

## Reducing energy use and carbon emissions

Targeting a **33% reduction in direct CO<sub>2</sub> emissions by 2020**, the University is implementing a wide range of actions to lower energy consumption in its buildings and operations. Many projects, listed in our [Carbon Management Plan](#), have already been identified to help us achieve an **early reduction in emissions of 25% by 2014**. Since the Carbon Management Plan was approved in April 2010, we have taken a variety of approaches to reduce emissions, including:

**Using Improved Technology** - substantial energy savings can be made by employing new technology. We are installing the latest occupancy sensing electronics in classrooms and lecture theatres, to automatically switch off lights and minimise power use when rooms are empty. A programme of replacing inefficient tungsten lighting and older fluorescent fittings is proving very effective in providing savings. New generation LED lighting has replaced energy-intensive halogen spotlighting in most areas - our main Andrews Foyer was the first project to employ LED lamps on a large scale. Over 300 halogen units were replaced, reducing energy consumption of the area by 90%. The new lamps have a greatly extended lifespan, resulting in the added bonus of reduced maintenance and improved appearance. Established technologies such as heat exchangers, variable speed drives and voltage optimisation are also beginning to contribute to energy savings at Solent, especially when coupled to improved controls.

**Improving control** - the best way we can reduce energy consumption is to avoid unnecessary and wasteful use. At a local level, everyone can help by switching off unnecessary lights, computers and appliances when not in use, and our Green Impact and Student Switch off schemes aim to raise awareness in this area. We are also investing heavily in our BEMS (Building Energy Management System) which is helping us to take greater control of heating, cooling and ventilation. This can result in major energy savings - bringing our refectory and sports hall air handling units onto the BEMS has already reduced consumption in these areas by around 50%. Further automated controls on heating, cooling and lighting are gradually being introduced. Controlling the use of air conditioning is particularly important - a medium-sized "aircon" unit can use up to 100 times the energy consumed by a simple desk fan, and whilst there are situations where aircon is essential, it is very important to avoid unnecessary use. Wherever possible, we must consider the low energy options to provide a comfortable environment.

**Installation of insulation, lagging and draught proofing** - we need to make the best use of the heat that we put into our buildings in colder weather. Much of the heating provided at the main University campus comes from Southampton's district heating scheme, which benefits from a low "carbon emission factor", and we have provided extensive additional insulation or "lagging" to over 1 kilometre of heating pipes around the East Park Terrace site. Opportunities have been taken to

provide additional insulation above ceilings and in roof spaces and to reduce heat loss by installing additional doors in main thoroughfares and long corridors. A programme of insulating walls and stairwells is also underway.

**Improving measurement** - the Carbon Management Plan was the University's first attempt at defining its Carbon Emissions "baseline" and setting targets for reduction. Direct emissions coming from the heating, lighting, cooling and water usage of our buildings are now being measured more accurately than ever, with a continued programme of investment in automatic metering (AMR). This is essential in providing the information to identify areas of unnecessary and excessive use. We also need to take into account other ways in which the University impacts on the environment, and we are now improving the collection and use of data in areas such as waste, transport and travel. CO<sub>2</sub> emissions from waste and travel present some of the most promising opportunities for substantially reducing our Carbon Footprint.

**Better utilisation of buildings** - we currently use large amounts of energy to heat, light and cool areas that are unoccupied, particularly during evenings, weekends and holiday periods. Improved room and building timetabling can have a significant effect on energy use. We are now monitoring more closely the way we utilise buildings, especially in off peak periods, and improved energy metering is highlighting areas that need closer investigation.

**Raising awareness** - we have run a number of "behavioural change" initiatives in the past two years, to increase awareness and generate interest amongst staff and students. Many students have participated in the [Student Switch Off campaign](#), with teams in the Halls of Residence competing for prizes for achieving energy reductions. All members of staff are encouraged to join the [Green Impact programme](#), which soon begins its third year. The University had its first ever [Green Week in February 2011](#), with a wide range of activities taking place involving students and staff across the whole Campus. The week was a great success and we are looking forward to an even bigger event next year!

The help and assistance of all on campus is essential in achieving our targets, and staff, students and visitors to Solent are welcome to put forward ideas and suggestions by contacting the Environmental and Sustainability Manager, [martin.walton@solent.ac.uk](mailto:martin.walton@solent.ac.uk)