets for Green Campus are achieved and a new ambitious strategy on university sustainability, Green Campus 2020, is under development and will be launched in 2014. The strategy will have a continuous focus on energy/CO2-reductions with ambitious targets and will widen the scope addressing more aspects of sustainability on campus, strengthen focus on campus as a living lab, increased involvement of students and staff.

Major initiatives related to research and education.

Central coordination and facilitation of activities related to sustainability in research and education is placed in the Sustainability Science Centre at UCPH. Furthermore the centre serves as a portal through which stakeholders can access the university's competences in sustainability issues. Key activities cover:

- **A cross-disciplinary PhD club** on sustainability has been initiated. The aim of the PhD club is to encourage students to build an early career network that spans different disciplines, as this is considered an important foundation for research in sustainability. The Sustainability Science Center provides the club with opportunities to engage in different events, such as media outreach activities and closed seminars with businesses and policy makers.
- **A student project bank** is being organized to give inspiration and increase the visibility of student projects in sustainability research. The project bank is expected to be launched during 2014.
- The **Sustainability Lecture Series** open for the general public and media continued successfully with 10 lectures in 2013, including **Mohamed Nasheed**, Former President of the Maldives, **Lidia Brito**, Director for Science Policies and Capacity Building of UNESCO and **Prof. Tim Jackson**, Sustainable Development at the University of Surrey.
- **Two major climate workshops** were held during 2013 in collaboration between the Sustainability Science Center and the Citizen Driven Environmental Action Program (CIDEA). One workshop was on *The Institutional Design and Response Capacity – Local and Global Challenges of Climate Politics.* The second was on *Communicating the Obvious - How climate friendly behaviour becomes a part of our everyday life* in collaboration with the partnership 'A world you like. With a climate you like', which is the European Commission's communication campaign on climate action.

Preparation for the IARU congress on Global Challenges: Achieving Sustainability

- Is on its way and a major part of the Sustainability Science Centre's activities during 2014. This is described in the separate report to the IARU secretariat.

Excerpt: Overall Performance

Each year, Berkeley tallies our progress toward our Campus Sustainability Goals[3], and we have seen significant success this year, especially on greenhouse gas reductions. We have met many of our goals and are on track to achieve others. We have also added two new areas, Economic and Social Sustainability, as part of the process to prepare the report 'in accordance' with the Global Reporting Initiative (GRI) Guidelines (Core).

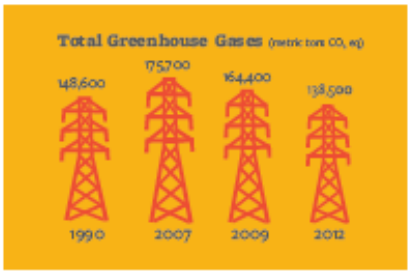
But this report isn't just about numbers. Its intent is also to share some of the interesting stories of the daily work to improve our campus operations, to engage our students and staff, and to accelerate our progress. A report of our overall performance is more complete when including the below highlights and other features included in the Report.

Energy & Climate

Berkeley meets greenhouse gas emissions reduction target

GOAL: By 2014, reduce greenhouse gas emissions to 1990 levels. Achieve climate neutrality as soon as possible. ***On Track***

Six years ago the campus set out to reduce its carbon footprint by one-third – to bring Berkeley's greenhouse gas emissions from campus operations back to the levels they were in 1990. Our most recent emissions inventory reveals that Berkeley has met this target, two years ahead of schedule. Details of the neutrality goal and a next interim target are under consideration.



The Strategic Energy Plan (SEP) completed multiple projects, including three different ones in VLSB this past year, which reduced electricity use by 2.5 million kWh – or 10% of the total reductions achieved across campus in the last seven years. How did they do it? Tuning up the building, retrofitting lighting, reducing air exchange rates, and cleaning coils – seemingly complex tasks that are the bread and butter of the SEP.

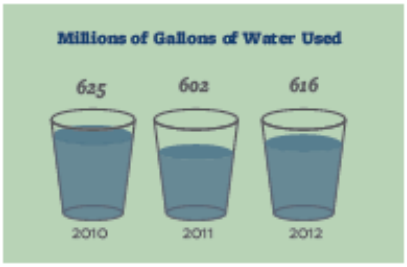
Since the launch of Energy Management initiative (EMI) in 2012, the project has achieved savings of $2.0 million – surpassing our planning estimates – and have done so while remaining 12% under budget. Hundreds of students, faculty and staff have been involved in EMI program efforts and the program has been presented at 16 state, national, or international higher education conferences.

3. The Campus Sustainability Goals and many of the key strategies for meeting them are outlined in the *2009 Campus Sustainability Plan* (July 2009); the campus recently updated the purchasing and the water reduction goals.

Water

Reductions in use led by one-third drop in residence halls

GOAL: Reduce potable water use to 10% below 2008 levels by 2020. ***On Track***



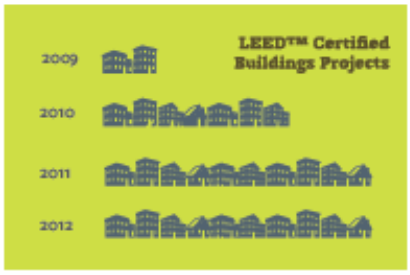
Water use in residence halls, adjusted for the number of residents, has declined by over 35% in the last ten years. While new halls have been built to address affordability concerns, efforts to install more water-efficient technologies and to encourage residents to use less water have also contributed to this dramatic and unexpected decline.

Total potable water use increased by 2.4% in 2012, but is still down 6.0% since 2008. Water use per capita has dropped by 34% since 1995.

Built Environment

New Energy Policy creates leadership for renovation projects

GOAL: Design future projects to minimize energy and water consumption and wastewater production; incorporate sustainable design principles into capital investment decisions; base capital investment decisions on life cycle cost, including the cost of known future expenditures. ***On Track***



The campus currently has ten (10) LEED™ certified building projects, representing almost 7% of total square footage. In addition, all major projects currently in the planning, design, or construction phases, are expected to be certified.

Energy Policy outlines conservation schedules and guidelines for heating, cooling, and ventilation; lighting; equipment, including computers; and construction and renovation projects. The Policy also establishes an aspirational "No Net Increase" energy goal to direct energy performance goals for renovation projects.

The renovation of 37 general-assignment classrooms in 10 buildings — Barker, Barrows, Evans, Hildebrand, Latimer, LeConte, Tan and Wurster halls and Donner Lab and Genetics and Plant Biology — targeted improvements in functionality, aesthetics and comfort, as well as sustainable features such as repurposed furniture and low/no VOC paints.

Waste

Partnerships are key to action and progress

GOAL: Achieve a 75% diversion rate by June 2012 and zero waste by 2020. ***Making Progress***

The total diversion rate for campus rose to 62%, while the diversion rate when construction waste is excluded dropped to 42%. The amount of solid waste sent to landfills by the campus went down by 4% last year, and has dropped by 28% since 1995.

Staff and environmental design students teamed up to design a trash can that excelled in all categories: waterproof, vermin-resistant, safer, and durable. With the first installation of the new bins, our campus moved another step forward in achieving zero waste by 2020.

Procurement

Purchases and reporting continue to improve

GOAL: Comply with the University of California environmentally-preferable purchasing policies and procedures. ***Making Progress***

The campus purchased at least $14.4 million of environmentally-preferable products last year. The increase – 60% in three years – is due to multiple factors, including better

reporting from some vendors, the inclusion of more vendors who now flag green products, and also increased purchases due to staff efforts and engagement.

The campus also monitors the percentage of spend on environmentally-preferable products by product category, which range from 38% for office supplies to 100% for computers.

Food

Innovation leads to new to-go containers and improved purchasing

GOAL: By 2020, increase sustainable food purchases by campus foodservice providers to at least 20%. ***Achieved***

After a successful pilot in Foothill Dining Commons last semester, Cal Dining has expanded Chews to Reuse, their reusable to-go container program, to all dining halls and to include reusable silverware and cups.

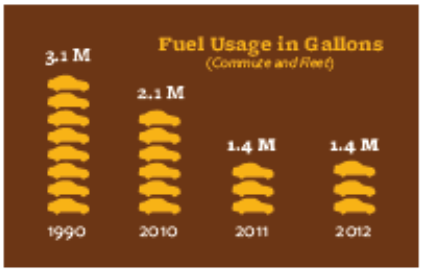
Campus vendors have increased sustainable food purchases by four percentage points to 28%.

Transportation

Fewer vehicles, fewer miles, less fuel

GOAL: By 2014, reduce fuel use by commuters and campus fleet to 25% below 1990 levels. ***Achieved***

Fuel use from fleet and commute is below 1990 levels by over 50%. In addition, the percentage of green vehicles in the fleet has risen to almost 23%, almost to the goal of having 25% by 2014.



Parking & Transportation has installed two Bicycle Fix-It stations that are free and available for the entire campus community.

Land Use

Sustainable planning helps achieve broader goals

GOAL: Plan every new project to serve as a model of resource conservation and environmental stewardship. ***On Track***

The campus is currently constructing the Lower Sproul Student Community Center, and undertaking a major planning effort for the Richmond Bay Campus. Sites all around the San Francisco Bay suffer from a history of manufacturing-related pollution, and the University's work in Richmond will address legacy site contaminants while bringing major new development to Richmond. The Richmond Bay Campus plan sets aside 25 acres for preservation of natural open spaces, including native coastal terrace prairie grasslands and marshlands.

The Strawberry Creek Restoration Program has begun to shift its focus from invasive species removal to a more comprehensive restoration approach that includes native planting. Removing invasive species without effectively establishing other desired (native) species can leave a "weed-shaped hole" that invasive species can easily recolonize. Ideally, native planting fills this "hole" with a community that supports a higher level of biodiversity.

200 redwood trees and 100 toyons were planted by 100 volunteering campus and community members. The trees were donated by the College of Natural Resources, potted by the Fire Mitigation Committee, and then grown in a lath house through the voluntarily efforts of the College of Engineering, the Lawrence Hall of Science, and Recreation Sports staff.

Across Campus

New Green Departments support community of sustainability

The Haas School of Business is one of two newly certified green departments and is the third academic partner and the first department to have students as members of their Green Team. Procurement Services is the second green department in leased space, and they are the first department to get credit for using only reused furniture. A third department, Environment, Health, and Safety, re-certified this year for the second time with a record-tying 22 points.

Campus groups, projects, and individuals have won numerous awards – ranging from a Schmidt-MacArthur Fellowship to Recyclemania to Best Overall Design for the Maximino Martinez Commons.

There have been 130 certified green events, with almost 39,000 attendees; over 35% were student-run events, with 75% offering composting and 61% offering sustainable food.

Academics and Learning by Doing

Documenting sustainability courses and research

In 2012-13, 26% of undergraduates took at least one course focused on sustainability. The campus offers over 500 sustainability courses, of which 240 are directly focused on the subject. There are at least 200 faculty engaged in sustainability research in almost half of the departments on campus.

Economic Sustainability

Foundational role in building California

38% of Berkeley undergraduates received a Pell Grant (compared to 17% for the Ivy League as a whole) and 25% are first generation college student with neither parent having a four-year college degree.

As of June 2012, Berkeley owned 2,493 total active inventions and 641 active U.S. patents.

Over 3,500 UC Berkeley graduates have enlisted in the Peace Corps, more than any other university.

Social Sustainability

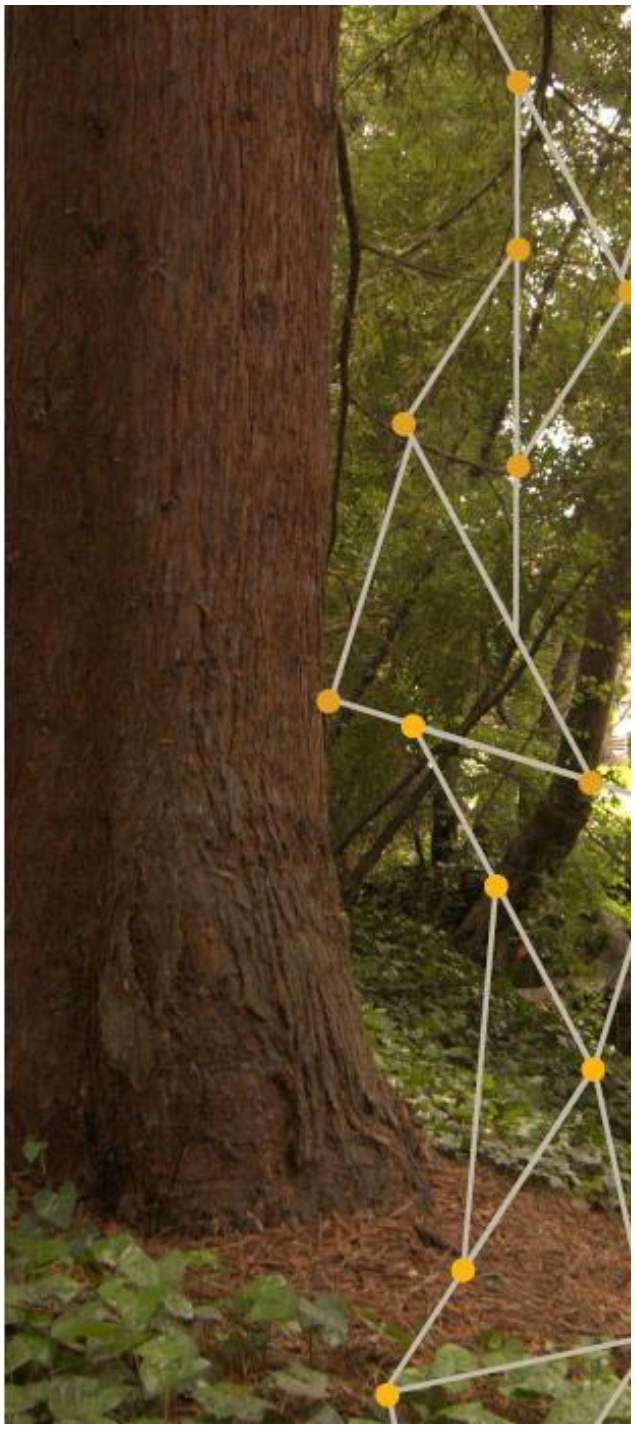
Staff and students matter

University Health Services (UHS) provides programs such as Health*Matters wellness program, with a vision of "a healthy campus community that is an inspiring place to learn, work and live."

The new Berkeley Catalysts program offers a unique professional development opportunity for promising campus staff from units across campus. Catalysts will attend nine learning labs aimed at honing their leadership and organizational improvement skills in service of excellence in administration and operations, followed by three months of coaching and implementation.

The campus maintains a diversity website which compiles information on the work of the Vice Chancellor for Equity and Inclusion, the Campus Climate Survey, the Berkeley Principles of Community, and other related efforts, including academic initiatives and related resources.

87% of students agree (somewhat agree, agree, or strongly agree) with the statement "Knowing what I know now, I would still choose to enroll at this campus."



Australian National University: 2013 Annual Report to the IARU

Environmental Management at the Australian National University

INTRODUCTION

Sustainability initiatives at ANU are guided by our Environmental Management Plan (EMP) which sets ambitious sustainability targets. The structure of the EMP provides a strategic approach to environmental best practice initiatives focussed in four areas: people (community), place (campus), performance (management) and integration (of operational and academic activities).

Targets include a 35 per cent reduction in energy use and greenhouse gas emissions by 2020; a 50 per cent reduction in potable water use by 2020, including removing all potable water use from the landscape by 2015, and maximising sustainable transport by significantly increasing green commuting and minimising single-occupant vehicle trips. In addition, strategies have been implemented to continually reduce pollution risk, protect and enhance biodiversity values, establish sustainable procurement procedures and design environmentally efficient buildings.

ENERGY & GREENHOUSE MANAGEMENT

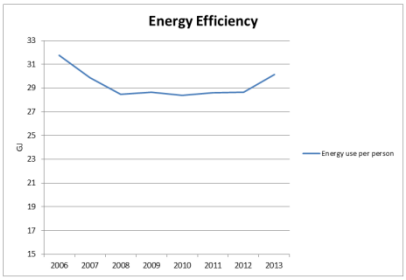
2015 Targets	Progress at December 2013
Reduce energy use by 20%	Total energy 21% higher than 2006
	Energy use per person 5% lower than 2006
Neutralise greenhouse gas emissions by 20%	Total emissions 17% higher than 2006
	Emissions per person 8% lower than 2006

Rising Energy Demand

The demand for energy has grown considerably since 2006 as the campus population has grown and a number of new buildings have been constructed. This has resulted in a significant increase in spaces which require comfortable temperatures, adequate lighting and computers. Most of these new buildings are energy-intensive research facilities with labs and technical equipment requiring significant amounts of energy to operate. For example, the University's new high performance supercomputer, the National Computational Infrastructure facility, consumes approximately 1 million kWh of electricity per month, the equivalent to ten Chifley Libraries. However, without the commitment to efficient design and operation, the increase in energy consumption resulting from new facilities would have been considerably greater.

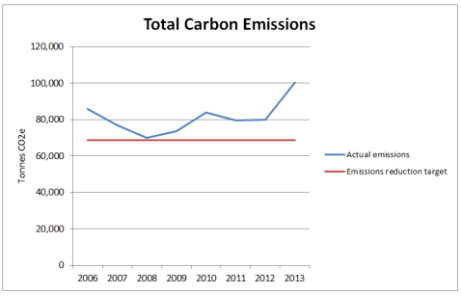
Improved Efficiency

Despite growth in both the building footprint and population size, overall energy efficiency of the Acton campus has improved. Through improvements to building efficiency and greater levels of energy-conscious behaviour, energy consumption per capita has decreased by approximately 5% since 2006.



Carbon Emissions

The purchase of external carbon offsets was postponed in 2013 in order to direct a greater proportion of available funds towards internal efficiency measures. This should serve to decrease long-term energy consumption and emissions. In the short-term however, the impact is that emissions are not curbed as significantly for 2013 as they would have been with the purchase of external offsets.



Initiatives:

Campaign to Reduce Energy and Water (CREW)

CREW provides the framework for a two year scheme to reduce energy and water costs by 10% in 2014 and again in 2015 (on the previous year's baselines). The cost savings will be realised through efficiency measures and infrastructural upgrades. The 2013 phase of CREW concentrated on a cross-campus assessment of energy and water saving opportunities and the development of an action plan. This multi-faceted strategy involves:

- A sustainability dashboard to monitor real time consumption of gas, electricity and water.
- Additional metering and improved monitoring of energy and water usage.
- A program of efficiency upgrades and building tune-ups across campus.
- A community engagement campaign encouraging staff and student participation.

Sustainability Dashboard

The new Sustainability Dashboard system will allow facility managers and the campus community to view real time consumption data for gas, electricity and water. Facility managers can select from a range of reports and tools to analyse consumption data over selected timeframes in order to identify energy wastage and opportunities for savings. Monitor displays in the foyers of fifteen buildings across campus will enable staff and students to easily view how their building is performing and will provide information and encouragement to assist in reaching energy reduction targets.

Thermal Comfort Policy

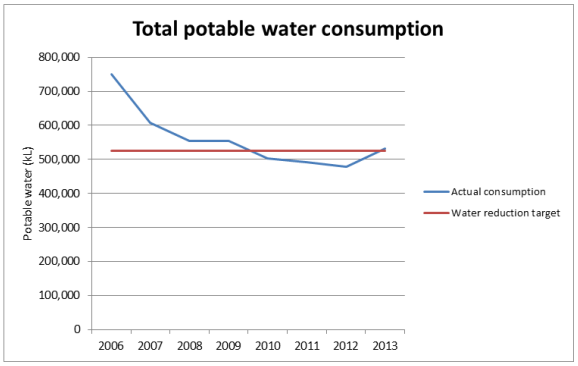
A new ANU policy sets indoor temperature settings for ANU buildings. The policy aims to ensure that indoor comfort is maintained while the energy required to heat and cool work and study environments is reduced. A key component of the new policy is widening the temperature range settings in buildings and applying winter/summer bandwidths so the heating and cooling systems don't have to work as hard to maintain a constant temperature all year round.

WATER

2015 Targets	Progress at December 2013
Reduce total water use 30%	Total water use 29% lower than 2006
	Water use per person 44.5% lower than 2006
Eliminate potable water from landscape irrigation	Potable water use for irrigation 55% lower than 2006

Water Efficiency Management Plan

The first iteration of a plan for reducing water consumption was completed in 2013. The plan sets timeframes for the connection of additional metering and a series of infrastructure audits which will enhance the understanding of how water is used across the campus and where the most cost-effective savings can be made. The plan also identifies priorities for the implementation of water–saving measures based on predicted costs, benefits and feasibility.



Rainwater harvesting and storage

The University has been progressively installing new rainwater storage tanks to capture water for reuse in toilets and landscape irrigation. The Acton campus now has more than 1.75 million litres of rainwater storage capacity.

SUSTAINABLE LANDSCAPES & BIODIVERSITY

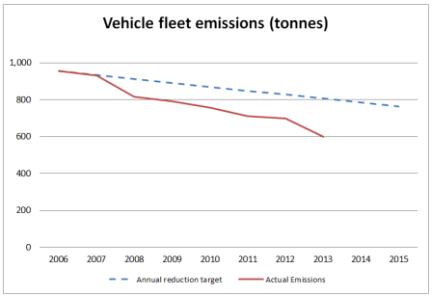
The *ANU Biodiversity Management Plan* aims to meet the University's obligations under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999. It identifies, assesses and provides rigorous management requirements for campus biodiversity and proposes future opportunities for enhancing biodiversity across campus.

SUSTAINABLE TRANSPORT

A comprehensive *Sustainable Transport Plan* was developed to provide strategic direction to reduce the environmental impact of transport. The plan provides an overview of past sustainable transport initiatives, progress to date towards the University's targets and a summary of the major challenges to be overcome in the next five years. It also outlines an implementation strategy with a range of initiatives aimed at enhancing the attractiveness and feasibility of sustainable transport modes for campus commuters.

Vehicle fleet emissions

Carbon emissions from the vehicle fleet dropped by approximately 14% on 2012 levels, following the trend of consistent annual emission reductions since 2006. Analysis of fuel consumption and vehicle mileage data indicates the primary driver of the emission reductions has been an overall reduction in mileage, suggesting that staff are choosing alternatives to driving more frequently.



COMMUNITY ENGAGEMENT

Green Leaders

The Green Leaders program aims to empower facility managers and other key stakeholders from across the University to play a role in delivering measurable sustainability outcomes by identifying opportunities to improve the efficiency of their facilities and operations. The Green Leaders program provides training and support in project scoping, planning and delivery with the aim of achieving cost savings, efficiency gains and reduced maintenance.

Green Key iPhone app

2013 saw the launch of the Green Key iPhone app. The app is designed to assist residents of ANU halls and colleges to self- evaluate energy and water consumption in their rooms. In a simple and user friendly format, the app collects data about lighting, electricity, heating and water use and then generates a mark (high distinction, etc.) to reflect the student's monthly energy and water usage score.

ANUgreen sustainability video series

These informative, yet tongue-in-cheek videos offer an overview of ANU campus sustainability initiatives and provide tips on how to reduce energy and water consumption while working or studying at ANU. Edgy and fun, they convey sustainability messages in a highly memorable way.

Celebrate Sustainability Day and Earth Hour

A day-long festival in Union Court introduces staff and students to the range of sustainability programs and achievements of the University and local community groups. Celebrate Sustainability Day includes live music, free food, prizes and a range of market style stalls featuring local environmental groups and initiatives. Earth Hour is a family-friendly ANU event that includes live music, cultural performances, star gazing and multicultural food stalls and a BBQ in Chifley Meadow.

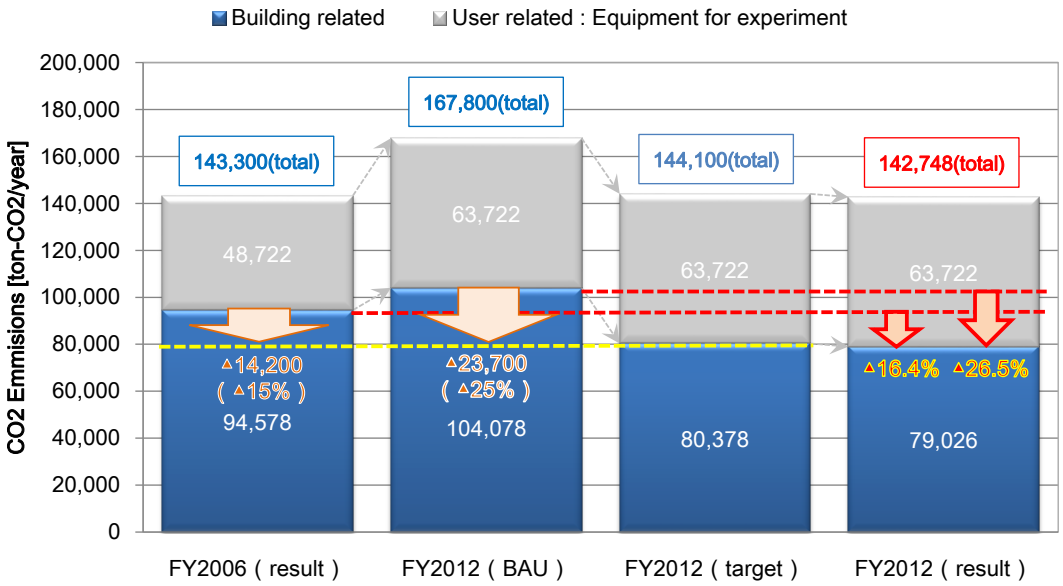
BUILT ENVIRONMENT

Green Star certification

The Frank Fenner Building was awarded a 6 Star Green Star rating for *Design* and in 2013 was awarded a 6 Star Green Star rating for *As Built* under *Green Star - Education*, which is commensurate with "World Leader" in sustainability. The Frank Fenner building is now one of only two buildings in Australia to have achieved this dual six star rating.

1. TSCP2012 Achievements

CO2 emissions in FY2012 were 142,748 [ton-CO2/year]. CO2 emissions from non-experimental sources were under target, even after accounting for an increase following an expansion of the scale of activities (increase of floor space and experimental facilities).



(Conversion efficient: 0.368 kg-CO_2/kWh for electricity; 2.31 kg-CO_2/nm^3 for city gas; 2.71 kg-CO_2/l for heavy oil)

Figure Achievement 2008-2012

2. Measures and effects of TSCP to date

Table Major Measures and effects of TSCP

	Major Measures of TSCP	CO2 Reduction [t-CO2/year]	Utilities Cost Reduction [1,000 yen/year]
2008	Replaced facility light fixtures (fluorescent lighting) Increased efficiency of heat sources at the University of Tokyo Hospital (First phase)	4,356	193,598
2009	Increased efficiency of heat sources at the University of Tokyo (Second phase)	1,699	75,510
2010	Increased efficiency of heat sources at the Faculty of Engineering Building	2,073	92,132
2011	Increased efficiency of heat sources at other major faculty buildings Replaced air-conditioning systems at major faculty buildings	3,315	147,332

2012	Consolidated and updated non-experimental refrigerators	437	19,422
2013	Renewed heat storage tanks at the University of Tokyo Hospital	556	24,711
Total		12,436 (annual total) 54,298 (accumulated total)	552,705 (annual total) 2,413,217 (accumulated total)

3. Future agenda

TSCP 2030 : Reduce CO2 emissions by 50% (FY2006 is taken as the baseline).
Toward achievement of TSCP2030, it determines middle aim (TSCP2017) and examines directionality for 2030 while throwing in the trial-like action.

Figure Action contents for TSCP2017

4. Planned Introduction of Building Energy Management System (BEMS)

In addition to the hardware measures taken so far, the TSCP Office launched a study in FY2013 on developing BEMS to improve the management of operations. BEMS will enable us to inspect the status of energy use accurately, and to keep facilities and equipment at the optimum level of operation required. Energy savings and CO2 reductions can be further promoted under the system. If the planned introduction of BEMS can take place at the time of new construction and/or large-scale renewals of buildings, initial costs can be substantially reduced. We will, therefore, actively consider introducing BEMS whenever there are relevant renovation projects.