

# Energy Newsletter

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This is the third issue of the *Energy Newsletter*. This newsletter is produced by Facilities and Services on an "ad hoc" basis (that is, when there is information worth sharing) and its purpose is to keep areas informed about a range of issues, including the status of the energy contract and energy conservation initiatives being undertaken by this and other Divisions.

The Division's contact for the newsletter, as well as energy contracting matters, is Bart Meehan. Bart is also the officer responsible for coordinating the implementation of the ANU Environmental Management Plan ([ANUgreen](#)), which includes a number of energy conservation objectives. Bart can be contacted on ext. 54148 or 0416 249 758 or by [email](#).

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## Energy Use in 2001

In 2001 the ANU Acton Campus consumed 61,828 MWh of electricity costing just under \$4 million dollars. This was a 1.7% increase on electricity use in 2000. Total gas consumption was 148,082 GJ in 2001 and cost just over \$1 million. This was an increase of 10% on 2000 consumption.

In 2001 student numbers increased from 2000 by just over 1% and the ANU completed several new buildings on the Acton campus. Also, several electric heating systems were converted over to gas, leading to the substantial increase in gas usage. The ANU has several large construction projects planned over the next few years that will increase the energy usage for the campus. Ongoing energy management activities will hopefully curb this growth in energy use.

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## Appointment of an Energy Conservation Manager

In April the University appointed Warren Overton as Energy Conservation Manager, working in the Facilities and Services Division. Warren has been working as an energy management consultant for the last few years and previously worked in the Australian Greenhouse Office on programs such as the Greenhouse Challenge.

Warren will have a broad range of responsibilities in this new position, covering both energy (electricity and gas) as well as water consumption. Key activities will include assisting areas develop comprehensive sustainability action plans as well as providing general advice and assistance on new construction, refurbishment and equipment replacement. If you have any queries regarding energy or water management at the ANU you can contact Warren on ext. 58974 or 0412 299 195 or by email [warren.overton@anu.edu.au](mailto:warren.overton@anu.edu.au).

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## **ANU receives Australian Greenhouse Office (AGO) grant for commercial solar concentrator system**

Researchers from the ANU in partnership with Solarhart Industries have received a \$1,000,000 grant from the AGO to commercialise the Combined Heat and Power Solar (CHAPS) concentrator system. This system is suitable for the generation of electricity and hot water. The system is based on sun-tracking mirrors that reflect light onto a receiver lined with solar cells. This concentrated solar energy produces electricity and the balance is converted into heat that is removed by water flowing behind the solar cells. It is proposed to install a large demonstration system on the roofs of three buildings at Burton and Garran Hall by early 2003. The system will have a 265kW (electrical and thermal) capacity and will be backed up by three gas-fired boilers.

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## **Leaving windows open in winter**

Having the ability to open the windows in your office area for a bit of fresh air or to help adjust the room temperature is a convenience during the day. But it should be noted that if the windows are not shut overnight the room will cool dramatically and require a lot more energy to bring back to temperature the next day. Please remember to shut windows when you leave your office as it saves energy and keeps the room warmer. Further information on heating tips may be found at [http://www.anu.edu.au/facilities/anugreen/office/heating\\_radiators.html](http://www.anu.edu.au/facilities/anugreen/office/heating_radiators.html)

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## **Computer Energy Consumption**

The ANUgreen Team recently logged the energy usage of a desktop PC to determine energy usage levels in different operational modes. The results are as follows.

17 inch monitor (running)	66 watts
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17 inch monitor (sleep mode)	2.6 watts
Computer (on but not in use*)	32 watts
Computer (hard disk sleeping)	27.5 watts
Computer (standby mode)	4.3 watts

\*Energy usage of the computer will fluctuate during use as the hard drive is accessed. The figure recorded here is the baseline usage.

Based on this information the following scenarios were calculated:

A. Computer and Screen always on	860 kWh (\$58)/yr	820 kg CO2/yr
B. Computer always on, screen on during work hours*	420 kWh (\$33)/yr	400 kg CO2/yr
C. Computer and Screen on during work hours	200 kWh (\$21)/yr	190 kg CO2/yr
D. As for C with screen sleep mode set to 15 minutes	150 kWh (\$16)/yr	140 kg CO2/yr
E. As for D with standby mode set to 1 hour	130 kWh (\$13)/yr	125 kg CO2/yr

\*work hours estimated at 40 hours per week.

From the above it can be seen that the simple act of turning a computer screen off after hours will save about \$25 per year per PC, with an additional \$12 a year saved if the computer itself is turned off.

Further savings can be made by enabling the sleep mode on the computer screen. When in this mode the screen only uses 4% of that when in operation. Setting the sleep mode to enable after 15 minutes of inactivity could save another \$5 per year, more if this mode is used to power down the screen after hours. Remember, screen savers do not save energy as they continue the screen running. The sleep mode will perform the same function of protecting screen life as well as save energy.

The computer itself can also be set to either power down the hard drive after a set period of time (saving 14% of computer energy use) or go to standby mode (an 86% reduction). By enabling both the screen sleep mode and the computer standby an overall \$ saving of about \$45 per year (per computer) can be achieved, as well as an 85% reduction in electricity use. These functions are easily enabled and once in place will deliver ongoing savings without you having to worry about turning your computer off all the time.

As the ANU has many thousands of computers the potential savings from such simple actions could be huge. A recent survey of several work areas at the university found that

for about 40% of computers energy savings could be achieved through better practices. Better computer energy management helps your area through energy cost savings and the environment will benefit as well.

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## **Environmental Management Plan 2002 - 2007**

The ANU is currently finalising the Environmental Management Plan for the years 2002 - 2007. The plan covers a wide range of environmental issues, including energy. Some of the proposed energy initiatives include:

- Setting a target to reduce total energy (and greenhouse) emissions.
  - Developing and monitoring energy use indicators for all buildings on the campus and providing this information on a regular basis to building users.
  - Increasing the amount of electricity sourced from renewable resources.
  - Developing and adopting a purchasing policy that promotes the purchase of energy efficient products.
  - Assisting areas develop local management plans that cover energy as well as other environmental issues.
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## **Setting up an energy conservation group?**

With the recent price hike in the cost of electricity, many areas through the ANU are setting up energy conservation groups. The aim of these groups is to bring together key people to discuss ways in which energy can be conserved through operational changes. Before beginning, it helps to get an idea of exactly what the energy consumption profile of your building/area is. This information can be sought from previous electricity bills or from the Facilities and Services Division. If you would like some more information on how to set up such a group, or some advice on energy conservation in general our energy Conservation Manager will be happy to meet with you.

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## **Rating your building**

One of the first things your energy conservation group may consider is rating your building in terms of its environmental friendliness. The Australian Building Greenhouse Rating Scheme has been developed to allow you to do just that. All you need is some information on energy consumption, area of occupied space, hours of occupancy and the numbers of computers and people in your building, and you can rate your building using

the Australian Building Greenhouse Calculator. For more information see [the ABGR website](#).

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## **New Energy Projects**

Several new energy conservation projects are being undertaken by the ANU. These include:

### **Micro-Cogeneration**

Investigations are underway on the feasibility of installing a new small-scale cogeneration system that has been developed in Australia. This 'micro' cogeneration system is modular in nature and runs a gas engine that produces electricity as well as heat that is used to make hot water. Normally when electricity is produced the heat is generally lost as a waste. Cogeneration captures the waste heat for use and thus is a far more efficient system. The ANU is currently looking for applications that have a sufficient electricity and heat demand to use such a system.

### **Chifley Library Upgrade**

A major refurbishment project has commenced at the Chifley Library that will include the upgrading of the lighting in the building. The new light fittings will include single tubes, low loss ballasts and high efficiency reflectors. A new lighting control system will also be installed to reduce lighting use out of hours. The new lighting will provide better amenity as well as deliver substantial ongoing energy savings.

### **Kioloa Coastal Campus**

Several new accommodation blocks are being built at the ANU's Kioloa coastal campus. These new dwellings will incorporate solar hot water, water saving appliances, effective insulation and passive ventilation systems. These are the first few buildings in the redevelopment of the campus that aim to demonstrate strong environmental credentials.

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## **Energy Conservation Resources**

There are many energy conservation resources out there to help your energy conservation group identify areas for improvement and to keep you abreast of the latest developments in energy conservation. Some good examples include:

- The [Australian Building Greenhouse Scheme](#) and in particular the 'Tenant Energy Management Handbook' which is available over the [ABGR website](#) (click on "downloads").
- The [EnergyStar](#) website which contains details of the 'EnergyStar' program and in particular details of energy efficient appliances and equipment
- The [Australian Greenhouse Office - Energy Efficiency](#)
- The [American Energy Information Authority](#)
- The ANUgreen [Green Office](#) website contains details of ANUgreen 'Green Office' Program and many useful things you can do straight away to reduce energy consumption. For enquiries about how you can participate in the Green Office Program contact [gop@anu.edu.au](mailto:gop@anu.edu.au)