

Langara.

THE COLLEGE OF HIGHER LEARNING.

2012 CARBON NEUTRAL ACTION REPORT



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Energy Management & Sustainability

Date: May 15, 2013

EXECUTIVE SUMMARY

Langara College has been working at reducing greenhouse gases and increasing sustainability for many years. This has come from both internal changes and policies and from incentive programs developed by BC Hydro, Office of Energy Efficiency, Natural Resources Canada, and the Association of Canadian Community Colleges. Langara College has been reporting their Energy Management Action Plan through the Canadian GHG Challenge Registry annually and has been recognized as a Gold Champion Level Reporter since 1999; this registry has recently closed. Langara's newest buildings on campus are built to LEED gold standard and certified. Langara continues to undertake improvements in energy efficiency through new construction, technical upgrades to existing buildings, occupant awareness, and metering & monitoring.

As part of the college's commitment to reducing Greenhouse Gas (GHG) Emissions, an Environmental Responsibility Policy (No 450) was established in June 2001. The purpose of the board governance policy is as follows:

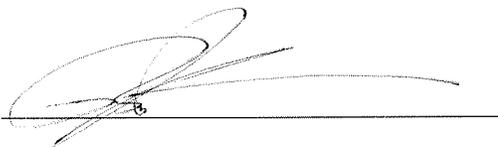
To provide direction to the College regarding the creation of a learning and working environment characterized by social responsibility, the Board is committed to:

- protecting and enhancing the environment for future generations, and
- using and managing its own physical environment more sustainably

The college is proud of its efforts to reduce energy usage and greenhouse gases. Langara is committed to reducing energy on campus and has demonstrated this by including optimization of energy use on campus as a strategic initiative in their Strategic Plan 2009 - 2013 and also by signing the Association of Canadian Community Colleges "Pan-Canadian Protocol for Sustainability".

The energy reduction goal for 2009 - 2013 is to reduce energy usage by 15% over 5 years. We are currently meeting our target.

Executive Approval:



Date:

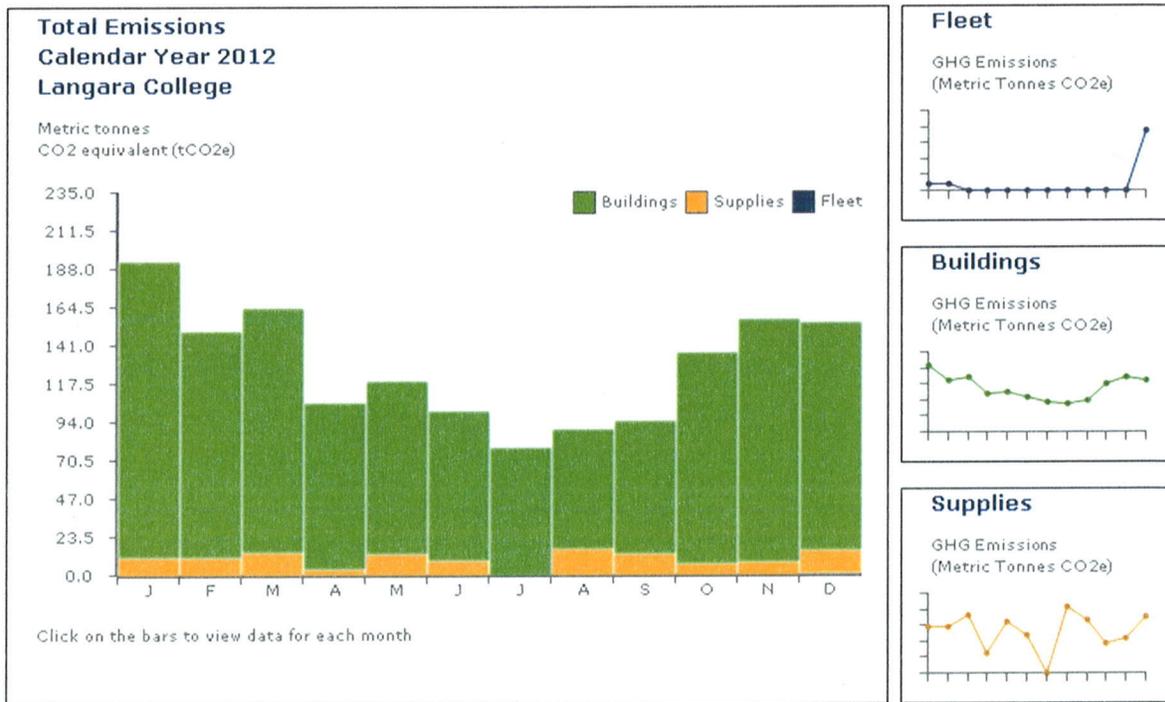
May 15, 2013

Signature:

Barry Coulson
Associate Vice President
Administration and Finance

2012 GREENHOUSE GAS EMISSIONS

CO₂e (CO₂ equivalent) emissions decreased from 1,985 tonnes in 2009 to 1,567 in 2012. This is a reduction of 21% in GHG emissions. This reduction in CO₂e is the result of ongoing efforts to reduce energy usage. The total emission offsets applied to become carbon neutral in 2012 is 1,567 tonnes. Langara College was required to pay \$41,133.75 (inc. taxes) in Carbon Offsets to become “carbon neutral”.



Stationary fugitive emissions from cooling are estimated at not more than 0.01% of Langara’s total emissions; to collect data for emissions from this source was not feasible. For this reason, emissions from this source have not been included in Langara’s total greenhouse gas emissions profile.

EMISSIONS REDUCTION ACTIVITIES 2012

The following are highlights of continued and new actions taken in 2012 to reduce Greenhouse Gas Emissions:

- Extended commitment to BC Hydro's Energy Manager Program; full time Manager, Building Operations with energy management focus hired.
- Upgraded lobby dashboard to include additional information on sustainability events and awareness initiatives.
- Completed A&B Buildings controls optimization investigation phase.
- Carried out heating plant evaluation and repairs.
- Installed new A building controls to replace older, unsupported hardware and improve operator interface required for improved energy usage through operations.
- Initiated implementation of Green IT – thin clients project.
- Awareness activities including Sweater Day and Earth Hour.
- Various continuing education classes related to Environment and Sustainability.
- Continued to purchase primarily 30% recycled paper.
- Installation of covered bike racks.

PLANS TO CONTINUE REDUCING GREENHOUSE GAS EMISSIONS 2013

The following actions are currently planned for next year:

- Complete A&B Buildings controls optimization and operator interface upgrades - implement findings resulting in < 2 year payback.
- Start investigation phase of C Building.
- B Building heating piping and controls upgrades.
- Kitchen demand control ventilation upgrades.
- Various lighting and controls upgrades, including LED track lighting for visual arts display, walkway bollards.
- Continue to implement IT thin clients in labs and employee workstations.
- Develop various operational guidelines related to campus energy management, green purchasing, waste management etc.
- Continue with general Awareness on Energy and Sustainability issues, including commuting.

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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	Steps Taken	Steps Planned	Start Year	End Year
Stationary Fuel Combustion, Electricity					
Behaviour change program					
Help staff reduce personal energy use through ""workstation tune-ups""	Not Yet Evaluated				No End Date (Continuous)
Ask staff to unplug electrical equipment or switch off power bars when not in use	Ongoing/In Progress	Awareness posters, kWh measuring devices available for loan in library	tbd	2012	No End Date (Continuous)
Ask staff to unplug electrical equipment or switch off power bars when not in use	In Development	preliminary awareness campaign work	tbd	2012	No End Date (Continuous)
Ask staff to close blinds at end of work day to reduce heating/cooling demands	Ongoing/In Progress	done in previous years, included in energy tips/website	tbd	2008	No End Date (Continuous)
Provide tips to staff on saving energy in the office while working outside of regular business hours	In Development	Some messaging has been provided around this over years	tbd	2008	No End Date (Continuous)
Encourage use of stairs instead of elevators	In Development	general awareness campaign planning and research,	tbd	2009	No End Date (Continuous)
Provide reminders for turning off lights (e.g., signs, stickers, messages)	Ongoing/In Progress	Started prior to 2008. Messages in website and employee news. Not a focus in 2012.	tbd	2008	No End Date (Continuous)
Promote hot water conservation	In Development	general awareness campaign research	tbd	2009	No End Date (Continuous)
IT power management					
Install power management software which shuts down computers outside of regular business hours	Ongoing/In Progress	Window 7 preliminary college wide implementation. Has power management capability	tbd - configuration under investigation	2009	No End Date (Continuous)
Implement server virtualization	Ongoing/In Progress	continue to virtualize servers, transition to thin clients for desktops to reduce workstation and lab computer energy usage. Planning completed in 2012 and before.	Implementation of thin clients underway.	2009	No End Date (Continuous)
Apply auto-sleep settings on computer monitors and CPUs	Ongoing/In Progress	to review application with new citrix environment	tbd	2009	No End Date (Continuous)
Remove stand-alone printers, copiers, and/or fax machines and install multi-function devices as part of a print management strategy	Ongoing/In Progress	general information gathering	review need for policy, draft policy where applicable 1. eliminate personal printers 2. electric heaters in personal space	2009	No End Date (Continuous)
Apply auto-sleep settings on printers, fax machines, and/or multi-function devices	Ongoing/In Progress	new multifunction devices are energy star	additional software upgrades planned, policy around standalon printers required.	2009	No End Date (Continuous)
Replace computers with ENERGY STAR models during regular computer upgrades	Ongoing/In Progress	ongoing replacement, including citrix implementation	ongoing planning and implementation	2009	No End Date (Continuous)
Leased buildings					
Establish energy performance baseline for leased buildings	Not Yet Evaluated				No End Date (Continuous)
Lease space with operations and maintenance performance labelling/certification (e.g., LEED EB:O&M)	Not Yet Evaluated				No End Date (Continuous)
Lease space with commercial interiors performance labelling/certification (e.g., LEED CI)	Not Yet Evaluated				No End Date (Continuous)
Lease space in buildings with new construction performance labelling/certification (e.g., LEED NC)	Not Yet Evaluated				No End Date (Continuous)
Develop a green lease policy that requires green features to conserve energy be included in all lease negotiations	Not Yet Evaluated				No End Date (Continuous)
Owned buildings					

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
Establish energy performance baseline for owned buildings	Ongoing/In Progress	Building level electrical baselines established.	Finalize gas baselines	2009	2013
Register for performance labelling/certification for operations and maintenance of owned buildings (e.g., LEED EB:O&M)	In Development	Research	Review LEED EB for B Building	2013	No End Date (Continuous)
Register for performance labelling/certification for commercial interiors of owned buildings (e.g., LEED CI)	Not Yet Evaluated				No End Date (Continuous)
Achieve LEED NC Gold certification at a minimum for new construction or major renovations	Ongoing/In Progress	All new buildings on campus to be LEED Gold minimum Our first LEED Certified building was our New Library building which opened in 2007.	All future buildings LEED Gold Minimum	2008	No End Date (Continuous)
Perform energy retrofits on existing, owned buildings	Ongoing/In Progress	Started in 2000 New controls hardware installed in A building Controls optimization for A & B buildings study	Implementation of A & B Building Study New VAVs for B building LED grad show and lounge track lighting for art work displays LED Walkway lighting B Building heating piping and controls upgrade	2008	No End Date (Continuous)
Incorporate a refrigerant management strategy into regular building management/maintenance to reduce fugitive emissions	Not Yet Evaluated				No End Date (Continuous)
Planning/management					
Reduce office space (square meters) per employee	Not Yet Evaluated				No End Date (Continuous)
Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)	Completed (in Previous Year)				No End Date (Continuous)
Retrofit details for owned buildings					
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress	Start date prior to 2008. Heating Plant inspections and repairs, including combustion testing	B Building heating piping upgrade to allow heating plant temperature to be reduced. Kitchen Demand Control Ventilation Variable Speed Drives on heating New heating valves Add equipment to DDC New Variable Air Volume Boxes for B building	2008	No End Date (Continuous)
Upgrade lighting systems during retrofits	Ongoing/In Progress	Started prior to 2008 New LED path lighting near new library A few exterior lights changed out with LED with integrated photocell	possible projects include Studio lighting retrofits exterior lighting LED track lighting for creative arts displays	2008	No End Date (Continuous)
Upgrade/adjust control systems during retrofits	Ongoing/In Progress	Upgrades started in 2000 New A building Hardware	B Building controls upgrade A & B building Optimizaiton C & L Building control panel upgrades	2008	No End Date (Continuous)
Improve building insulation (including windows) during retrofits	Ongoing/In Progress	started in 2005 none	improve when replacement is required	2008	No End Date (Continuous)
Supplies (Paper)					
Behaviour change program					
Train staff to use collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	Not Yet Evaluated				No End Date (Continuous)

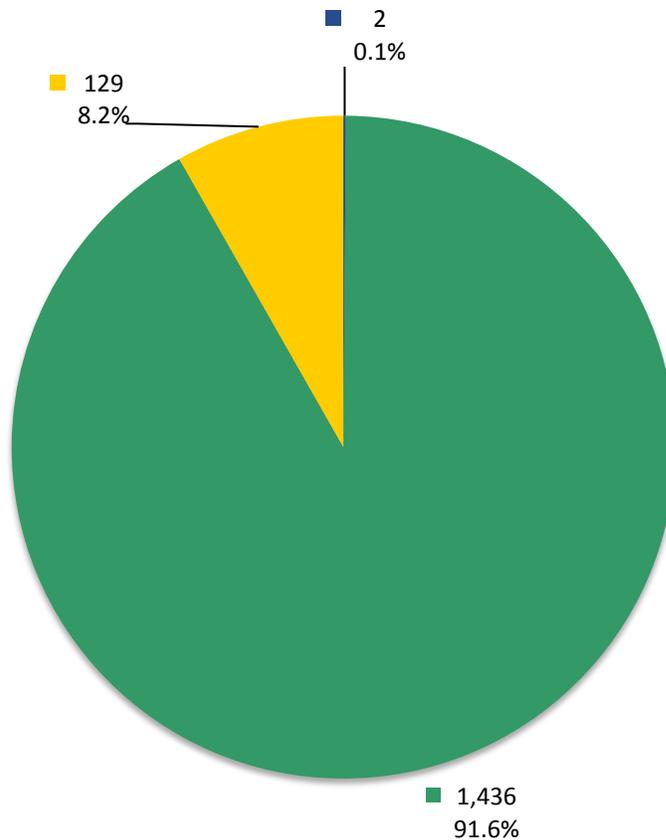
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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
Encourage staff to hold paperless meetings or presentations (i.e., no handouts)	Not Yet Evaluated				No End Date (Continuous)
Electronic media in place of paper					
Install collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	Not Yet Evaluated				No End Date (Continuous)
Use electronic document library for filing common documents	Ongoing/In Progress	Research and Investigatons	Research and Investigatons	2009	No End Date (Continuous)
Switch to an electronic payroll notification system in place of paper pay stubs	Completed (in Previous Year)				No End Date (Continuous)
Paper Type					
Purchase 30% post-consumer recycled paper	Ongoing/In Progress	ongoing work with college purchasing group to source the best option with most recycled content	ongoing work with college purchasing group to source the best option with most recycled content	2009	No End Date (Continuous)
Purchase 100% post-consumer recycled paper	Ongoing/In Progress	ongoing work with supplier to provide most recycled content	ongoing work with supplier to provide most recycled content	2011	No End Date (Continuous)
Printer/document settings					
Switch networked printers and photocopiers to automatic double-sided	Ongoing/In Progress	New devices with capability for more configuration.	additional software implementation required to optimize use of double sided printing.	2009	No End Date (Continuous)

**Langara College
Greenhouse Gas Emissions by Source
for the 2012 Calendar Year (tCO₂e*)**



Total Emissions: 1,567

- Mobile Fuel Combustion (Fleet and other mobile equipment)
- Stationary Fuel Combustion (Building Heating and Generators) and Electricity
- Supplies (Paper)

Offsets Applied to Become Carbon Neutral in 2012 (Generated May 27, 2013 11:40 AM)

Total offsets required: **1,567**. Total offset investment: **\$39,175**. Emissions which do not require offsets: **0** **

*Tonnes of carbon dioxide equivalent (tCO₂e) is a standard unit of measure in which all types of greenhouse gases are expressed based on their global warming potential relative to carbon dioxide.

** Under the *Carbon Neutral Government Regulation of the Greenhouse Gas Reduction Targets Act*, all emissions from the sources listed above must be reported. As outlined in the regulation, some emissions do not require offsets.