

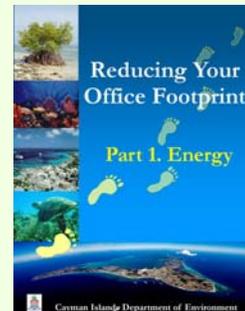


DEPARTMENT OF ENVIRONMENT
CAYMAN ISLANDS GOVERNMENT

SDU News

Sustainable Development Unit Newsletter

Issue 5 — Reducing Your Office Footprint - World Environment Day – Energy Audits



This issue we look at reducing your office footprint with the SDU's new guide and our World Environment Day event on June 5th, putting this into action using energy audits courtesy of the Public Works Department and LED lighting, and the UK Overseas Territories Conservation Forum conference hosted by the Cayman Islands in June.

Reducing Your Office Footprint — World Environment Day Fair

World Environment Day, Friday 5th June, was celebrated this year with the launch of the Sustainable Development Unit's "Reducing Your Office Footprint" guide. The SDU organized a fair to bring together local businesses in an effort to demonstrate and promote the wide range of options available on-island when it comes to saving energy and switching to renewable energy.

The guide launched is the first in a series, designed to assist businesses and organizations in the Cayman Islands on how to improve the environmental performance of their office operations whilst boosting their bottom line—a common concern at present. The "Reducing Your Office Footprint" series will consist of guides themed according to the different areas of action employees, "Green Teams" and facility managers can focus on to reduce their company's environmental impact or "footprint", such as energy, water, solid waste, procurement & purchasing and travel & transport.

Part one covers the use of energy conservation, efficiency and renewable energy in reducing an office's carbon footprint, and can be downloaded from the DOE website www.doe.ky. Energy conservation relates to ways to cut the amount of electricity wasted unnecessarily, primarily through changing habits around the office, for example turning computer and lights off when not in use. This type of action should be the starting point for energy management in the office as it is the easiest to implement and incurs no cost. Energy efficiency involves achieving the same level of service with less energy — "doing the same or more with less", for example, upgrading



Left to right, DOE Sustainable Development Officer Sophie Halford, DOE Director Gina Ebanks-Petrie, Minister for Environment the Hon Mark Scotland, Environment Ministry Chief Officer Jennifer Ahearn and SDU Manager Lisa-Ann Hurlston-McKenzie. Minister Scotland opened the well attended event.

lights and equipment with more energy efficient alternatives. Improvements in both energy conservation and efficiency combined can lead to significant savings, and investments will pay for themselves through the savings in electricity bills. All suggestions for actions made in the guide are applicable to the Cayman Islands, and the DOE hopes this will be a useful resource for businesses, organizations and government departments trying to reduce the environmental impact of their operations here.

The fair itself was a big success and was attended by many members of the public, the private sector and the civil service, interested in finding out about ways they can cut their energy use in the office and at home. The main aim of the fair was to put individuals in contact with companies who provide the equipment suggested to save energy in the guide and for people to find out about what is available on-island. There is a lot more that we can do than in the Cayman Islands than one might think, partly thanks to the foresight of companies such as those exhibiting at the fair in making these alternatives available.

Twelve companies exhibited their products and were on hand to answer any questions people had.



Senior Sustainable Development Officer Joni Kirkconnell goes through the SDU's Energy Saving Checklist (left) and talks with a member of the public about the new guide which gives advice on reducing one's environmental impact.

These were: **Arch Solar**, demonstrating a range of solar photovoltaic modules and cells, showing the different options available when it comes to using solar power to generate electricity; **Home Gas**, displaying information on a range of products fuelled by propane gas; **MegaSystems**, exhibiting super efficient Light Emitting Diode (LED) lighting; **CUC**, providing information on energy saving in the home as part of their “Energy Smart” program - this information is all available on their website www.cuc-cayman.com; **ElectraTech**, demonstrating their solar products, and also providing power for the demonstrations at other stalls using a solar charged battery bank. This battery bank was topped up periodically using charge from ElectraTech’s bio-diesel powered van; **Small Engineering Ltd.**, with a display constructed out of Insulated Concrete Forms (ICFs) - these blocks are super insulating, thus reducing the amount of energy needed to cool buildings; **Department of Tourism**, providing information on the Cayman Islands Environmental Project for the Tourism Sector (CEPTS) and the pilot properties involved; **GeoComfort**, demonstrating their geothermal air conditioning system, which uses the temperature differential existing in the ground; **Complete Services**, demonstrating the effect of their KVAR energy controller on reducing the load on appliance motors; **Cayman Business Machines**, displaying the range of energy efficient Energy Star® rated office equipment that they stock; **Cayman Electrical Supply**, exhibiting the range of Compact



Left to right, Cayman Electrical Supply were on hand to give advice on a range of compact fluorescent light bulbs (CFLs), Dana Arch from Arch Solar explains the benefits and applications for solar power in the Cayman Islands and Small Engineering built an impressive display out of highly insulating and versatile Quad Lock Insulated Concrete Forms to demonstrate their utility.

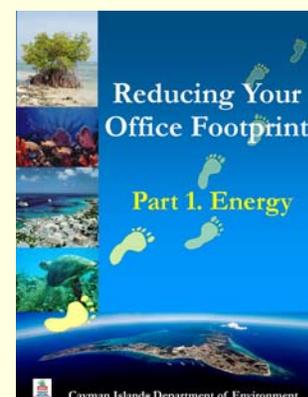
Fluorescent Light bulbs (CFL) that they have to offer and demonstrating how much less electricity an energy efficient CFL uses compared to an incandescent light bulb; **Essential Services**, demonstrating their Surge Sentinel device, which offers protection against electrical surge whilst ensuring motors used in the home and office only use as much electrical charge as necessary.

The SDU would like to thank all those who took part.

In Depth: Top Tips for Reducing Your Office Energy Footprint

- **Minimise periods when lights, computers and other appliances are on unnecessarily** by instituting a lights out and computers off policy at the end of the day and on weekends, and ensure janitorial staff are also informed. Also **turn off computers and other appliances at the source** if possible.
- Check whether **all lights being used are really necessary** and whether some can be removed without compromising the quality of lighting in the work space.
- **Replace old light bulbs with more energy efficient equivalents**, e.g. replace incandescent lighting with Compact Fluorescent Light bulbs (CFLs) or Light Emitting Diodes (LEDs) and old fluorescent lights, such as T-12 bulbs, with higher efficiency fluorescent T-8 lights.
- Light **exit signs** with lower energy bulbs like light emitting diodes (LEDs) instead of incandescent bulbs.
- Install **occupancy sensors**, e.g. motion sensors, and timers on lighting used in hallways, restrooms, open spaces and security lighting, including parking areas, which will automatically turn lights off when spaces are vacant.
- Install a **programmable thermostat** if your office does not have one already, and **program the a/c temperature to increase when the office is unoccupied** at night and over the weekends.
- Have the **a/c filter checked each month**, and clean or replace it as needed. Dirty filters block air flow through your cooling systems, reducing their efficacy, increasing your energy bill and shortening the equipment’s life. Have a contractor **regularly clean and maintain a/c equipment and ducts**.
- Install **high efficiency a/c units** with a SEER value of 14.5 or higher and preferably one that has been Energy Star® rated. Replacing a 1970’s SEER 6 central a/c unit with a new unit of SEER 14.5 will more than half a/c electricity demand and costs.
- Replace old or broken appliances and equipment with **new Energy Star® rated devices**.

For more information, download the guide from <http://www.doe.ky/about/sustainable-development-unit/>



Energy Saving — A helping hand from Public Works

The Public Works Department has been active in taking the energy conservation message on board for some time. So much so that after conducting an energy audit of their premises to identify the best energy conservation and efficiency measures for their office building at the end of last year, they are now preparing to offer these same services to government clients.

As a result of their energy audit, PWD installed **programmable A/C controls** to replace their old thermostats. These provide night set-back, temporary occupancy over-ride settings, and additional controls to 'average' the sensor readings and ensure that spaces affected by the afternoon heat can be maintained with comfort. This cost around \$4,000 to install, and **reduced electricity costs for January–June 2009 by approximately \$36,000** compared to the same period from the previous year! This is even more impressive given these savings were **achieved despite an expansion of the PWD office space**, adding air conditioning to another 650 square feet and increasing electricity demand proportionately.

Stephen Brown, Deputy Director of Operations and Works at PWD, explained the key to becoming more energy efficient is to **balance finding as any many ways as possible to control better what is in place, with making capital investments in new high-efficiency equipment**. PWD are now preparing a program to **offer professional energy audits** to help identify these options, to be rolled out during October/November this year. These audits provide a review of a Department's **energy consumption history, the state of its air conditioning, lighting and energy management systems and human behavior related control issues**. This helps identify where a Department's energy expenses are and **how energy dollars could be better spent**, where investment should be made for long term savings and the return that will be realised on this investment. PWD will also **monitor energy use** in the building to identify whether equipment is **run on schedules that reflect the building's needs** and not at times when energy is wasted, which can easily **reduce energy costs without tradeoffs in occupant comfort**. Not only will the audit provide recommendations for cost savings and improvements in environmental impact, but also **improvements to indoor air**

quality and lighting levels.

The Department of Environment has signed up for an audit as the "test case" for PWD's planned new service. The **entire Cayman Islands Environmental Center building**, home to the DOE and also the Department of Environmental Health and the Recreation, Parks & Cemeteries Unit is being assessed.

The audit commenced on July 20th. After an initial discussion with the PWD team, DOE staff gave a tour of the building and the Environmental Center premises, so the team would have a good idea of the **systems and operations in place, the building layout and its uses**. Mr. Chaz Powery from PWD then went to work **measuring light, humidity and temperature levels** throughout the building, as well as taking **note of where system controls were situated**. He also examined the **type of lighting** in place, positioning of windows and A/C vents and conducted a **detailed examination of the A/C system**—ducts and all, to draw up a schematic plan of the building systems. **Staff were consulted** to get a good picture of the current comfort levels, building use after hours and at weekends and any anecdotal evidence of present and historic problems with the building systems. The DOE is looking forward to the results - **stay tuned for an update on the audit and its outcomes in the next issue of SDU News**.



The audit team from PWD were given a tour of the Environmental Center building and premises (above). Mr. Ken takes notes on the A/C condensers (below).



Left to right, Mr. Chaz measures humidity levels, inspects lights installed, records light levels using a light meter and measures temperatures emitted from the A/C vents

Did you know about "phantom load"? *If appliances are left on standby, they are often still drawing energy. The US Department of Energy estimates that the US on average wastes 43 billion kWh of electricity per year as a result of this continuous, low-level energy use. Always turn appliances off at the source or unplug them to avoid this type of wasted energy.*



Business Bite—MegaSystems gives the “green light” for LEDs

MegaSystems has seen a surge of interest in Light Emitting Diode (LED) lighting since they first started bringing these high efficiency options on-island.

LEDs represent the newest technology in lighting, and are around 90% more efficient than incandescent bulbs and 30% more efficient than Compact Fluorescent Lights (CFLs). LEDs also last up to 10 times longer than CFLs and 100 times longer than incandescent lights, and they require no ballast, which combined means they need less maintenance, and often emit a better quality of light with less flickering. Another big advantage of LED lights is that they emit no heat. In an office environment where lights are on for most of the day, this will reduce the air conditioning load considerably.

Sales Administrator Scott Murray explained that there are some LED options on the market that do not offer as many savings compared to efficient fluorescent lights or CFLs - MegaSystems has researched the models that do provide big savings, and are sure that the LED lights they stock represent good alternatives. These include 15W LED tube lights which can replace average 4ft 40W fluorescent tubes commonly used in an office environment. Currently LED lighting is more expensive than other options, however costs will come down with increased demand. MegaSystems estimate that at current prices and electricity rates, converting an average office to LED lighting (assuming upgrading of 500 light bulbs) would pay back within approximately 2.5 years and would save around 39,000 kWh/yr in electricity. This does not take into account costs saved through reduced cooling load due to heat reduction, and so in reality payback would probably take less time. Of course, once the payback period has been met, the annual savings will continue to be realised for years to come. Scott explained MegaSystems has had interest in retrofitting fluorescent lighting to LED lighting from a variety of



Scott Murray and Russell Bunton from MegaSystems Ltd displayed examples of super-efficient LED lighting and were on hand to talk about the range of available options for offices and homes at the World Environment Day fair on June 5th.

businesses, organisations and municipal buildings, from offices to hospitals to grocery stores to gas stations - these are the sort of areas where the energy and cost savings will be greatest, with the shortest payback, due to the length of time and number of lights that are in operation.

It is not just efficient lighting systems that MegaSystems offer when it comes to all things green; they also install solar PV, solar water heating systems and wind turbines. One such solar PV installation was completed at the Banks' residence in South Sound, which has produced a lot of interest locally. Scott estimates that MegaSystems are on track to have installed around 100kW of solar power on Grand Cayman by the end of the year.

Contact Scott at scott.murray@megasystems.ky for more info.

Conservation Forum comes to Grand Cayman

The UK Overseas Territories Conservation Forum's fifth conference was hosted on Grand Cayman from May 30th-June 5th.

Delegates from all over the globe discussed key conservation and other environmental issues in the British Overseas Territories, such as climate change impacts and adaptation, planning and protected areas and environmental education. The conference aimed to draw on similarities and differences in experience across territories, to provide insights into common challenges, leaving participants better equipped to address local needs. For more information and the preliminary conference report, go to <http://www.ukotcf.org/>. UK Minister Huw Irranca-Davies also attended the conference, and addressed the group on funding opportunities from the UK. Mr. Irranca-Davies was also given a tour of key sites of environmental interest on Grand Cayman by members of the DOE.



Overseas Territories Corner

Energy Policy developments in Bermuda

In February of this year Bermuda's Department of Energy released an Energy Green Paper as one of the first major steps in developing a National Energy Policy, which aims to generate solutions to providing sustainable, affordable and reliable energy for Bermuda. The paper was written in consultation with the public, local stakeholders and experts through a series of nine Town Hall meetings. Customs tariffs for renewable energy technology and energy efficient products such as solar water heating, solar PV, wind turbines, Smart Electricity Meters, energy efficient light bulbs and electric cars were also waived in April this year following suggestions made through this consultation.

