

**Executive Summary**

For a decade, the University of British Columbia has led the way in campus sustainability. This has included leadership in the development of sustainable economic, ecological and social solutions, including climate solutions within the campus, and also efforts in world-leading climate research.

Our story includes pioneering initiatives which have demonstrated significant reductions in energy and resource use, and greenhouse gas emissions. For example, the \$34 million UBC ECOTrek program, an energy and water infrastructure upgrade project, results in approximately \$3.5 million dollars in energy savings annually. The UBC U-Pass transit ridership program, coupled with UBC's transportation demand management strategies has increased overall transit trips by 168% from 1997 levels. The Fipke Centre for Innovative Research, opened in the fall of 2008 on the UBC Okanagan's campus. It is the first building to use the campus geoexchange groundwater energy system for heating and cooling – an emissions-reducing and cost-saving system that will eventually provide heating and cooling to every academic building on the campus.

The UBC Project Renew initiative, a project which renovates rather than demolishes aging infrastructure, saved nearly \$89 million in construction costs as compared to new construction.

UBC is one of nine BC Hydro Power Smart Leaders and received a Power Smart Award of Excellence in 2007 for its ECOTrek Program. President Clinton held up ECOTrek and UBC Renew as North American examples of excellence at a UNColloquium of University Presidents held in November 2007.

The expansion of UBC's Sustainability Coordinator program has supported our community in making smart choices in the workplace that save energy, resources, and money. These stories and others are told here to communicate that UBC is uniquely positioned to model and inspire others throughout the province.

Our story also includes a diversity of relevant world-leading science and research. For example, UBC scientist Greg Dipple explores the uptake and storage of CO<sub>2</sub> from the atmosphere by mine wastes, UBC engineer James Olson demonstrates the reduction of electrical energy use in mechanical pulping processes, and UBC geographer Greg Henry studies tundra ecosystem impacts of climate change in the Canadian Arctic. Drs. Stephen Sheppard and David Flanders are undertaking the Collaborative for Advanced Landscape Planning (CALP). Other examples of innovative research on climate solutions at UBC include the Adaptation/Mitigation Sustainable Development Project and The Design Centre for Sustainability. UBC members of the Intergovernmental Panel on Climate Change (IPCC) are John Robinson, Professor - Institute for Resources, Environment and Sustainability (IRES) and Stewart Cohen, Adjunct Professor, Forestry Faculty. These efforts along with others are examples of UBC's commitment to excellence in the search for climate solutions.

UBC is aggressively advancing activities associated with the Government of British Columbia's legislated Greenhouse Gas Reduction Targets Act of November, 2007. This is entirely consistent with our commitment to demonstrating excellence in sustainability in our research, education, operations and community partnerships.

Our own program of action includes: publishing and communicating UBC's options to Go Beyond Carbon Neutrality; measuring our GHG emissions; preparing a UBC Climate Action Plan which includes targets for emissions reductions; investing in campus-wide education and awareness; leveraging up our intellectual trust to demonstrate and showcase climate solutions; and developing partnerships to build receptivity and capacity in the wider community.

**Objectives**

The University of British Columbia, aspiring to be one of the world's best universities, will prepare students to become exceptional global citizens, promote the values of a civil and sustainable society, and conduct outstanding research to serve the people of British Columbia, Canada, and the world.

The objective of promoting the values of a sustainable society is met, in part, through the UBC Sustainability Office. The mission of the Sustainability Office is to enable, support and coordinate efforts that bring together students, faculty, staff, and the community to lead the transformation to a sustainable UBC campus. We do this by providing resources, programs, communications, and networks of support to enable UBC to model and advance sustainability in teaching research, operations, as well as in the external community.

**Overview:**

2008 marked an exciting year for climate action at UBC. In March, UBC initiated and led the signing of the President's Statement of Action on Climate Change for Canada. By signing this statement, UBC has committed to:

- exercise leadership by reducing emissions of greenhouse gases in collaboration with our communities.
- develop measurable targets using research and science.
- develop achievable and practical plans to achieve reduction targets.
- put in place rigorous assessment and measurement procedures.
- fully disclose and be accountable for our actions.

This commitment is being met through the development of the UBC Climate Action Plan. This multi-year multi phase plan will establish emissions reductions targets, timelines and implementation strategies for emissions reductions in each of 7 emissions source areas:

- Energy
- Transportation
- Procurement and Business Travel
- Buildings, Infrastructure and Land Use
- Food
- Ancillary Operations
- Fleets and Fuel Use.

The Climate Action Planning process, commenced in 2008, will wrap-up in spring '09, with an aim to begin implementation in late '09 or early '10.

Coupled with the climate action planning process, in 2008 UBC initiated an alternative energy feasibility study aiming to identify ways to eliminate GHG emissions associated with the UBC Steam Plant, and generate carbon tax and carbon neutral mandate cost savings. The feasibility study is scheduled for completion in 2009, with project implementation scheduled for 2010.

UBC's commitment to climate action extends beyond operational sustainability to look at behaviour change and climate action. In 2008, the UBC Sustainability Office partnered with Common Energy and the Sierra Youth Coalition to support a network of youth in developing and implementing the goBeyond project- a student-led climate action program that educates, inspires, engages and supports youth in making carbon-smart lifestyle choices. To date, this group has engaged with over 80 000 youth across the province, including over 6000 at UBC through programs such as the GHG reduction challenge, climate change teach-in, webinar series, conferences and trainings.

Finally, the Sustainability Coordinators, a team of 150 staff members from across the university support departments in implementing sustainability actions. Sustainability coordinators (SCs) volunteer two to four hours per month, during work time, and are supported by their supervisors. They work within their departments to:

- Inspire colleagues to make positive changes in energy use, waste generation and transportation.
- Provide information about the environmental impacts of daily activities.
- Help individuals identify alternative ways to do things.

UBC's Sustainability Coordinators save UBC \$75,000 per year by getting colleagues and students to turn off lights and equipment when not in use. This money is then used for sustainability projects on campus.

<b>1.1 Mobile Fuel Combustion</b>			
<b>Action</b>	<b>Action Taken</b>	<b>Outcome/Performance Measure</b>	<b>Notes Clarifying Action Taken</b>
Replaced # of TYPE OF VEHICLE with MORE EFFICIENT VEHICLE/Hybrid	In Progress	12 electric vehicles and 4 hybrid vehicles added to the fleet (n= 450). In addition, all diesel vehicles are fuelled with ~ 20% bio-diesel mixture. 4 hybrid vehicles have been added to the fleet.	
Provided driver training to reduce fuel use	complete	45 drivers attended smart driver training program	Smart driver training program developed by sustainable community enterprises implemented at UBC
Initiated new fleet maintenance program (could include – changing filters, checking tire pressure, regular check-ups)	complete	180 vehicles undertake weekly visual vehicle inspection, regular preventative maintenance program	Weekly visual vehicle inspection, regular preventative maintenance program
Established anti-idling behaviour change program (e.g. signs, stickers, messages)	complete	45 plant ops drivers exposed to anti-idling program	Information written into the vehicle policy and provided to drivers through smart driver training program.
Encouraged car pooling in fleet vehicles	Complete	10 vehicles used during the day as UBC fleet, and at night for car pooling	Jack Bell Ride Share program
Encouraged alternatives to travel in fleet vehicles – bicycles, scooters, electric carts	In Progress	4 bicycles, 12 electric cars part of the land and building services vehicle fleet (n=180); Campus Security equipped with bicycles	Land and building services has shared bicycles for on campus trips. Electric carts/vehicles have been purchased for plant operations, food services
Changed from gas to electric lawn maintenance equipment			All UBC lawn maintained equipment is diesel, run on a 20% biodiesel mixture
<b>1.2 Stationary fuel combustion and electricity</b>			
<b>Action</b>	<b>Action Taken</b>	<b>Outcome/Performance Measure</b>	<b>Notes Clarifying Action Taken</b>
Undertaken Monitor turn-off challenge	Complete	75 sustainability coordinators have completed the tool with their department	Sustainability Coordinators work with members of each unit on campus to use the low energy tool (includes a monitor turn-off component). Turn it off monitor prompt stickers placed on the majority of campus monitors and computers.
Replaced # computers with EnergyStar models	Complete		completed through the Electrek and Ecotrek retrofit projects
Turned off lights in unused rooms	Complete	75 sustainability coordinators have completed the tool with their department	Turn it off prompt stickers placed on every light switch on campus
Replaced standard bulbs with CFLs	Complete		completed through the Electrek and Ecotrek retrofit projects
Installed motion activated lights	In Progress		Motion activated lights installed in retrofitted buildings where the payback was viable
Undertaken lighting retrofit	Complete		
Utilized desk-top power management settings on computer	Complete	75 sustainability coordinators have completed the tool with their department	Sustainability Coordinators work with members of each unit on campus to use the low energy tool to take action at workstations. Through this program, IT program managers are contacted to change office power management settings
Applied for LEED existing building rating	Complete		
Undertaken building energy audit at LOCATION(s)	Complete		completed through the Electrek and Ecotrek retrofit projects

Initiated or completed a building energy retrofit	Complete	Electrek: Annual savings of 10GWh. Ecotrek: Annual electricity savings of 20 GWh	Electrek, completed in 2002, retrofitted lighting in the 30 largest Core Academic buildings at UBC. Ecotrek, Canada's largest campus energy and water retrofit project wrapped up in 2008 after 7 years of planning and implementation. The project retrofitted 80 large and numerous smaller core academic buildings totalling approximately 6.7 million square feet of building space. The scope of the project included interior lighting, exterior lighting, steam distribution system, central steam plant, chilled water systems, automatic building controls, HVAC modifications, metering, water conservation, decommissioning, training, and buildings operations manuals. The total cost for the project was \$38.8 million, of which \$4 million were incentives and other grants. The project is funded through energy cost savings generated through the retrofit. In 2008, the total energy savings for the fiscal year were \$ 3.36 million.
UBC Renew (major renovation projects)		All project renew buildings leed silver certified	Project renew retrofitted/renewed 10 academic buildings to leed silver certified standards.
BOMA BEST Certification (Building Owners and Management Association; Building Environmental Standards)	In progress	2 buildings to start. This is a pilot study to determine the system's applicability for the rest of the campus, in terms of achieving GHG reduction goals with existing building stock	BOMA BEST is a third party green building rating system that addresses a range of best practices for operations and maintenance of existing buildings. An energy audit and energy management plan are prerequisites for earning certification.

### 1.3 Supplies

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Committed to use 30% recycled paper	complete	all paper purchased through supply management is 30% PC recycled or better	Contract has been negotiated with Unisource (paper supplier) to provide 30% pc recycled for same cost as virgin paper stocks
Initiated automatic double sided printing	in progress	75 Sustainability coordinators (of 150) have implemented the tool within their department	Sustainability Coordinator program tool on double-side printing
Changed document template margins	in progress	75 Sustainability coordinators (of 150) have implemented the tool within their department	Sustainability Coordinator program tool on document margin settings
Developed document library (online and one printed copy) for large documents	complete		Implemented a laserfiche document library for campus operations.
<b>Actions on non-paper related supplies:</b>			
Purchased cradle to cradle goods	in progress		9 departments using recycled cradle to cradle toner printer cartridges. Sustainable purchasing guide published by UBC Supply Management to encourage cradle to cradle purchasing decisions
Chose "Green" items from Distribution Centre	in progress	19% of UBC office supply purchases are of green office products	
Encouraged re-use of furniture and equipment	in progress	no data available	Word of mouth furniture re-use center, plans to create more established program in 2009/10
Purchasing policies and guide lines	complete	no data available	Supplier code of conduct and principles of sustainable purchasing developed and implemented by UBC Supply Management

outreach and engagement re: Transportation and demand management	complete	no data available	Participate in programs such as the national commuter challenge, bike to work week- cycling incentivizing program, outreach initiatives with students at the beginning of each academic year.
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#### 1.4 Travel

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Set a X% Travel reduction goal	complete	maintain auto traffic at or below 1997 levels, reduce daily SOV trips per person by 31% below 1997 levels	Strategy approved by the BOG in 1999 and supported and implemented by the TREK (Trip Reduction, Education and Knowledge) program
Installed Video Conferencing facilities	complete	no data available on campus wide usage	video conferencing facilities available to staff and faculty
Initiated Travel Policy			Travel policy exists but no attention presently to GHG emissions reduction
Supported alternative travel (bike/skateboard/walk/transit) for meetings	complete	75 sustainability coordinators have implemented the transportation alternatives toolkit within their unit	Toolkit promotes employer bus pass program, emergency ride home program, carpooling
comprehensive transportation demand management strategy	complete	increased overall transit trips by 168% from 1997 levels, 97% increase in transit trips per capita from 1997 levels, SOV trips decreased 31% per capita despite an overall 36% growth in population, auto trips decreased by 18% from 1997	Strategy approved by the BOG in 1999 and supported and implemented by the TREK (Trip Reduction, Education and Knowledge) program
emergency ride home program	ongoing	no data available	In the event of an emergency provides a ride-home subsidy to users of alternative transportation
Cycling programs	ongoing	no data available	Investments in end of trip facilitates, partnering with student bike coop groups and providing funding
Carpooling programs	ongoing	no data available	Online ride matching databases, and car sharing
staff faculty transit discount program	ongoing	no data available	Partnership program with translink that provides discount through payroll (optional)

#### 1.5 Employee Engagement

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Provided climate change education	complete	climate action information available to all UBC community	climate action website developed, climate action outreach activities initiated including climate action symposium, climate action planning workshops and meeting, roundtable discussions, lectures. Broadcast e mail sent to community about climate action planning process
Provided conservation education	complete	75 sustainability coordinators have implemented toolkits within their departments, 4 educational lunches held with UBC Sustainability Coordinators in the areas of energy reduction, waste management/sustainable purchasing, transportation alternatives and carbon offsetting	conservation education is provided to Sustainability Coordinators, who then share information within their departments

Developed Green Teams	in progress	no data available	sustainability coordinator program participants have established sustainability committees within a number of departments (number currently unquantified)
Supported Green Teams (resources)	in progress		sustainability committees supported through the Sustainability Coordinator program
Provided green tips	complete	150 sustainability coordinators given information	monthly e newsletter update and 4 yearly training sessions given to sustainability coordinators
Educate, engage, inspire and support students in tangible climate action projects	in progress	3% of UBC students participated in project, 10% made aware of project	UBC is one of three primary project partners in the student-led goBEYOND project, a climate action program to educate, engage, inspire and support students in tangible emissions reductions projects

### 1.6 Sustainability Actions (others)

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Took water conservation measures – low flow showers or toilets, fix leaks	complete	water fixtures updated in 180 campus buildings	Completed through the ecotrek retrofit
Reduced/replaced bottled water with filtered or refrigerated water	complete	no data available	UBC Robson square has replaced bottled water with a water filtration system
Improved recycling measures	complete	recycling receptacles available in every building on campus	
Supported composting	complete	composting available at all UBC food service outlets, and other strategic locations around campus	In vessel composter installed to compost all food waste from campus food service outlets
Used re-usable dishes	complete	re-usable and/or compostable dishes and utensils available at all UBC food service outlets	
Purchased green cleaning products		Green cleaning products and supplies used in 70 core academic buildings on campus	Switched to green certified cleaning equipment including disinfectant, floor cleaner, degreaser, super cleaner, cream cleaner etc). Switched all toilet paper and paper towels to 100% recycled materials. Use reusable cleaning chamois
Used green (low-e paints)	complete	40% of paint using water-borne latex low emissions paint on all core and ancillary buildings	used on walls, in offices, and in hallways. Water-borne latex
Supported sustainable procurement practices	complete	principles of sustainability and supplier code of conduct developed and implemented	
Adopted low-carbon contracting practices	complete		Included within the supplier code of conduct and principles of supply management documents

Developed and implemented Inspirations and Aspirations: The Sustainability Strategy Vancouver and Okanagan campuses 2006-2010	In Progress	4 year sustainability strategy covering ecological, economic and social sustainability targets across the Vancouver and Okanagan campuses.
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**Part 2: Plans to Continue Reducing Greenhouse Gas Emissions 2009 -- 2011**

**Overview:** UBC is taking decisive action on climate change by creating a climate action plan and completing an alternative energy feasibility study for the Vancouver campus. The climate action plan is a central element of our commitment to sustainability leadership and a critical step in fulfilling the President's Statement of Action on Climate Change for Canada. The Climate Action Plan (CAP) will guide our collective efforts to reduce our Greenhouse Gas footprint, enhance our sustainability achievements and inspire other organizations; its an opportunity to continue a legacy of leadership in sustainability at UBC. The climate action plan, scheduled for completion in Summer, 2009, will document measurable and achievable climate action strategies in seven areas that are sources of the campus' greenhouse gas emissions. The following section of this report will highlight areas where the climate action plan will develop emissions reductions strategies.

**2.1 Mobile Fuel Combustion**

Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Develop and implement comprehensive climate action strategy for transportation and fleet vehicles.	in progress		UBC is developing a comprehensive climate action plan. This plan will establish a vision for climate action, GHG emissions reductions targets, action/implementation strategies, and a management system for implementation, reporting and monitoring. The scope of the plan covers emissions from UBC's 7 primary emissions sources: Energy (Natural gas, oil and electricity) Transportation, Buildings land use & infrastructure, Food, Procurement and Business Travel, Ancillary Operations, and Fleets & Fuel.	

**2.2 Stationary Fuel Combustion (including electricity)**

Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
UBC Alternative Energy Project			Feasibility study currently underway to develop strategy for eliminating GHG emissions associated with current natural gas powered steam plant. Feasibility study scheduled for completion in December 09, with project implementation commencing early '10.	feasibility- '09, implementation , '10.
UBC Climate Action Plan			UBC is developing a comprehensive climate action plan. This plan will establish a vision for climate action, GHG emissions reductions targets, action/implementation strategies, and a management system for implementation, reporting and monitoring. The scope of the plan covers emissions from UBC's 7 primary emissions sources: Energy (Natural gas, oil and electricity) Transportation, Buildings land use & infrastructure, Food, Procurement and Business Travel, Ancillary Operations, and Fleets & Fuel.	Plan complete: Summer, '09. Plan Implementation period, Fall, '09-2015

### 2.3 Supplies

Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Reduce Emissions through the supply chain	In progress		UBC is developing a comprehensive climate action plan. This plan will establish a vision for climate action, GHG emissions reductions targets, action/implementation strategies, and a management system for implementation, reporting and monitoring. The scope of the plan covers emissions from UBC's 7 primary emissions sources: Energy (Natural gas, oil and electricity) Transportation, Buildings land use & infrastructure, Food, Procurement and Business Travel, Ancillary Operations, and Fleets & Fuel.	

### 2.4 Travel

Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Plan to reduce travel related emissions	in progress		UBC is developing a comprehensive climate action plan. This plan will establish a vision for climate action, GHG emissions reductions targets, action/implementation strategies, and a management system for implementation, reporting and monitoring. The scope of the plan covers emissions from UBC's 7 primary emissions sources: Energy (Natural gas, oil and electricity) Transportation, Buildings land use & infrastructure, Food, Procurement and Business Travel, Ancillary Operations, and Fleets & Fuel.	

### 2.5 Employee Engagement

Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Climate Action Employee Engagement	In Progress		UBC is developing a comprehensive climate action plan. This plan will establish a vision for climate action, GHG emissions reductions targets, action/implementation strategies, and a management system for implementation, reporting and monitoring. The scope of the plan covers emissions from UBC's 7 primary emissions sources: Energy (Natural gas, oil and electricity) Transportation, Buildings land use & infrastructure, Food, Procurement and Business Travel, Ancillary Operations, and Fleets & Fuel.	