

University of St Andrews 2010/2011

Climate Change Report

The University of St Andrews is committed to reducing its carbon emissions and to responding to climate change. The University has undertaken 111 green projects to date that over their lifetime will save 7,700 tonnes of CO₂. The following report illustrates progress made in reducing carbon emissions in the areas of energy, travel, waste and water use, and how the University has tackled building and land use adaption to cope with climate change.



University of St Andrews

Renewable Energy Generation and Energy Consumption

Renewable Energy: Solar Thermal and Ground Source Technology

The University has installed a series of solar thermal panels on the new David Russell Apartment blocks to heat hot water. These panels generate 45,000kWh of heat, saving **10 tonnes** of carbon emissions annually.



Solar thermal panels at David Russell Apartments

Energy

The University has a Carbon Management Plan that outlines a three part strategy to reduce carbon emissions, comprising of investing in energy efficiency, influencing behavior change and developing renewable energy. Currently, solar PV panels and a ground source heat pump are in place, and plans for a wind farm have been submitted to Fife Council. Future plans for the creation of an energy centre at the former Guardbridge paper mill are being developed.

**Future Target:
Carbon Neutral by 2016**

Salix Fund

The University has emerged as the leading public sector body in the UK in 2010/2011 for the value of projects designed to save energy and cut carbon emissions, according to Salix Finance, an offshoot of the Carbon Trust. The University of St Andrews' Salix Fund is an award-winning energy fund through which the University has so far invested £1.9 million to a variety of energy saving initiatives.

40 solar thermal panels have been installed at the New Medical Building and 27 panels have been installed at New Hall to heat hot water.

In addition, a ground source heat pump has been installed at the University Museum (MUSA) which saves **4 tonnes** of carbon per year.

Renewable Energy Plans: Kenly Wind Farm



A computer generated impression of the proposed wind farm at Kenly

The University of St Andrews is seeking planning permission for a 12 megawatt wind farm on farmland it owns at Kenly Farm, by Boarhills, following a three-year process of research on-site and discussion and consultation with representatives of local communities. This project is a vital component of the University's strategy to offset the rapidly rising costs of energy. The six proposed turbines at Kenly are estimated to be capable of generating enough renewable energy to power the equivalent of 8,500 typical domestic properties in Fife, saving **18,780 tonnes** of carbon.

Timescale: Pending Planning Decision

Link: <http://planning.fife.gov.uk/online/applicationDetails.do?activeTab=suimary&keyVal=LLSZUUHF0G600>

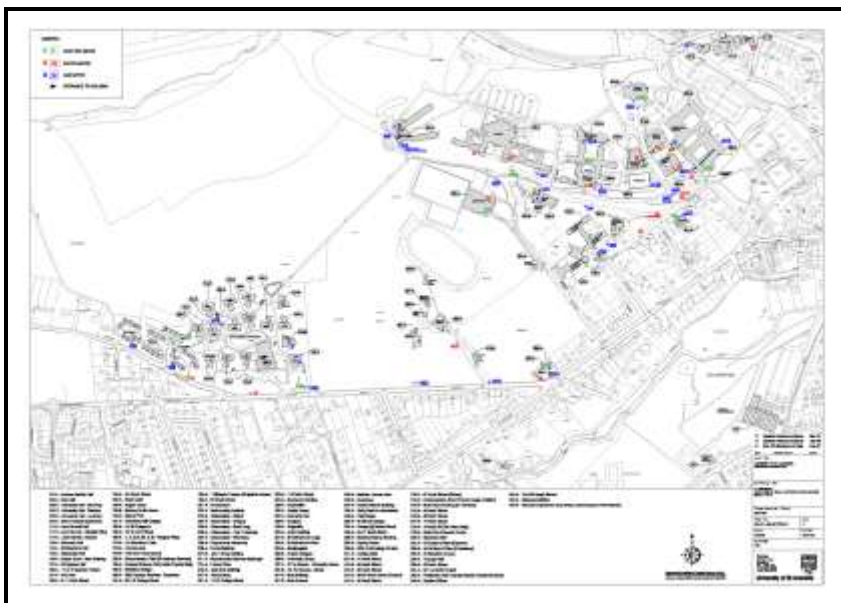
Renewable Energy Plans: Guardbridge Energy Centre

The installation of a biomass CHP energy centre at the old paper mill at Guardbridge is under consideration. This project is still in the early stages of development, but is projected have a 45% reduction in current CO2 emissions and will save **12,000 tonnes** of carbon.

Timescale: 2013

Energy Consumption: Metering

The University of St Andrews is taking measures to automatically meter energy consumption throughout the campus, in academic buildings as well as in halls of residence, to better understand energy use, inform energy decisions, and effect behaviour change.



Locations of meters throughout the University buildings

For example, a smart meter system at the new Fife Park Apartments will measure energy consumption at the scale of single apartments and allow residents to view their, and their neighbours', daily energy consumption on TV monitors in apartment block entrances.

Estates Environment Team

The University Estates Department has an Environment Team that looks after the energy, waste and transport needs of the University. In addition, they work to protect biodiversity and open space on and around University grounds, support Fairtrade, and advise the University on environmental policies and issues. The Environment Team has been awarded funding from Santander Bank to employ a Sustainability Intern for 3 years. The Environment Team also supervises the work of a 2 year Graduate Engineer Scheme.



Transition University of St Andrews

A group of students and staff at the University has been recognised for its innovative ideas to tackle climate change at a local level, with a funding award of £90,000 from the Scottish Government. This Climate Challenge Fund money is funding three full-time staff at the University to run various carbon reduction projects, mainly centred around behaviour change, that aim to save 400 tonnes of CO₂ by March 2012. For more information visit:

www.st-andrews.ac.uk/transition

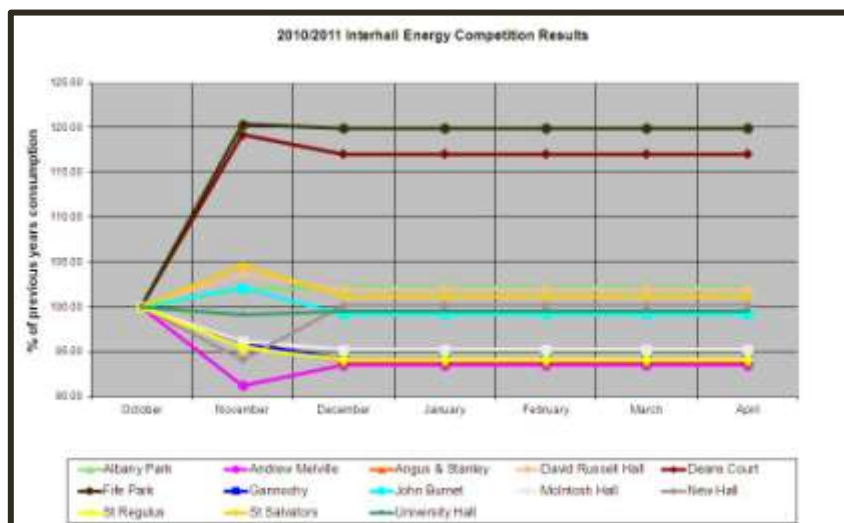
Energy Consumption: Appliances



All new appliances at the University, such as washing machines and dishwashers, are energy star rated.

Energy Consumption: Interhall Energy Competition

An Interhall Energy Competition has been running at the University since 2006/2007. This competition aims to encourage students to take actions towards reducing their energy consumption in halls of residence. Monitoring has revealed that over **45 tonnes** of CO₂ have been saved.



Results of 2010/2011 Interhall Energy Competition

This year, Transition University of St Andrews is revamping this competition to increase awareness, participation and results for carbon reduction in halls of residences across the University.

Transport and Fuel Consumption

Bike Projects

Pool Bikes



University Pool Bikes

The University Environment Team operates a fleet of pool bikes which are available for use by University staff. This is one part of a strategy for developing improved travel opportunities in St Andrews and reducing the environmental impacts of transport at the University.

These bikes are refurbished and branded by the social enterprise Bikeworks and allow staff members to cycle while at work.



University Branding

University Travel Plan

The University has developed a Travel Plan which outlines a planning strategy for developing improved travel opportunities around St Andrews in order to lower the carbon impact of University related travel.

This commitment to sustainable travel can be seen in the University's wide range of transport choices through developments and initiatives, including improved parking, new cycle facilities, safe cycle routes and footways, car share scheme, bike to work initiatives, and low carbon pool car fleet.

Sustainable Development Program and St Andrews Sustainability Institute

The University of St Andrews' Sustainable Development program is a pioneering, award-winning academic curriculum that takes an innovative, interdisciplinary approach to teaching. The St Andrews Sustainability Institute is a world-class research institute dedicated to knowledge transfer, research and teaching. As a result, the University has become a hot bed for sustainability thinking and research.

Bike to Work Scheme



Bike to Work Group

Results from a tri-yearly travel survey indicates that there has been a steady decrease in the percentage of staff who travel to work by car since both the 2002 and 2006 survey. These surveys also indicate a subsequent increase in the percentage of staff that travels to work by bike, bus or walking.

The Bike to Work Scheme was launched in 2009, allowing staff to hire a bicycle as a no-carbon commuting option. Events such as Bike to Work Breakfasts and maintenance sessions raise awareness and support.



Bike to Work Session

Bike Uplift and Recycle Program

The University has developed an abandoned bike policy that aims to reduce the number of abandoned bikes left around the campus, especially at the end of term, and to return serviceable bikes back into use. Abandoned bikes are tagged and collected by the University Parking Attendants, and are then serviced and refurbished by the social enterprise Bikeworks. Bikeworks holds a yearly recycled bike sale to students. To date, several hundred bikes have been uplifted and put back into circulation.



Bikeworks



Bikeworks



Bike Sale

Pool Cars and Electric Van

The University has a fleet of pool cars comprising of 4 Toyota IQs which produce just 99g/km carbon dioxide emissions and boast fuel efficiency of 65.7mpg.

They are in Vehicle Excise Duty Band A, meaning they are zero rated for tax. In addition, the University has an electric van that the Grounds department uses for daily work around campus.



Toyota IQ Pool Car

Waste Minimisation

Reuse

The University is committed to waste minimisation across all areas of business. Waste is seen as a valuable resource not destined for landfill and therefore a primary concern is to increase the amount of waste



St And Re-Use

that can be reused. In the past year, the University has reached 5% reuse rates. This takes the form of the abandoned bikes policy, charity donations of student goods from end of term clear outs, and a furniture reuse program.

In addition, a student initiative called St And-Reuse is working to collect student household goods that can be reused within the student community. In 2010, 5 tonnes were diverted from landfill and reused through St And-Reuse.



People and Planet Green League First Class Award

In 2011, the University was awarded a First Class for the People and Planet Green League Award. This recognises the innovative and wide-ranging steps that the University is taking to reduce its carbon footprint and be a leader in higher education green practice. Notable categories which set St Andrews apart include ethical investment, environmental staffing, carbon management, and curriculum.

Recycling

The University has an extensive recycling program that recycles a huge range of items, including: paper, plastic, cardboard, glass, wood, mattresses, computers, printers, TVs and other electronic equipment. Since beginning in 2004, the University recycling program has achieved a rate of 60% recycling in 2010-2011. In addition to the reuse rate, this means that only 35% of the University's waste currently goes to landfill. This impressive recycling rate is made possible by the dedicated staff involved, from the cleaning staff, janitors, the University's very own Recycling Team and the Environment Team. In 2010, the recycling points around campus were consolidated meaning that the Recycling Team has to make fewer stops, reducing the fuel consumption of the recycling vans.



Recycling Process

Food Waste

The University has an in-vessel composter that composts all of the raw fruit and vegetable waste that is produced at the University. In 2010, 'Hamish' the composter processed 4 tonnes of food waste. Raw fruit and vegetable waste is collected by the Recycling Team and taken to the Grounds department to be processed. The product of the composter is then used in planting on the University Estate, including in the University Community Garden.



Boreholes

There are two boreholes at the University from which water is extracted for plant irrigation and for the maintenance of University grounds. The University is allowed to extract 10 cubic meters per day. These on-site boreholes are a sustainable water source that helps to offset the water use at the University.

Water Use

Water Coolers

The office bulk bottled water coolers throughout the University are being replaced with mains water chiller units. Bottled water is transported in plastic, whereas Blue Direct pumps water straight from the mains. This change has saved the University a significant amount of money, as Eden Springs was costing £20,000/year and Blue Direct mains chillers costs £70/year. The switch saves **3.7 tonnes** of carbon per year through cutting out road miles in transport and plastic bottle containers.

Urinal, Toilet and Tap Water Usage

Across the University, automatically flushing public urinals, with ExOr Controls, have been installed. Many public toilets are low flushing, modern 6-litre cistern toilets. In addition, public taps are self-closing with a flow rate of less than 8.5 litres per minute and an average of 6 litres per minute.

Greywater

The University is testing using greywater in the New Medical Sciences Building, where construction was completed in 2010. Here greywater from the roof is used to flush the toilets. Water consumption is monitored and publically displayed.

Building Infrastructure

Green Roof and Rainwater Management

The University has installed a green roof on the David Russell Apartments main building in 2009. This form of green stormwater management is helping to reduce rainwater runoff from the building, and so is an approach to adapting the building infrastructure to cope with climate change. The University is proud of the oystercatchers which nest on this roof.



Green Roof at DRA



Across the University, all new buildings since 2010 are designed to BREEAM Excellent standards. This building certification is a leading design and assessment method for sustainable buildings that includes a wide range of environmental standards including energy efficiency, construction materials, water use, waste and more. This ensures that all new infrastructure at the University is designed to the highest green standards and to adapt to cope with climate change. BREEAM Excellent certificates have been achieved for DRA blocks and New Medical Building.

The Green Tourism Business Scheme

Green Tourism Business Scheme

The Green Tourism Business Scheme (GTBS) is a Visit Scotland venture that awards members that have demonstrated a firm commitment towards reducing the impact of their business on the environment. Two Halls of Residence at the University, David Russell Apartments and New Hall have been awarded a Gold Award by GTBS.

Water Surface and Floodwater Management

Several projects across the University have been put in place to manage water through greener design, in an approach to adapting building infrastructure to cope with climate change. These projects include greywater use at the New Medical Building and, in particular, a sustainable urban drainage system (SUDS) at David Russell Apartments. This SUDS manages rainwater on the development, attenuating it prior to discharge to the receiving water course.



SUDS at David Russell Apartments

Land Use Practices

Reducing Carbon Emissions: Use of Peat

The University Grounds Department has been reducing the amount of peat used on the University Estate and aims to be completely peat free. In 2007, peat usage was estimated at 20% and today it is 5%.

Adapting to Climate Change: SUDS

The installation of SUDS around the University manages water in an attempt to adapt to climate change. While currently only at one location, the University plans to SUDS in future developments.

Biodiversity

The University is supporting biodiversity work across the estate. Multiple baseline biodiversity surveys have been completed for many sections of the University grounds to establish current conditions and to scope out future possibilities for biodiversity work. This work is helping the University to develop an official biodiversity plan for the estate to create a strategy for encouraging and protecting certain species and habitats.



Biodiversity Map of the North Haugh

In addition, the University has been working with Fife Coast and Countryside Trust to coordinate plans for landscape development across the University estate with FCCT's Local Biodiversity Plan for the area. In this sense, the University is aiming to develop a localised biodiversity plan that augments regional biodiversity plans.

Bees and University Apiary

In 2010, the University established its first bee colony on University grounds. This apiary was established with the support of the Fife Beekeeping Association to protect and encourage this threatened species. The purpose of this apiary is to help deliver a sustainable bee population, to produce high quality honey and to enable researches to make behavioural and ecological observations. The University plans to establish another colony on a new site in 2011/2012.

Environment Team

Roddy Yarr

Environment and Energy Manager: Roddy manages the Environment Team, working on strategy and sustainability policy for the University. He oversees all of the big projects that the team is working on, such as the 6 turbine, 12 megawatt wind farm at Kenly and looking into the biomass CHP plant at Guardbridge. In addition, Roddy engages with the University governance and the local communities on any and all environment and energy developments.

To Contact Roddy, email him on: try@st-andrews.ac.uk

David Stutchfield

Energy Officer: David develops and implements monitoring, targeting and reporting procedures for energy management for all of the energy and electricity needs of the University. He is in charge of keeping efficiency high and carbon emissions low, from installing solar panels on the roof of New Hall to developing smart metering of energy consumption at Fife Park.

To contact David, email him on: ds51@st-andrews.ac.uk

Barbara Aitken

Environment Officer: Barbara is in charge of waste management, travel, and biodiversity at the University. This year, she spearheaded the achievement a 65% recycling rate across the University. Constantly coming up with ways for us to be greener and reuse, Barbara oversees our innovative bike reuse schemes, and works closely with Grounds and our own Recycling Team.

To contact Barbara, email her on: baa21@st-andrews.ac.uk

Lucy Arndt

Sustainability Intern: Lucy is a recent graduate of the Sustainable Development undergraduate program at the University of St Andrews and the newest addition to the team. She works on outreach, communication, awareness raising projects such as a Sustainability in Practice mini film series, report writing and generally assisting the rest of the team.

To contact Lucy, email her on: lea24@st-andrews.ac.uk