

Okanagan College - 2009 Carbon Neutral Action Report

Executive Summary

Okanagan College is committed to becoming a Sustainable Institution and has made progress in 2009 to attaining this goal. A key area in our Sustainability goals is the reduction of our Carbon Footprint. Progress in our CO₂(e) reductions measures has, however, been limited due to severe Provincial Government cut backs in the Annual Capital Allowance funding for 2009. Energy audits were completed by qualified consultants for every building in our inventory. These Audits quantified sources of energy use in each building and have provided benchmarks for overall energy use and resulting CO₂(e) emissions. A small number of projects were able to be funded during the year to help reduce energy but these were targeted to ones that had minimum capital costs. One success story in 2009 was the implementation of a College wide initiative entitled “Three Steps Forward” this program involved the engagement of both staff and students to identify and implement “green” initiatives Campus Wide.



It became clear in 2009 that to have success in accomplishing energy reduction measures thus CO₂(e) reductions the College needed someone dedicated to focusing their efforts solely on this task. For 2010 the College has agreed to fund a full time Energy Manager on a year's contract with a goal of reducing energy costs by 10% over the previous year.

Overviews

Actions Taken to Reduce Greenhouse Gas Emissions in 2009

One of the larger energy reduction projects completed in 2009 was started in 2008 and focused on ventilation changes to the Kelowna Campus Cafeteria and Teaching Kitchens. The project significantly reduced ventilation loads and will result in energy savings of more than 400,000 KWH/year with resultant reductions in CO₂(e) emissions by up to 350 tonnes. Installation of occupancy and daylight sensors in Washrooms and some common areas have been carried out on two of the College campuses. Due to the lack of capital funding, College staff have focused their efforts on possible energy savings to be achieved by adjustments to existing occupancy schedules and control of set point strategies utilizing our computer based building automation systems. A number of larger electric motors have been fitted with Variable Frequency Drives where deemed appropriate and some minor use of LED lighting technology has been implemented.

In 2009 the College saw the opening of a new 7,000 m² “Centre for Learning” facility, this building has been built to LEED Gold Standards and will replace 6 Portable Classrooms along with returning a large number of off site College Departments. The facility is heated entirely with waste heat taken from the adjacent Wastewater Treatment Plant and along with other energy saving devices uses less than 50% of the energy prescribed under the National Energy Code Model.

In regards to recycling several initiatives were undertaken including an organics composting project to eliminate kitchen waste from the landfill and recycling of Styrofoam and coarse paper towel has been added to our regular recycling of e-waste, batteries, metals, wood, light bulb crushing, plastics, and refundable containers.

Waterless urinals and hands free faucets are now being incorporated into all new construction and renovation projects.

2 cars in the College vehicle pool were replaced with hybrid models and a carpooling website has been established. In 2009 a Sustainable Transportation Study was carried out for the Kelowna Campus and it is hoped that recommendations can be implemented in 2010.

Web conferencing is now available to all staff and students by IT Services.

Operational Changes in 2009

As mentioned the new “Centre for Learning” building was completed in July 2009, adding over 7,000m² to the College building inventory. Leased Trades training spaces were added to our portfolio resulting in an a further increase of 3,923.22 m² to building inventory.

Plans to Continue Reducing Greenhouse Gas Emissions 2010 – 2012

An Energy Manager has been hired for one year to focus solely on reducing energy costs and carbon emissions, this position will focus on engaging all members of the College community to participate in this process. He will Campaign for Energy-efficiency awareness and investigate further energy saving opportunities.

In future, all our new buildings will be built to LEED Gold standards or higher. Okanagan College has been fortunate to secure Knowledge Infrastructure Funding to build a new 6,000 m² facility on our Penticton Campus which will house the Centre for Excellence in Sustainable Building Technologies and Renewable Energy Conservation. This new facility will target LEED Platinum and will also attempt to meet the “Living Building Challenge”. The project will incorporate significant use of Solar PV electrical generation and it is anticipated to have the largest Solar PV array outside of a Utility provider in Canada.

The College is also planning to install a large solar hot water installation in our Student Residence building at our Kelowna campus to generate domestic hot water.

With regards to our fleet vehicles, as lease contracts expire we plan to assess our most fuel efficient options for replacement.

Please feel free to check out our link below for more details about the Okanagan College 2009 Community Report.
[http://www.okanagan.bc.ca/Assets/Departments+\(Administration\)/Public+Affairs/Images/Commreport09.pdf](http://www.okanagan.bc.ca/Assets/Departments+(Administration)/Public+Affairs/Images/Commreport09.pdf)



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Actions Towards Carbon Neutrality

The actions listed below contribute to a reduction in greenhouse gas emissions from sources for which public sector organizations are responsible under the carbon neutral government regulation of the *Greenhouse Gas Reduction Targets Act*.

Action	Status (as of 12/31/09)	Performance to Date (as of 12/31/09)		Steps Taken in 2009	Steps Planned for 2010 -2012	Start Year	End Year
Mobile Fuel Combustion (Fleet and other mobile equipment)							
Vehicle fuel efficiency							
Replace vehicles with more fuel-efficient models	Ongoing/In Progress	10	% of vehicles are fuel- efficient models	Evaluation of the Supply Management fleet identified the purchase and replacement of two (2) Hybrid units to the fleet.	Continued evaluation - Assessment/ fleet requirements	2009	No End Date (Continuous)
Replace larger vehicles with smaller models according to fleet "right-sizing" principles	Ongoing/In Progress	10	% of vehicles down-sized since start year indicated	Evaluation of the Supply Management fleet identified the purchase and replacement of two (2) Hybrid units to the fleet.	Continued evaluation - Assessment/ fleet requirements	2009	No End Date (Continuous)
Perform regular fleet maintenance to improve fuel-efficiency	Ongoing/In Progress	50	% of vehicles are subject to regular maintenance for fuel efficiency	All fleet are government inspected yearly, regular maintenance is scheduled bi-yearly.	Continued development of campus wide regular vehicle maintenance routine.	2003	No End Date (Continuous)
Replace small maintenance vehicles with more fuel-efficient models	In Development			Evaluation has not yet occurred - developmental.	Evaluation to be done.	2010	No End Date (Continuous)
Stationary Fuel Combustion, Electricity and Fugitive Emissions (Buildings)							
Planning/management							
Enrol in a building energy benchmarking program (e.g., GREEN UP)	In Development			A mechanical consultant was hired to perform Energy Audits of all our buildings for the purpose of setting greenhouse gas emissions benchmark.	In our future budget we have requested to hire an Energy Manager who would follow through with a program such as the Greenup program.	2009	No End Date (Continuous)
Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)	Ongoing/In Progress	5	% of buildings have a real time metering system installed	Pilot project started in 2009. Presently we have created spreadsheets that track all electrical and natural gas consumptions from our utility bills.	After completing a pilot project in 2009 that involved the addition of gas meters and electrical monitoring meters, it was determined that major funding would have to be requested to ensure all campuses have real time metering. Funding in 2009 was reduced, therefore priorities were made on energy projects executed. As funding is available or any new building projects are taken on, real time metering installation will be considered.	2009	No End Date (Continuous)
Owned buildings							
Establish energy performance baseline for owned buildings	Ongoing/In Progress	100	% of owned buildings have an established energy performance baseline	A consultant was hired to produce a detailed report indicating energy and greenhouse gas emissions benchmark.	In negotiations with Fortis BC to enrol in "Continuous Optimization Program"	2009	2010
Achieve LEED NC Gold certification at a minimum for new construction or major renovations	Ongoing/In Progress	10	% of owned buildings are certified LEED NC Gold or LEED NC Platinum	New Centre for Learning in Kelowna completed in July 2009, is in the process of submitting to LEED for Gold certification.	New Centre for Excellence in Sustainable Building Technologies in Penticton is currently targeting the "Living Building Challenge" and LEED Platinum.	2007	2011
Incorporate integrated design process into new construction or during renovations of owned buildings	Ongoing/In Progress	75	% of buildings built or renovated since start year indicated used the integrated design process	Centre for Learning Building incorporated the "Integrated Design Process"	Centre for Excellence in Penticton has utilized both the "Design Charette" and "Integrated Design Process"	2007	No End Date (Continuous)

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Action	Status (as of 12/31/09)	Performance to Date (as of 12/31/09)		Steps Taken in 2009	Steps Planned for 2010 -2012	Start Year	End Year
Incorporate a refrigerant management strategy into regular building management/maintenance to reduce fugitive emissions	Ongoing/In Progress	100	% of owned buidings.	Refrigeration contractors by law are required to follow ODS regulations. Our contactors use the "Safeguard Refrigerant Tracking system". Policy is not to recharge any refrigeration system prior to following through with a complete leak check sequence as per regulation. All refrigerant lost at Okanagan College is available upon request.	Ensure present standards are maintained and where possible, reduce systems employing refrigerants.	2007	No End Date (Continuous)
Retrofitting owned buildings							
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	In Development			Re-zoning of ventilation duct work during renovations is done. Mechanical heating and cooling is modified to accomodate renovation, energy opportunities are evaluated.	Continue to improve mechanical efficiencies during renovations as budgets permit.	2007	No End Date (Continuous)
Upgrade lighting systems during retrofits	Ongoing/In Progress	80	% of retrofits (captured above) had lighting systems upgrades	Lighting retrofits are considered on any Campus renovation. Replacing old lighting systems to LED, CFL or a more efficient lighting system, adding motion or daylight harvesting sensors and connecting to the BMS to schedule lighting components.	Continue to consider lighting upgrades on renovation projects as budgets permit.	2009	No End Date (Continuous)
Upgrade/adjust control systems during retrofits	Ongoing/In Progress	50	% of retrofits (captured above) had control system upgrades or adjustments	Major control system upgrades from the designated air system is not considered at this time, however, repairing/calibrating zone stats and adding new thermostats that incorporate night setback functions is always considered.	Identify and modify control systems in designated areas to run as efficiently as possible.	2009	No End Date (Continuous)
Install an on-site renewable energy demonstration project	Ongoing/In Progress	1	% of retrofits (captured above) had on-site renewable energy components	Solar heating system was added to our new KLO Daycare which demonstrated the use of using the sun to heat domestic hot water. Planning to add a larger solar heating system to our Skaha Student Residence was carried out.	Installation of a solar heating system to Skaha residence. The new Centre for Excellence building in Penticton will have solar PV and hot water heating installed.	2008	No End Date (Continuous)
IT power management							
Install power management software which shuts down computers outside of regular business hours	Ongoing/In Progress	85	% of computers shut down automatically outside of regular business hours	Installed 85% of power management software	Complete the remaining 15%	2006	2011
Implement server virtualization	Ongoing/In Progress	60	% of servers have been virtualized since start year indicated	Additional servers virtualized	Virtualize additional servers	2006	No End Date (Continuous)
Apply auto-sleep settings on computer monitors and CPUs	Ongoing/In Progress	100	% of computers have auto-sleep settings applied	All replacement computers purchased were energy star rated and have had auto-sleep installed.	All new computers to be energy star rated and have auto-sleep settings applied	2005	No End Date (Continuous)
Remove stand-alone printers, copiers, and/or fax machines and install multi-function devices	Ongoing/In Progress	20	% reduction in printers, copiers, and/or fax machines since start year indicated	Additional MFDs installed	Install additional MFDs	2008	2011
Apply auto-sleep settings on printers, copiers, fax machines, and/or multi-function devices	Ongoing/In Progress	100	% of devices have auto-sleep settings applied	Auto-sleep has been set on all printers, copiers, fax machines and/or multi function machines.	All new machines to have auto sleep installed	2005	No End Date (Continuous)
Replace computers with ENERGY STAR models during regular computer upgrades	Ongoing/In Progress	100	% of computers are ENERGY STAR rated	All replacement computers purchased were energy star rated	All new replacement computers will be energy star rated	2005	No End Date (Continuous)
Appliances and electronic devices							
Replace refrigerators with ENERGY STAR models or source ENERGY STAR models for future purchases	In Development			Policy development required	Initiate Policy development	2010	No End Date (Continuous)

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Action	Status (as of 12/31/09)	Performance to Date (as of 12/31/09)		Steps Taken in 2009	Steps Planned for 2010 -2012	Start Year	End Year
Replace other appliances or electronic devices with ENERGY STAR models or source ENERGY STAR models for future purchases	In Development			Policy development required	Initiate Policy development	2010	No End Date (Continuous)
Replace desk lamp incandescent bulbs with compact fluorescent (CFL) bulbs or source more efficient desk lamps for future purchases	Ongoing/In Progress			No incandescent bulbs are purchased for office lamps or any other devices.	Same as 2009	2007	No End Date (Continuous)
Behaviour change program							
Ask staff to unplug electrical equipment or switch off power bars when not in use	In Development			Energy Tip Messages are published on occasion in our Student / Staff newsletter.	If funding is approved for Energy Manager one of the tasks would be to campaign for Energy Efficiency awareness more aggressively.	2007	No End Date (Continuous)
Ask staff to close blinds at end of work day to reduce heating/cooling demands	Ongoing/In Progress			Memo's are issued periodically to reaffirm to all staff the importance of closing the blinds, turning off the lights, and locking the door.	Memo's are issued periodically to reaffirm to all staff the importance of closing the blinds, turning off the lights, and locking the door.	2000	No End Date (Continuous)
Provide reminders for turning off lights (e.g., signs, stickers, messages)	Ongoing/In Progress			Energy Tip Messages are published on occasion in our Student/Staff newsletter. Janitorial and Security staff are instructed to turn off lights after hours.	If funding is approved for Energy Manager, one of the tasks would be to campaign for Energy Efficiency awareness more aggressively. Periodic reminders published in "Inside Okanagan College".	2007	No End Date (Continuous)
Promote hot water conservation	Ongoing/In Progress			Hands free faucets are being installed in 60% of the washrooms.	Continue to install more pre-adjusted hands-free faucets.	2002	No End Date (Continuous)
Supplies (Paper)							
Paper Type							
Purchase 30% post-consumer recycled paper	Ongoing/In Progress	90	% of total paper purchased contains 30% recycled content	Following the Ministry mandate to purchase a minimum of 30% post consumer waste paper	Purchasing a minimum of 30% post consumer waste paper	2009	No End Date (Continuous)
Purchase 100% post-consumer recycled paper	Ongoing/In Progress	10	% of total paper purchased contains 100% recycled content	In the process of purchasing some 100% post consumer waste paper	Continuing to increase our purchase of 100% post consumer waste paper	2009	No End Date (Continuous)
Printer/document settings							
Switch networked printers and photocopiers to automatic double-sided	In Development			Some printers set to default to double sided	Continue conversion of printers to double sided	2009	No End Date (Continuous)
Electronic media in place of paper							
Install collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	Ongoing/In Progress			Document sharing built into intranet portal	Evaluate Sharepoint	1999	No End Date (Continuous)
Use electronic document library for filing common documents	Ongoing/In Progress			Permanent records stored electronically	Permanent records stored electronically	2003	No End Date (Continuous)
Post materials online that were previously printed	Ongoing/In Progress			All Manual, Policies and Procedures are put online.	All Manual, Policies and Procedures are online.	1995	No End Date (Continuous)
Switch to an electronic payroll notification system in place of paper pay stubs	Ongoing/In Progress	100		Electronic payroll notification is added to each new employee hired.	Electronic payroll notification will be added to each new employee hired.	2003	No End Date (Continuous)
Behaviour change program							

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Train staff to use collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	Ongoing/In Progress	10	% of staff currently have received collaborative software training	Staff interested were trained in this software.	Staff interested were trained in this software.	1999	No End Date (Continuous)
Encourage re-use of scrap paper	Ongoing/In Progress			Enhanced user education/Sustainability awareness campaign	On-going	2009	No End Date (Continuous)

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Actions to Reduce Provincial Emissions and Improve Sustainability

The actions listed below contribute to a reduction in greenhouse gas emissions from sources that fall outside of the reporting requirements defined in the carbon neutral government regulation of the *Greenhouse Gas Reduction Targets Act*. Public sector organizations can optionally use this section to report on actions that will help British Columbia meet its provincial greenhouse gas reduction targets, engage the public, and improve environmental sustainability across all aspects of their organization.

Action	Status (as of 12/31/09)	Performance to Date (as of 12/31/09)	Steps Taken in 2009	Steps Planned for 2010 -2012	Start Year	End Year
Business Travel						
Virtual meeting technology						
Install web-conferencing software (e.g., Live Meeting, Elluminate, etc.)	Complete	100 % of computers have web-conferencing software installed	Only a web browser is required		2009	No End Date (Continuous)
Install video-conferencing units in meeting rooms or provide mobile video-conferencing units	Complete	100 % of meeting rooms have access to video-conferencing equipment	Mobile video conferencing units available at each major campus		1995	2009
Behaviour change program						
Train staff in web-conferencing	Ongoing/In Progress		Web conferencing packages available. No formal training. Technical support is available.	Web conferencing packages available. No formal training. Technical support is available.	2009	No End Date (Continuous)
Train staff in video-conferencing or provide technical support for video-conferencing set-up	Ongoing/In Progress		Video conferencing available. No formal training. Technical support is available.	Video conferencing available. No formal training. Technical support is available.	2009	No End Date (Continuous)
Encourage staff to consider virtual attendance/presentation at events where possible	Ongoing/In Progress		Staff is encouraged to participate. Technical support is available.	Staff is encouraged to participate. Technical support is available.	2009	No End Date (Continuous)
Education, Awareness, and Engagement						
Team-building						
Create Green, Sustainability, Energy Conservation, or Climate Action Teams with executive endorsement	In Development		Development of Sustainable procurement policies	Continued assessment, enhanced awareness	2010	No End Date (Continuous)
Other Sustainability Actions						
Water conservation						
Establish a water conservation strategy which includes a plan or policy for replacing water fixtures with efficient models	Ongoing/In Progress		New buildings include waterless urinals. Up to 60% of faucets are hands free.	Continue to use water conservation devices.	2002	No End Date (Continuous)
Put in place a potable water management strategy to reduce potable water demand of building-level uses such as cooling tower equipment, toilet fixtures, etc. and landscape features	Ongoing/In Progress		Irrigation zones at Salmon Arm, Vernon and Kelowna were updated. Nozzles and spray heads were changed to reduce flows. Toilets and fixtures on all campuses were updated with calibrated auto flush valves. Eliminated KLO Cafeteria Cooling tower and replaced with air cooled unit.	To continue with irrigation upgrades on all campuses as budgets allow. The Penticton campus will undergo a major irrigation upgrade as part of the construction program linked to the new Center for Excellence. A switch to "clearwater" irrigation is planned. This new building will also include waterless urinals, "clearwater" /low flush appliances, plus integrated rain water utilization.	2003	No End Date (Continuous)
Introduce a stormwater management landscape strategy (e.g., vegetated roofs, permeable paving, rain gardens, bioswales)	Ongoing/In Progress		Thirty trees of various sizes were planted at the KLO campus. A bio-retention area (drainage swale) was incorporated into the landscape around the CFL bldg.	A stormwater management plan is part of the development package for the Centre for Excellence project at the Penticton campus.	2007	No End Date (Continuous)
Waste reduction/diversion						

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Action	Status (as of 12/31/09)	Performance to Date (as of 12/31/09)		Steps Taken in 2009	Steps Planned for 2010 -2012	Start Year	End Year
Put in place an operations policy to facilitate the reduction and diversion of building occupant waste from landfills or incineration facilities	Ongoing/In Progress			All campuses employ the services of local recycling companies. The following items are recycled: Cardboard, paper, tires, batteries, scrap metal, wood, plastic, styrofoam. Cooking oils and fats generated from cafeteria kitchens are collected. Organics composting was initiated. Discarded fruits and vegetables are collected from the culinary arts kitchens and are processed into compost at a local garden centre.	To increase the number of full service recycling stations on all campuses. To upgrade the styrofoam recycle process to a fully reuseable commodity. To expand our composting stream to include waste paper towels.	1998	No End Date (Continuous)
Implement a hazardous waste reduction and disposal strategy	Ongoing/In Progress			Ewaste is collected and recycled through Tech Cominco. Paints are recycled using a local company. Batteries are returned to the supplier for disposal. All used flourescent tubes are crushed and packaged for shipment.	Continue to expand	2003	No End Date (Continuous)
Procurement (non-paper supplies)							
Incorporate minimum recycled content standards into procurement policy for consumable, non-paper supplies (e.g., writing instruments, binders, toner cartridges, etc.)	In Development			On-going development of sustainable procurement policies	Continued assessment	2010	No End Date (Continuous)
Establish green standards for goods that are replaced infrequently and/or may require capital funds to purchase (e.g., office furniture, carpeting, etc.)	In Development			On-going development of sustainable procurement policies	Continued assessment	2010	No End Date (Continuous)
Implement sustainable purchasing program for cleaning products, disposable paper products and trash bags	Ongoing/In Progress			Inventory was purged products returned to suppliers. We changed to using a multi-purpose detergent free cleaning product.Coarse paper trails were undertaken and the switch from single fold format to roll towel is now in the RFP stage.	To reduce the number of garbage bags used by continuing to increase recycling volumes. To continue with the removal of garbage receptacles from classrooms and private offices.	2000	No End Date (Continuous)
Require a minimum purchase of sustainable, and organic food and beverages supplied by contracted food suppliers or caterers	In Development			On-going development of sustainable procurement policies	Continued assessment	2010	No End Date (Continuous)
Indoor air quality							
Enforce a scent-free policy (e.g., no strong perfumes, deodorants, etc.)	In Development			Currently all campuses are scent-aware, not yet scent-free.	Establish a scent free policy and monitor progress.	2010	No End Date (Continuous)
Incorporate low volatile organic compounds (VOCs) standards into procurement policy for products such as paints, carpets, and furniture	Ongoing/In Progress			Hard surface flooring now includes cork based compounds. Flooring requirements continue to spec carpet tile. Paint specs have expanded to include, Cloverdale Ecologic and Benny Moore Aura	To promote the use of natural based products in hard surface applications ie cork & rubber. Omit the use of floor coverings in favour of high performance concrete finishes whenever possible.	2000	No End Date (Continuous)
Commuting to and from home							
Offer staff a compressed work week	In Development			Limited usage by some depts. where feasible	No overall college policy	2009	No End Date (Continuous)
Encourage commuting by foot, bicycle, carpool or public transit	In Development			Carpooling web site established. Encouraging staff to carpool by reminding them about car pooling website and asking them to participate.	Improve carpooling program	2009	No End Date (Continuous)