

Carbon Neutral Action Report

Name of Organization

Kwantlen Polytechnic University

Ministry Responsible

Advanced Ed

Report Submitted by:

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Executive Summary

Please provide a short high level summary of the key actions or planning that your organization undertook with regard to achieving carbon neutrality.

We have taken many steps to reduce energy consumption which also reduce greenhouse gas emissions and help achieve carbon neutrality. In 1995 we were one of the first post secondary institutions to join the federal government's Energy Innovators Initiative and Canada's Climate Change Voluntary Challenge and Registry (VCR).

Kwantlen assisted the Government of British Columbia to develop its Green Buildings BC - Retrofit Program by becoming the first "Pilot Project" to test the various policies and instruments that underpin its efforts. The retrofit program was completed in 2002 using an energy services agreement with Vestar.

Our efforts as leaders in energy conservation have been acknowledged with receipt of several awards. In 2003, we received the Leadership Award under the Colleges and Universities sector (for 2002) for outstanding environmental efforts and for being the top Canadian post-secondary Institution in "going green." CSA GHGR Inc. president Robert Flemington explained that organizations are chosen for the Leadership Award for showing a significant decrease in the intensity of GHG emissions, demonstrating senior management commitment, setting future reduction targets and preparing detailed action plans and progress reports.

Kwantlen was one of only nine BC organizations (2 post-secondary's) honored by B.C. Hydro with a "Certified Energy Efficiency Leader" award. In 2008 a new top award, Excellence in Energy Management was presented by BC Hydro with Kwantlen the only post-secondary institution even nominated for this award.

All new construction has incorporated sustainable practices and four of our Facilities personnel are LEED certified professionals. The Cloverdale campus was completed in 2007 achieving a LEED Gold designation. In 2007/08 Kwantlen completed construction of additions to Buildings A and C which are LEED buildings targeting LEED Gold or better. Construction began in 2008 on a research facility to support research to assist the Horticulture industry to be more sustainable. The facility is targeting LEED Gold and includes a greenhouse that will use geothermal energy to provide heating.

Objectives

Beyond the key objective of reducing greenhouse gas (GHG) emissions, list any additional objectives that link carbon neutral government to your organization's mandate.

Ongoing projects are performed to reduce energy consumption and greenhouse gas emissions. In 2007 we committed to reduce energy density per square meter by 45% for electricity and 25% for natural gas from 2000 levels by 2010. For fiscal year 2008/09 we are 71% towards achieving our electricity reduction target and 129% towards achieving our natural gas target.

Since our original goals were established we have started to shift our heating technology from natural gas heating to electric Geoxchange heating. This shift is increasing our electrical consumption and reducing our natural gas consumption. Due to this shifting we have revised our energy savings unit of measurement to ekWh/M2 which is the combined electrical and natural gas unit of energy.

For reporting period 2008/09 we have made 95% progress achieving our goal based on the ekWh unit of energy.

Part 1: Actions Taken to Reduce Greenhouse Gas Emissions in 2008**Overview:**

Please include a high level summary of all actions taken during the period beginning January 1, 2008 through to December 31, 2008. Actions commencing prior to, and ceasing after end of the relevant calendar year may be included as long as some component of the action in question takes place during the 2008 calendar year.

All new construction is built to a minimum of LEED Gold equivalency.

In 2008, numerous energy conservation projects to reduce energy consumption and greenhouse gas emissions have been completed including a control systems upgrade at the Richmond campus, occupancy sensors for 24 washrooms, ongoing energy use awareness training of janitorial, security and facilities personnel and completion of an energy audit.

An audit was completed identifying energy consumption and expenditures from 1994 to present. Trends were identified and relevant factors for ongoing monitoring determined.

The Resource Management Action Plan was updated identifying further opportunities for energy conservation.

Funding request was submitted to PSECA.

Completed BC Hydro's 1 - 5 evaluation with a rating of our operations at the two star level.

Provided leadership in energy management by presenting to groups throughout North America on how to achieve excellence in energy management.

Provided tours of new energy efficient buildings to educate others as to features and benefits of these buildings and was interviewed for journal articles on LEED buildings.

Numerous educational offerings incorporate sustainability topics.

1.1. Mobile Fuel Combustion:

Actions taken during the relevant calendar year to reduce direct emissions from fuel (natural gas, ethanol blends, diesel, propane, gasoline) consumption by a vehicle or other mobile combustion source. Note that any actions related to personal vehicle use, commuting to/from work, or efforts to encourage active transportation in the community should be included in section 1.5 or 1.6 respectively.

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken	
	Under Action Taken, indicate In Progress or Complete. Leave blank if the action does not apply.	Indicate if you have established a measure to indicate success e.g. percentage of staff who are participating in a specific project/program. This report does not require public sector organizations to include quantitative statistics resulting from actions or plans; however such statistics will be welcomed if they include their determining methodology in an appendix.	Note any specifics that are meaningful here . If an action or plan to reduce emissions is not included in the list, there is an opportunity to add items at the bottom of each section under the heading "Other". Only enter truly new items (not just slightly different items where the variation can be noted in this column). Do not add new rows within the body of the template. There is space at the bottom of the template if needed.	This column is for Part 2 -- Actions Planned to indicate the timeframe. Leave blank in Part 1.
Replaced # of TYPE OF VEHICLE with MORE EFFICIENT VEHICLE/Hybrid.	Complete	Eliminated two vehicles, and replaced two vehicles with more fuel efficient models.		
Provided driver training to reduce fuel use				
Initiated new fleet maintenance program (could include – changing filters, checking tire pressure, regular check-ups)	Complete	Replacement vehicles have maintenance program developed and employees are comparing fuel efficiency between vehicles and drivers.		
Established anti-idling behaviour change program (e.g. signs, stickers, messages)				
Encouraged car pooling in fleet vehicles				
Encouraged use of public transit/active transportation				
Encouraged alternatives to travel in fleet vehicles – bicycles, scooters, electric carts				
Changed from gas to electric lawn maintenance equipment				
Changed to manual lawn and yard maintenance equipment				
Established travel reduction goals				
Adopted a travel policy				
Other: (Please enter any items not included in the above list)				
Electric car recharging stations	Completed	Cloverdale campus has electric car recharging stations.		
Electric scooter recharging station	Completed	Langley campus has a recharging station for electric scooters.		

1.2. Stationary fuel combustion and electricity:

Actions taken during the relevant calendar year to reduce both direct and indirect emissions by conserving electricity and reducing fuel consumption (including heating oil #2, natural gas, propane, steam) used by equipment or in buildings.

Add control to ventilation dampers for morning warm-up;
Start adding occupancy sensors to turn off washroom lighting when not occupied;
Start converting Richmond Campus high variable use areas to demand ventilation control;
Conducted energy audits to determine additional energy conservation opportunities.

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Undertaken workstation tune-ups to help staff understand what they can do to reduce personal energy use .			
Supplied power bars – to turn off power to non-essential items when not in use (e.g. phone chargers).			
Undertaken Monitor turn-off challenge.			
Replaced a number of computers with EnergyStar models.	In Progress	Replaced 70 pc computers with thin-client computers that reduced energy consumption by 80%.	This is a pilot project that will expand into replacement of up to 1800 pc computers in 5 years.
Asked staff to close blinds daily.	In Progress		Security personnel assist for those that have overlooked closing blinds.
Used air dry setting on dishwashers.			
Encouraged staff to use stairs.			
Turned off lights in unused rooms.	In Progress	Energy savings.	Larger rooms have motion sensors. Labels reminding users to turn off the lights are in place by all light switches. Security and Cleaning personnel assist to ensure lights have been turned off. The building management system automatically turns off all lights at a set time.
Replaced Refrigerators (EnergyStar rated appliance).	In Progress		Replacement and new fridges are EnergyStar rated.
Replaced other appliances (with EnergyStar rated appliance).			Replacements are EnergyStar rated.
Installed multi-function devices (and removed stand-alone printers/faxes).	In Progress	Energy savings.	An ongoing initiative for the past several years with majority of equipment being multi-function devices.
Replaced standard bulbs with CFL's.	Complete	Energy savings.	Performed as part of energy efficiency project in 2000/01. New desk lamps in Library are LED.
Installed motion activated lights.	In Progress	Energy savings.	Performed as part of energy efficiency project in 2000/01; continuing to add additional sensors as funds available.
Undertaken lighting retrofit.	In Progress	Energy savings.	Performed as part of energy efficiency project in 2001/02 retrofit completed; ongoing replacements continue based on availability of new technology.
Implemented server virtualization.	Complete	Reduction in energy consumption of the 64 servers by 85%.	Virtualized 14 existing and 50 new servers.
Utilized desk-top power management settings on computers.			

Initiated corporate computer shut-down/wake-up for maintenance.	Complete	Implemented on computers with 67% energy saving. BC Hydro calculated the energy saving as sufficient to power 42 homes per year.	
Unplugged unused equipment.	In Progress	Energy savings.	We encourage unplugging unused equipment.
Applied for LEED existing building rating.			
Undertaken building energy audit at LOCATION(s).	Complete	Audited 3 main campus locations in 2008.	Langley - Richmond - Surrey Campus have been audited. Cloverdale was opened in 2007, is LEED Gold and has not been audited.
Initiated or completed a building energy retrofit .	Complete		Major retro fit in 2001/02.
Other: (Please enter any items not included in the above list)			
Replaced portable heaters .	Complete	90% reduction in energy use for this item.	Portable space heaters replaced with radiant heater that consumes 1/10 the energy.
Replaced CRT monitors with LCD monitors.	In Progress	Replaced 150 monitors.	
1.3. Supplies: Actions taken during 2008 to reduce the consumption of paper, however organizations may also include any other relevant initiatives to reduce consumption of goods or services.			
Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Committed to use 30% recycled paper.	Complete	Have been using for 3 years.	
Committed to use 100% recycled paper.	Planned		
Initiated automatic double sided printing.	Complete	Reduce paper usage. Estimated savings equivalent to 82 trees.	Implemented on all multifunction print/copy devices.
Changed document template margins .			
Committed to hold paperless meetings.			
Developed document library (online and one printed copy) for large documents.	In Progress	Reduce paper usage.	Internet team collaboration space for document sharing.
Used collaborative software to edit on-line.			
Re-used non-confidential scrap paper.	In Progress		In house Print Service creates notepads.
Used laptops/tablets .	In Progress	Reduce paper usage.	Expand roll out of laptops to staff and faculty.
Restructured a process to use less paper.	In Progress		Initiated online reporting for pay statements and for expense cheque payments.
Actions on non-paper related supplies:			
Purchased cradle to cradle goods.			

Chose "Green" items from Distribution Centre .	In Progress		Green products selected from Distribution Centre and evaluation and selection of green products as appropriate for our organization from other suppliers.
Encouraged re-use of furniture and equipment.	In Progress	Estimate close to \$1 million in value of furnishings have been reassigned in past 2 years.	Inventory surplus items and re-use as possible.
Other: (Please enter any items not included in the above list)			
Green Cleaning processes implemented which use environmentally friendly products.	Complete	Healthier indoor environment and less impact on environment from cleaning chemical usage.	Environmentally friendly cleaning products used at each campus location.
Online course websites for sharing of course material.	In Progress	Reduction in distribution of printed material.	2000 course sections with online resources.
New building materials selected to reduce supplies required to maintain.	In Progress	Building materials are selected to minimize impact on the environment.	An example is the flooring product chosen requires no chemical processes for maintenance and utilizes micro fiber technology for maintenance to reduce water consumption.
Recycling of obsolete computer equipment.	In Progress	90% of obsolete computers are donated for reuse by charitable organizations. Remaining 10% are recycled through approved recycling depot.	
<p>1.4 Travel (Report on Travel is required only if a core government ministry/tribunal, where travel is paid directly from the Consolidated Revenue Fund) Include travel emission reduction or avoidance initiatives that took place in 2008.</p>			
Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Set a X% Travel reduction goal.			
Trained staff in the use of Live Meeting (or other desktop collaborative software).			
Installed Video Conferencing facilities.	In Progress	Reduced travel cost.	Video conferencing facilities installed in 3 locations as pilot project.
Initiated Travel Policy.			
Mandated car pooling to government meetings.			
Supported alternative travel (bike/skateboard/walk/transit) for meetings.			
Other: (Please enter any items not included in the above list)			
1.5 Employee Engagement			

Include employee engagement initiatives that took place in 2008, that involved staff in the development or implementation of initiatives to reduce GHGs at home and at work.

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Provided climate change education.	In Progress	Increased awareness	Provided educational events for community including Green Wednesdays.
Provided conservation education.			
Held contests to change behaviour/make pledges.			
Held contests/support to generate ideas.			
Developed Green Teams.			
Supported Green Teams (resources).			
Provided green tips.	In Progress	Increased awareness	Provided green tips on website.
Supported professional development.	In Progress	Increased awareness	Numerous in-house educational sessions as well as attendance at conferences.
Added green work goal to performance management.			
Other: (Please enter any items not included in the above list)			
Membership in CaGBC and AASHE	In Progress	Sustainability information	AASHE membership provides information for all students and employees.

1.6 Sustainability Actions (others)
 Actions to reduce greenhouse gas emissions or promote sustainability in any other category than are listed above.

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Took water conservation measures – low flow showers or toilets, fix leaks.	Complete		Added low flow devices to washroom taps in 2006. Audited all faucets in 2008, repairing leaks and installing low flow devices on faucets where missing.
Ran dishwasher only when full.	Planned		
Reduced/replaced bottled water with filtered or refrigerated water.	Planned		Decision pending.
Improved recycling measures.	Planned		Well established program, in place for more than 10 years, is being enhanced.
Supported composting.			
Used re-usable dishes.	In Progress		
Purchased green cleaning products.	In Progress		Green cleaning for past seven years.
Used green (low-e paints).	In Progress		

Supported sustainable procurement practices.	In Progress		Weekly review of integrating green opportunities
Adopted low-carbon contracting practices.	In Progress		Through LEED for major building construction.
Other: (Please enter any items not included in the above list)			
Purchase green power certificates.	In Progress		50% of the power for our Cloverdale campus and 100% of the power for our Surrey campus Library is provided from green power.
LEED Professional training.	Complete	LEED AP	One Facilities department employee completed training as LEED professional.

Part 2: Plans to Continue Reducing Greenhouse Gas Emissions 2009 -- 2011

Overview:

This section will document any future plans to reduce greenhouse gas emissions by each public sector organization.

Building upon our commitment to continuous improvement in sustainable practices we will be expanding upon our current initiatives. Projects will be undertaken to reduce energy consumption within our buildings including replacement of the boilers at the Surrey and Langley campuses and lighting improvements at all campuses.

There will be an increased focus on creating and providing more awareness training.

Procurement practices will include more research into assessing new green products.

2.1. Mobile Fuel Combustion:

Include any actions planned over the next few years to reduce direct emissions from fuel (natural gas, ethanol blends, diesel, propane, gasoline) consumption by a vehicle or other mobile combustion source. Note that any actions related to personal vehicle use, commuting to/from work or efforts to encourage active transportation in the community should be included in section 1.5 or 1.6 respectively.

Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
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	Under Action Planned, indicate In Progress or Planned. Leave blank if the action does not apply.	Indicate if you have established a measure to indicate success e.g. percentage of staff who are participating in a specific project/program. This report does not require public sector organizations to include quantitative statistics resulting from actions or plans; however such statistics will be welcomed if they include their determining methodology in an appendix.	Note any specifics that are meaningful here . If an action or plan to reduce emissions is not included in the list, there is an opportunity to add items at the bottom of each section under the heading "Other". Only enter truly new items (not just slightly different items where the variation can be noted in this column). Do not add new rows within the body of the template. There is space at the bottom of the template if needed.	Please indicate the timeframe for this action.
Replace # of TYPE OF VEHICLE with MORE EFFICIENT VEHICLE/Hybrid				
Provide driver training to reduce fuel use.	Planned			
Initiate new fleet maintenance program (could include – changing filters, checking tire pressure, regular check-ups).	In Progress		Review will be completed to ensure program in place is maintained.	2009
Establish anti-idling behaviour change program (e.g. signs, stickers, messages).				
Encourage car pooling in fleet vehicles.				
Encourage use of public transit/active transportation.				
Encourage alternatives to travel in fleet vehicles – bicycles, scooters, electric carts.				
Change from gas to electric lawn maintenance equipment.				
Change to manual lawn and yard maintenance equipment.				
Establish travel reduction goals.				
Other: (Please enter any items not included in the above list)				
<p>2.2. Stationary Fuel Combustion (including electricity): Include actions planned over the next few years to reduce both direct and indirect emissions by conserving electricity and reducing fuel consumption (including heating oil #2, natural gas, propane, diesel, steam) used by equipment or in buildings.</p>				
<p>Action</p>	<p>Action Planned</p>	<p>Outcome/Performance Measure</p>	<p>Notes Clarifying Action Taken</p>	<p>Timeframe</p>
Undertake workstation tune-ups to help staff understand what they can do to reduce personal energy use .				

Supply power bars – to turn off power to non-essential items when not in use (e.g. phone chargers).			
Undertaken Monitor turn-off challenge.			
Replace # computers with EnergyStar models.	In Progress	Replacing 340 student computers with thin-clients. 220 staff computers to be replaced with more energy efficient models.	Expand thin-client implementation. Replace old computers with energy efficient models. 2009
Ask staff to close blinds daily .	In Progress		Security personnel turn off lights if overlooked by employees. Website energy saving tips includes this suggestion.
Use air dry setting on dishwashers.	In Progress		
Encourage staff to use stairs.	In Progress	Signage	2009
Turn off lights in unused rooms.	In Progress	Signage, reminders to personnel	Security personnel close blinds if overlooked by employees. Website energy saving tips includes this suggestion.
Replace Refrigerators (EnergyStar rated appliance).	In Progress		Replacements are Energy Star.
Replace other appliances (with EnergyStar rated appliance).	In Progress		Replacements are Energy Star.
Install multi-function devices (and remove stand-alone printers/faxes).	In Progress		Majority of equipment are multi-function devices.
Replace standard bulbs with CFL's.	Complete		
Install motion activated lights.	In Progress		Additional washrooms/classrooms. 2009
Undertake lighting retrofit.	In Progress	Anticipated to save 40,000 kW/yr which is estimated GHG reduction of 1 tones eCO2/yr.	Lower wattage tubes in hallways.
Implement server virtualization.	In Progress	Estimate 90% reduction of energy consumption by the 50 servers.	Virtualized 50 existing servers.
Utilize desk-top power management settings on computer.	In Progress		
Initiate corporate computer shut-down/wake-up for maintenance.	Complete		
Unplug unused equipment.	In Progress		
Apply for LEED existing building rating.			
Undertake building energy audit at LOCATION(s).	In Progress		
Initiate or complete a building energy retrofit .	In Progress		
Other: (Please enter any items not included in the above list)			
Replace Boiler (Surrey Campus).	In Progress	Anticipate reduction in natural gas consumption at Surrey Campus by estimated 4000 GJ which is GHG reduction of 206 tones eCO2/yr.	Replace 1 boiler at Surrey Campus with high efficiency unit. This work is in design phase.
Expand geothermal field.	In Progress		
Retrofit original Library mechanical system.	In Progress	Estimate 60% reduction in energy consumption.	

Undertake energy audit of data centre at Surrey campus.	Planned	Reduce energy consumption.	Provide baseline for energy efficiency improvements.	
Replace CRT monitors with LCD monitors.	In Progress	Reduce in energy consumption.		
2.3. Supplies:				
Include actions planned over the next few years to reduce the consumption of paper. Organizations may also include other relevant initiatives to reduce consumption of goods or services.				
Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Commit to use 30% recycled paper.	In Progress			
Commit to use 100% recycled paper.	Planned			2009
Initiate automatic double sided printing.	In Progress	All printing devices on campus are defaulted to double-sided. More than double current savings.	Expand to include all network printers.	
Change document template margins.				
Commit to hold paperless meetings.				
Develop document library (online and one printed copy) for large documents.	In Progress	Reduce print pages.	Implement online document library on the intranet sharing of documents within and across departments.	
Use collaborative software to edit on-line.				
Re-use non-confidential scrap paper.	In Progress		Continue practice of re-use.	
Use laptops/tablets .	In Progress			
Restructure a process to use less paper.	In Progress		Electronic purchase requisitions.	2009
Actions on non-paper related supplies:				
Purchase cradle to cradle goods.				
Choose "Green" items from Distribution Centre .	In Progress			
Encourage re-use of furniture and equipment.	In Progress		Continue to maintain inventory of items and re-assign.	
Other: (Please enter any items not included in the above list)				
Implement print management solution.	Planned	Reduce printed pages.	Software solution to monitor print utilization and cost. Guide users to reduce number of printed pages and direct high volume printing to more energy efficient/ecological devices.	
Replace old printers with EnergyStar compliant devices.	In Progress	Reduce energy used.		
Online course websites for sharing of course material.	In Progress	Reduce paper usage.	Continue to expand use of course websites.	
2.4 Travel (Report on Travel only if a core government ministry/tribunal, where travel is paid directly from the Consolidated Revenue Fund)				
Include actions planned over the next few years to reduce travel related emissions.				

Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Set a X% Travel reduction goal.				
Train staff in the use of Live Meeting (or other desktop collaborative software).				
Install Video Conferencing facilities.	In Progress	Reduced travel between campuses.		
Initiate Travel Policy .				
Mandate car pooling to government meetings.				
Support alternative travel (bike/skateboard/walk/transit) for meetings.				
Other (Please enter any items not included in the above list)				
Implemented hotel offices.	Complete	Reduced travel between campuses.	For HR and IET departments.	

2.5 Employee Engagement

Include employee engagement planned over the next few years, that involves staff in the development or implementation of initiatives to reduce GHGs.

Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Provide climate change education.	In Progress	Provide training opportunities.		
Provide conservation education.	In Progress	Provide training opportunities.		
Hold contests to change behaviour/make pledge.				
Hold contests/support to generate ideas.				
Develop Green Teams.				
Support Green Teams (resources).				
Provide green tips.	In Progress	Provide green tips on website.	Provide regular updates.	
Support professional development.	In Progress	Attendance at sustainable training opportunities.		
Add a green work goal to performance management.				
Other: (Please enter any items not included in the above list)				

2.6 Sustainability Actions (others)

Include actions planned over the next few years to reduce greenhouse gas emissions or promote sustainability in any other category than is listed above.

Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Take water conservation measures – low flow showers or toilets, fix leaks.	Complete		Part of our maintenance program is to ensure no leaks and that low flow devices in place and operate properly.	Ongoing
Run dishwasher only when full.				

Reduce/replace bottled water with filtered or refrigerated water.	Planned		
Improve recycling measures.	In Progress	Plan to add additional recycling stations	2009
Support composting.	Planned		
Use re-usable dishes.	In Progress		
Purchase green cleaning products.	In Progress	Continue to use green cleaning products	Ongoing
Use green (low-e paints).	In Progress	Continue to use low e-paint	Ongoing
Support sustainable procurement practices.	In Progress	Weekly review and integration of opportunities	Ongoing
Adopt low-carbon contracting practices.	In Progress	We follow LEED construction practices	Ongoing
Other: (Please enter any items not included in the above list)			
Vehicle fleet carbon offsets	In Progress	Purchased with insurance renewal	Ongoing
Electronic distribution of contract documents FTP site	In Progress		Ongoing

ADD ANY ADDITIONAL ACTIONS TAKEN OR PLANNED IN THE ROWS BELOW. PLEASE INDICATE WHICH SECTION THE ACTION BELONGS IN BY INCLUDING THE NUMBER E.G. 2.6 SUSTAINABILITY	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe