Energy Management Plan

of the Energy Management Policy

2011-2013
Document Version Control

*TRIM Reference*

<table>
<thead>
<tr>
<th>TRIM Reference</th>
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<td>FILE: 2006/460 Energy Management</td>
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*Version History*

<table>
<thead>
<tr>
<th>Version</th>
<th>Primary Author</th>
<th>Description of Change</th>
<th>Date</th>
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<tr>
<td>1.0</td>
<td>Consultants</td>
<td></td>
<td>2009</td>
</tr>
<tr>
<td>2.0</td>
<td>David Savill</td>
<td></td>
<td>March 2011</td>
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Introduction

West Coast Institute of Training (WCIT) is committed to responsible energy management and will practice energy efficiency throughout all our premises, plant and equipment, wherever it is cost effective to do so. We are committed to control the level of energy consumed in the provision and delivery of its services by realising ongoing savings in agency energy operating budgets and to quantify and publicly report on those savings and the consequent greenhouse gas emissions.

This document signifies WCIT’s commitment to responsible management of energy consumed in the provision and delivery of its services, in line with the principals of the Energy Smart Government program. Required energy information will continue to be reported using the online software tool OSCAR (Online System for Comprehensive Activity Reporting), available to State Government agencies.

Objectives

WCIT’s objectives are:

- To continue the State Government’s commitment to reduce the cost of services and manage global climate change by increasing energy efficiency in support of the Energy Smart Government program and other government initiatives.

- To demonstrate leadership by implementing and monitoring energy conservation policies, procedures and processes appropriate to the current delivery of West Coast’s core business and reducing greenhouse gas emissions through:
  - Measurement – accurately reporting energy cost, consumption, and related information into OSCAR and capturing data required for greenhouse gas SARGE (System for Accounting and Reporting Government Emissions) reporting;
  - Behaviour – providing staff with information on energy consumption and empowering them, through engagement strategies, with the knowledge and desire to reduce energy consumption; and
  - Technology – improving energy efficiency of buildings, infrastructure and delivery equipment by purchasing energy efficient products and considering full life cycle costs.

- To develop Vocational Education and Training (VET) products and services which support a low carbon, sustainable economy and build/modify/retrofit buildings and infrastructure to support the delivery of these products and services.

- To involve and provide professional development opportunities for WCIT staff on strategies for achieving sustainability outcomes.

- To implement an Action Schedule for energy initiatives based on the recommendations of the Energy Management Plan.

- To encourage workforce development through building the knowledge and skills for a low carbon economy.
Resources
West Coast will continue to demonstrate a commitment to sustainability and energy management.

- In 2008, an Environmental Sustainability Committee was recommended and established.
- In 2009, an Energy Management subcommittee of the Environmental Sustainability Committee was recommended and established under the operational control of the Manager Finance and Facilities.
- In June 2010, the position of Sustainability Coordinator was formalised and filled.

Energy Executive
For maximum benefit, energy management must be applied over the whole of the agency's operation. An Energy Executive has been appointed to raise the importance of energy management within WCIT and network with other management levels within the organisation. The Energy Executive is accountable for the continuance of the Energy Management program.

The Energy Executive is the General Manager Training and Business Services

Energy Smart Government – Primary Contact
A Primary Contact for the Energy Smart Government program has been appointed by WCIT. Responsibilities include:
- Coordinating energy reporting into the energy reporting system (OSCAR)
- Managing other users of the energy reporting system (OSCAR)
- Receiving program updates

Energy Smart Government Primary Contact is the Senior Facilities Coordinator.
Energy Management Team
An Energy Management team (EMT) has been established within WCIT to encourage leadership and to identify and drive energy efficiency initiatives. The team will provide an integrated organisation-wide response to energy conservation and report through the Energy Executive to the Managing Director.

The EMT is facilitated and coordinated by the Manager Finance and Facilities, has standing members of the Senior Facilities Coordinator, Manager Technical Services, Sustainability Coordinator and can request any other staff member to assist or attend.

Vision – Energy Conservation and Efficiency
WCIT has determined that the greatest opportunities for energy efficiency improvements within our organisation include:

- Improvements to our air conditioning systems
- Upgrading the campus lighting network
- Improvements in our training kitchens
- Efficiencies in our IT delivery area
- Improving staff and student awareness, facilitating staff and student behaviour change, and empowering individuals with opportunities to reduce energy use;
- Optimising the use of the Building Management Systems to achieve emissions reductions and cost savings (through equipment monitoring and cycling and Demand Side Management to benefit from utility time-of-use price signals such as demand charges and peak prices);
- Developing and implementing a sustainable procurement policy and guidelines that include energy efficiency and life cycle/recovery cost considerations.

The areas of measurement, behaviour and technology are identified as key areas to explore to realise ongoing savings in energy consumption, greenhouse gas emissions and utility costs.

Measurement
WCIT currently reports its energy use data (electricity, natural gas and liquefied petroleum gas) through OSCAR.

WCIT recognises that accurate monitoring provides a foundation for achieving measurable results. The following opportunities are being pursued, or have been identified, to enhance energy measurement within WCIT:

- External auditing to help drive priorities in our Energy Management Plan
- Benchmarking and developing targeted energy reduction targets
- Monitor target and reduce electricity demand through the existing Building Management System, including additional energy metering and sub-metering to facilitate adjustment of control strategies
- Ongoing analysis of energy use and costs in conjunction with the Building Management System
• Delivery of energy reports to the corporate executive via the Environmental Sustainability Committee.
• Investigate other electricity providers for our Joondalup campus as our supply is contestable (>50,000kWh per year)
• Review energy use target and Action Plan achievements annually.

**Behaviour**

WCIT recognises that promoting energy conservation and energy efficient behaviour increases staff education and awareness and can lead to significant savings at minimal cost. Typically, behaviour change based savings are in the order of 10-20% of the energy costs. The following opportunities are being pursued, or have been identified, to enhance staff awareness and education on energy efficiency:

- Develop and delivery of an energy awareness and behaviour change program for staff (including cleaners) and students
- Web based energy dashboard (use and generation) accessible to all staff and students.
- Develop a Sustainability Procurement Policy/Guidelines and incorporate it into building, infrastructure and equipment projects
- Develop a Corporate Sustainability Strategy that includes an energy use reduction target, a commitment to energy efficiency, and a commitment to continuous improvement;
- Regularly release energy use data (in kWh) per section/division, providing incentives for reduction and rewards/recognition for achievements;

**Technology**

Utilising energy efficient technology and using existing equipment more efficiently can provide significant long-term savings. Energy efficient products generally have higher up-front costs with the benefit of savings in reduced ongoing energy costs. An energy efficient product can be the most economical choice when costs are factored over the product’s lifetime. The following opportunities are being pursued, or have been identified, to improve the efficiency of equipment and/or increase the use of energy efficient technology:

- Implement IT related initiatives to reduce energy and operating costs
- Install timers on campus water fountains and kitchen hot water urns to reduce energy use outside of campus hours.
- Upgrade the lighting network. This could include:
  - Installing reflectors and delamp where appropriate
  - Switching halogens to LED’s
  - Install light sensors in classrooms, kitchens, toilets and common areas
  - Technology upgrade of lighting to T5 high efficiency linear fluorescent lamps
  - Install electric ballasts to reduce operating costs
- Expand on West Coast’s renewable energy generation capabilities.
- Install solar hot water systems (with LPG booster, and 100% insulation of hot water pipes) in E Block to target high gas use in hospitality kitchens
- Expand capabilities of the Building Management System to enable active Demand Side Management. This is of particular relevance to manage the utility’s price signals on time-of-use tariffs and to reduce the demand and its impact on the demand charges
Results
The Energy Management program has resulted in a 31% reduction in WCIT’s electricity consumption on the Joondalup campus since 2006.

Target
Over the period 2011/13 WCIT will strive to achieve at least an additional 10% reduction in energy use per square metre (MJ/m²) based on 2010 figures, dependant upon funding availability and the establishment of reliable measures to achieve the target.
## Action Schedule / Initiatives Log

**Action Type:**
1. Measurement  
2. Behaviour  
3. Technology  
4. Capital Works

<table>
<thead>
<tr>
<th>Item No</th>
<th>Site</th>
<th>Initiative</th>
<th>Strategies</th>
<th>Due</th>
<th>Lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Joondalup campus</td>
<td>Review the scope of a comprehensive lighting audit for lighting efficiency.</td>
<td></td>
<td>2011</td>
<td>D Savill</td>
</tr>
<tr>
<td>1.2</td>
<td>Joondalup campus</td>
<td>Implement an ongoing energy reporting framework in the BMS with monthly, quarterly and annual reporting capability.</td>
<td></td>
<td>2011</td>
<td>D Fairburn</td>
</tr>
<tr>
<td>1.3</td>
<td>Joondalup campus</td>
<td>Monitor, target and reduce the electricity demand through the existing Building Management System, including additional energy metering and sub-metering to facilitate adjustment of control strategies</td>
<td>Meter the Server Room Meter the PV Cells</td>
<td>2011</td>
<td>D Fairburn</td>
</tr>
<tr>
<td>2.1</td>
<td>Joondalup campus</td>
<td>Develop energy awareness strategies for staff and student behaviour.</td>
<td>Posters</td>
<td>2011</td>
<td>D Fairburn</td>
</tr>
<tr>
<td>2.2</td>
<td>Joondalup campus</td>
<td>Prominently display an energy dashboard (energy use and generation) on Intranet website and via mounted screens.</td>
<td>To incorporate new PV Cell array via WCIT processes.</td>
<td>2011</td>
<td>D Savill</td>
</tr>
<tr>
<td>2.3</td>
<td>Joondalup campus</td>
<td>Regularly release energy use data (kWh, CO2) to promote reduction in energy.</td>
<td></td>
<td>2011</td>
<td>D Fairburn</td>
</tr>
<tr>
<td>3.1</td>
<td>Joondalup campus</td>
<td>Develop and implement a print management strategy to improve the efficiency of the printer fleet and staff and student print management. This includes print management software to help raise</td>
<td></td>
<td>2011</td>
<td>R Brown</td>
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<tr>
<td></td>
<td>Location</td>
<td>Task Description</td>
<td>Expected Outcome</td>
<td>Completed?</td>
<td>Responsible Party</td>
</tr>
<tr>
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<tr>
<td>3.2</td>
<td>Joondalup campus</td>
<td>Install software to automate daily computer and monitor shutdown.</td>
<td></td>
<td></td>
<td>R Brown</td>
</tr>
<tr>
<td>3.3</td>
<td>Joondalup campus</td>
<td>Install timers on water bubblers and kitchen hot water urns.</td>
<td></td>
<td></td>
<td>D Fairburn</td>
</tr>
<tr>
<td>3.4</td>
<td>Joondalup campus</td>
<td>Enable network scanning and desktop faxing.</td>
<td>To be part of telephone system</td>
<td></td>
<td>R Brown</td>
</tr>
<tr>
<td>3.5</td>
<td>Joondalup campus</td>
<td>Update computer power management features to save energy.</td>
<td>Completed?</td>
<td></td>
<td>R Brown</td>
</tr>
<tr>
<td>3.5</td>
<td>Joondalup campus</td>
<td>Expand on West Coast’s renewable energy generation capabilities by installing additional photovoltaic panels.</td>
<td>A Block East Quoted. Requested assessment of Whole of College from Swan</td>
<td></td>
<td>D Savill</td>
</tr>
<tr>
<td>3.6</td>
<td>Joondalup campus</td>
<td>Investigate the expansion of capabilities of the Building Management System to enable active Demand Side Management. This is of particular relevance to manage the utility’s price signals on time-of-use tariffs and to reduce the demand and its impact on the demand charges.</td>
<td>Load shedding in BMS</td>
<td>Competed</td>
<td>D Fairburn</td>
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<tr>
<td>3.7</td>
<td>Joondalup campus</td>
<td>Initiate online forms and workflow to reduce paper printing and energy use.</td>
<td>Employ Analyst / Programmer</td>
<td></td>
<td>R Brown</td>
</tr>
<tr>
<td>3.8</td>
<td>Joondalup campus</td>
<td>Continue initiative to visualise the server room (also requires sub-metering)</td>
<td>Migrate standalone server to VMs on new cluster</td>
<td></td>
<td>R Brown</td>
</tr>
<tr>
<td>4.1</td>
<td>Joondalup campus</td>
<td>Depending on funding, replace the fan coil units in A and C Blocks.</td>
<td>Have requested funding in Infrastructure submission</td>
<td></td>
<td>D Fairburn</td>
</tr>
<tr>
<td>4.2</td>
<td>Joondalup campus</td>
<td>Depending on funding, replace the A Block chiller with a more efficient model.</td>
<td>Have requested funding in Infrastructure submission</td>
<td></td>
<td>D Fairburn</td>
</tr>
</tbody>
</table>