

2010 Carbon Neutral Action Report

University of British Columbia
Vancouver Campus

campus + community planning
campus sustainability



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

- 1. Executive Summary 2**
 - 1.1 An Overview of Sustainability and Carbon Neutrality at UBC 3
 - 1.2 Anticipated Benefits of Reducing GHG Emissions 4
- 2. 2010 Greenhouse Gas Emissions 4**
 - 2.1 Greater Emissions Detail 5
 - 2.2 Operational Changes in 2010 6
 - 2.3 Offsets Applied to Become Carbon Neutral in 2010 7
- 3. Emissions Reduction Activities 7**
 - 3.1 Actions Taken to Reduce Greenhouse Gas Emissions in 2010 7
 - 3.1.2 Scope 1 and 2 Highlights 8
 - 3.1.3 Scope 3 Highlights 8
 - 3.2 Plans to Continue Reducing Greenhouse Gas Emissions 2011 – 2013 9
- 4. Links to Relevant Reports 10**

1. Executive Summary

UBC has been at the forefront of campus sustainability and climate action for over a decade. From early beginnings as the first Canadian university to adopt a sustainable development policy, UBC is now a thriving hub of sustainability research, teaching, and operations, and continues to strive to be a global leader in sustainability. With solid leadership, a clear vision and firm commitments, UBC has set the foundation to address climate change with the campus community.

On March 24 2010, UBC President Stephen Toope announced UBC's Climate Action Plan, committing UBC to aggressive reduction targets for campus-wide greenhouse gas (GHG) emissions. Compared to 2007 levels, GHG emissions will be reduced 33 percent by 2015, 67 percent by 2020, and 100 percent by 2050, exceeding provincial targets. UBC has also demonstrated leadership by including strategies for reducing optional or Scope 3 emissions for food, procurement, business travel and commuting and has set the ambitious goal of becoming a net energy producer by 2050.

Key actions to achieving GHG reductions include Continuous Optimization, a partnership with BC Hydro and Pulse Energy launched in 2010, which, combined with improved behaviour change programs, will reduce energy use in 72 core academic buildings and reduce campus GHG emissions by 10 percent below 2007 levels by 2015. UBC has also exemplified leadership in the arena of green buildings, leveraging the provincial requirement for all public sector buildings to achieve LEED Gold certification or equivalent by incorporating additional requirements into UBC's Technical Guidelines. All new construction must now achieve an energy performance 42 percent below Canada's Model National Energy Code for Buildings (MNECB).

Other key actions in UBC's strategy to reduce emissions include the UBC Bioenergy Research and Demonstration Project (BRDP), which will be the first biomass-fuelled, heat-and-power co-generation system of its kind in the world, generating enough clean electricity to power 1,500 homes and reducing campus GHG emissions by 9 percent. UBC also recently gave the green light to one of the largest hot water conversions in North America, which will replace the existing steam system infrastructure and reduce natural gas consumption and emissions by a further 22 percent.

Central to UBC's mission to transform the campus into a living laboratory for sustainability and to be an agent of change, in 2010 President Toope announced the creation of the UBC Sustainability Initiative (USI), which will promote and coordinate sustainability efforts in teaching and learning, research and campus operations. The USI will move into the new Centre for Interactive Research in Sustainability (CIRS), designed to be among North America's most sustainable buildings when it opens in 2011.

UBC has made tremendous strides towards uniting and integrating sustainability efforts across campus and is making exciting headway on new clean energy projects. We are pleased to present our actions taken to reduce emissions in 2010 and planned actions to continue advancing UBC's Vancouver Campus towards a low-carbon future.



Executive Approval

Nancy Knight
Associate Vice President – UBC Campus and Community Planning

1.1 An Overview of Sustainability and Carbon Neutrality at UBC

UBC's journey towards institutionalizing sustainability began in 1990, when it signed the international Talloires Declaration, a 10-point action plan for incorporating sustainability into higher education. In 1997, UBC became the first university in Canada to adopt a sustainable development policy (Policy #5) and, a year later, opened the first Sustainability Office at a Canadian university. In 2005, UBC's commitment to sustainability was articulated in its vision statement: *"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."*

UBC's commitment to climate action was formalized in 2008 when UBC partnered with six other BC universities to write and sign the University and College Presidents' Climate Change Statement of Action for Canada. The Statement of Action committed UBC to develop emissions reduction targets and complete GHG inventories, which were completed for 2006, 2007, 2008 and 2009.

The Statement of Action also set the stage for the development of the UBC Vancouver Campus Climate Action Plan, which was prepared by campus-wide consultations and working groups who developed targets and strategies for emissions reductions, and set out the following vision:

UBC Climate Action Vision

Confronting the challenges of climate change, the University of British Columbia will advance solutions on campus that eliminate emissions, will accelerate efforts to respond to the impacts of climate change, and will partner locally and globally to demonstrate leadership and accountability to future generations.

In 2010, the UBC Executive endorsed the Climate Action Plan and four commitments identified during the development process:

1. **Becoming a net positive energy producer by 2050.** We will go beyond carbon neutral through aggressive conservation, deployment of renewable technologies and by re-designing how we conduct our business.
2. **Partnering for change.** We will drive technological and behavioural change through demonstration, innovative research and teaching and by using our global profile to establish partnerships that allow us to learn and share solutions with others.
3. **Using the campus as a living laboratory.** We will use our unique position – as an educational and research institution, a landowner, a tenant, a utility, a community, a forester, and a farmer – to provide integrated learning opportunities that result in the development and implementation of climate change solutions.
4. **Accounting for the full costs of our decisions.** We will incorporate consideration of social, environmental and economic impacts in our decision-making to increase the resiliency of our communities and lead change towards a sustainable, low carbon future.

In addition to the Climate Action Plan, UBC is also developing Water and Waste Action Plans that will outline key steps for achieving targets and new milestones in water conservation and waste reduction for its Vancouver campus. Sustainability is further incorporated into UBC plans through the new Vancouver Campus Plan approved in 2010, which sets long-term sustainability directions for land, infrastructure, buildings and landscape, enshrining sustainable strategies and methods in the university's Design Guidelines.

1.2 Anticipated Benefits of Reducing GHG Emissions

UBC has outlined the business case for emissions reductions and the cost of inaction in the [Climate Action Plan](#). Although taking action is often envisioned as being expensive, UBC has calculated that extensive sums would be required in the coming years just to maintain the status quo, including major capital investments required to upgrade existing energy infrastructure and continuing to purchase conventional fuel. The estimated net present value of the carbon tax and offset purchases alone for the business-as-usual path over the next 25 years is approximately \$50 million.

Achieving the defined GHG emissions reduction targets reduces the carbon liability to a net present value of \$23 million over the next 25 years. Taking action now provides an opportunity to avoid some of these costs and divert the funds towards making a transition to an energy efficient, low carbon future. In addition, UBC's focus on reducing emissions creates a clear opportunity to engage the campus community and use the campus as a living lab for clean energy research.



UBC President Toope (centre) at the official ground breaking of the UBC Bioenergy Research and Demonstration Project, which will reduce campus GHG emissions by 9 percent. Photo credit: Martin Dee

2. 2010 Greenhouse Gas Emissions

In 2010, total GHG emissions for UBC's Vancouver campus and off-campus properties amounted to 60,856 tonnes CO₂e (see [Table 1](#)). Over 96 percent of these emissions came from buildings, with 72 percent of the total occurring at the steam plant where natural gas is burned to generate steam for heating buildings across the campus. Consequently, key actions focus on increasing energy efficiency in buildings and connecting alternative energy sources to the campus district energy system.

It was estimated that fugitive emissions of refrigerant gases comprise less than 1 percent of UBC's Vancouver campus total emissions and an ongoing effort to collect data to estimate these emissions would be disproportionately onerous. For this reason, emissions from this source have been deemed out of scope and have not been included in UBC's Vancouver campus greenhouse gas emissions profile.

2.1 Greater Emissions Detail

The UBC Vancouver Campus inventory, which has been compiled each year since 2006, comprises emissions from core and ancillary buildings at the Vancouver Campus, TRIUMF, fleet and paper. In 2010, the offsettable Vancouver Campus emissions amounted to 58,353 tCO₂e. When emissions from off-campus properties and biomass are included, total emissions amounted to 60,856 tCO₂e. A detailed breakdown of the emission sources is provided in *Table 1* to show the emissions attributed to different units of UBC and its various geographic locations.

Table 1: UBC Vancouver Campus and Off-Campus Emissions, 2010

	Source	Emissions (tCO ₂ e) ¹	Percent of total offsettable emissions ¹
Vancouver Campus	UBC Vancouver Campus – Core buildings²	41,807	69%
	<i>Steam (natural gas and light fuel oil)</i>	35,487	58%
	<i>Natural gas (direct burn)</i>	2,864	5%
	<i>Electricity</i>	3,456	6%
	UBC Vancouver Campus – Ancillary buildings³	14,171	23%
	<i>Steam (natural gas and light fuel oil)</i>	8,550	14%
	<i>Natural gas (direct burn)</i>	4,428	7%
	<i>Electricity</i>	1,193	2%
	TRIUMF ⁴	252	0.4%
	Fleet	1,431	2%
	Paper	692	1%
Total Vancouver Campus Emissions		58,353	96%
Off-Campus Properties	UBC Properties Trust buildings⁵	1,429	2%
	UBC Robson Square Campus	180	0.3%
	Other Off-Campus Properties⁶	602	1%
	Joint Ventures with other universities⁴		
	<i>Great Northern Way Campus</i>	197	0.3%
	<i>Bamfield Marine Sciences Centre</i>	27	0%
	UBC Properties Trust Paper	4	0%
Total Off-Campus Emissions		2,439	4%
TOTAL Offsettable Emissions		60,792	100%
Biomass Emissions⁷		64	
TOTAL Emissions		60,856	

¹ May not sum to total due to rounding.

² Core buildings comprise academic and administrative buildings.

³ Ancillary buildings include student housing, conference, athletics and parking facilities.

⁴ Although TRIUMF is a joint venture with other universities, it has traditionally been included in the UBC Vancouver Campus inventory since it is located on campus.

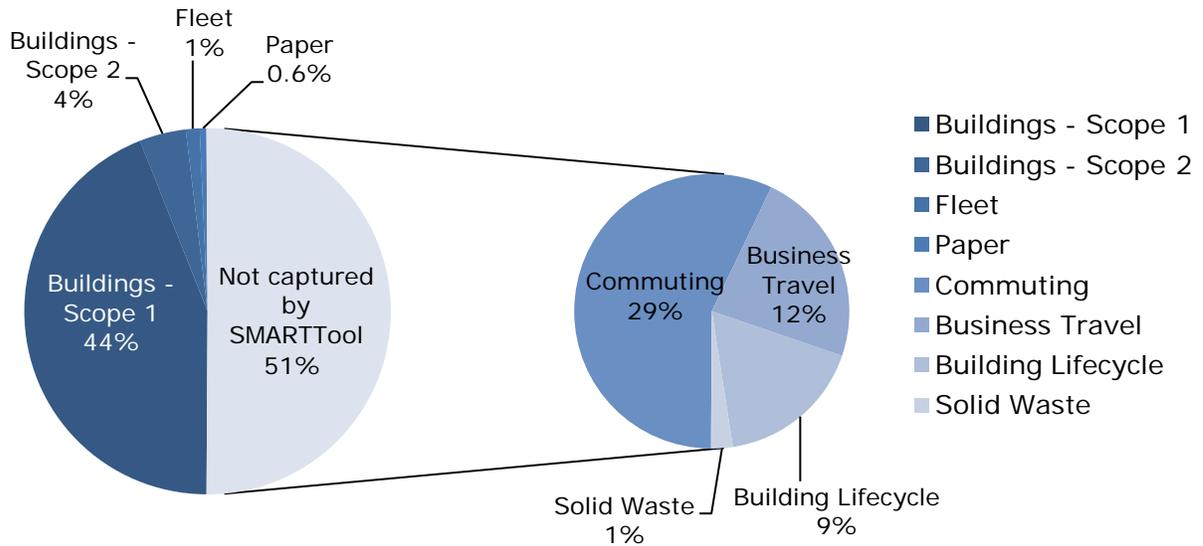
⁵ UBC Properties Trust, a company wholly owned by UBC, owns several residential buildings that are rented to staff, faculty and students, as well as commercial space on campus.

⁶ Other off-campus properties comprise 18 buildings throughout the province and beyond, ranging from rustic field camps to a dairy farm operation.

⁷ A portion of the fuel consumed by UBC's fleets and buildings contains renewable content as mandated by BC's Renewable and Low Carbon Fuel Requirements Regulation. These emissions, reported as biomass in SMARTTool, amounted to 63.6 tonnes CO₂e and are not required to be offset.

Going beyond provincial requirements, the annual UBC Vancouver Campus GHG inventory also quantifies several categories of optional or Scope 3 emissions. The combined emissions from commuting, business travel, building lifecycle and solid waste are slightly greater than the emissions captured by the SMARTTool report. *Figure 1* shows the breakdown of the various emission categories.

Figure 1: UBC Vancouver Campus Emissions by Scope



2.2 Operational Changes in 2010

No major operational changes occurred in 2010 compared to the 2007 baseline. UBC's Vancouver Campus building portfolio area decreased by roughly 2,600 m² between 2007 and 2010 as buildings were demolished to make way for new construction scheduled for occupancy in 2011. While faculty and staff numbers stayed relatively constant, student enrolment increased by over 3,300 full-time equivalent students from 2007 to 2010.

Campus emissions decreased from 2007 to 2010, despite an increase in student enrolment. The emissions from campus buildings along with fleet and paper amounted to 1.42 tCO₂e per full-time equivalent student in 2010, a 12 percent decrease of emissions per student since 2007. *Table 2* outlines the change in emissions since the 2007 baseline year, along with indicators of UBC's growth.

Table 2: UBC Vancouver Campus Emissions Compared to 2007 Baseline

Source	2007	2010	Percent Change from 2007
GHG Emissions (tonnes of CO ₂ e)	60,976	58,353	-4.3%
Floor Space (square meters)	1,236,499	1,233,868	-0.2%
Student Enrolment (full-time equivalent)	37,589	40,962	+9.0%
GHG Emissions (tonnes of CO ₂ e / FTE student)	1.62	1.42	-12.2%
Staff and Faculty (full-time equivalent)	12,461	12,524	+0.5%

2.3 Offsets Applied to Become Carbon Neutral in 2010

UBC purchased a total of 60,792 tonnes of offsets from Pacific Carbon Trust for the UBC Vancouver Campus and off-campus properties to become carbon neutral for 2010.

A portion of the fuel consumed by UBC’s fleets and buildings contains renewable content as mandated by BC’s Renewable and Low Carbon Fuel Requirements Regulation. These emissions, reported as biomass in SMARTTool, amounted to 63.6 tonnes CO₂e and are not required to be offset.

3. Emissions Reduction Activities

3.1 Actions Taken to Reduce Greenhouse Gas Emissions in 2010

UBC completed its Vancouver Campus [Climate Action Plan](#) by leading campus-wide consultations and key stakeholder working groups to develop targets and strategies for achieving emissions reductions. President Toope announced the Climate Action Plan targets on March 24 2010, committing UBC to ambitious campus-wide GHG reductions. Set against a 2007 emissions baseline, GHG emissions at UBC will be reduced 33 percent by 2015, 67 percent by 2020, and 100 percent by 2050.

UBC has defined the strategies that will achieve its short-term target of 33 percent reduction by 2015:

- Generating clean heat and electricity through the **UBC Bioenergy Research and Demonstration Project** will reduce campus GHG emissions by 9 percent.
- **Optimizing academic building performance and improving behaviour change programs** will reduce campus GHG emissions by 10 percent.
- **Converting the district heating system from steam to hot water** will reduce campus GHG emissions by 22 percent.
- **Transitioning to a low emission fleet** will reduce associated GHG emissions by a targeted 40 percent.

3.1.2 Scope 1 and 2 Highlights

The Climate Action Plan sets out actions in six areas that are the key sources of UBC's GHG emissions. In 2010, the first year of implementing the Plan, highlights include:

<p>Development and Infrastructure</p>	<ul style="list-style-type: none"> Registered 5 new projects in the LEED system. All new construction and major renovations will achieve a minimum of LEED Gold and a total of eight projects will reach completion in 2011-2013, including the new Student Union Building and the Centre for Interactive Research on Sustainability (CIRS), which are targeting LEED Platinum and the Living Building Challenge. Going beyond provincial requirements, UBC-specific standards for implementing LEED Gold were developed, requiring that all new buildings achieve an energy performance rating of 42 percent below the Model National Energy Code for Buildings (MNECB). This requirement is now enshrined in the <u>Vancouver Campus Plan</u> and Technical Guidelines, and all 5 LEED projects registered in 2010 are on track to achieve this target.
<p>Energy</p>	<ul style="list-style-type: none"> Launched BC Hydro's <u>Continuous Optimization</u> program, which will be implemented in 72 core academic buildings to achieve an estimated 10 percent reduction in energy consumption and GHG emissions by 2015. In 2010, two pilot buildings underwent upgrades and energy performance baselines were developed for 17 additional buildings. A Monitoring, Targeting and Reporting system was developed to ensure that buildings will meet energy performance targets. 1100 students in Totem Park Residence participated in the '<u>Do It In the Dark</u>' international energy competition, saving 9,431 kWh over the duration of the 3-week competition. UBC was the only Canadian university to participate, achieving a 17.4 percent aggregate reduction in electricity use in Totem Park, placing second overall in the competition.
<p>Fleets and Fuel</p>	<ul style="list-style-type: none"> Continued to integrate electric vehicles into the on campus fleet through purchase of four more electric trucks.

3.1.3 Scope 3 Highlights

Going beyond provincial requirements, UBC's Climate Action Plan includes strategies for reducing Scope 3 emissions for food, procurement, business travel and commuting. Highlights from 2010 include:

<p>Food:</p>	<ul style="list-style-type: none"> Using the results of Lifecycle Analysis studies, specific ingredients and suppliers were selected to improve the sustainability of the food system. Despite a poor growing season, procurement of food from the <u>UBC Farm</u> increased.
<p>Procurement and Business Travel</p>	<ul style="list-style-type: none"> Eliminated the purchase of virgin paper by requiring the major campus supplier to substitute a minimum of 30 percent post-consumer recycled content paper. A campus-wide waste audit was completed. The results will be incorporated into the <u>Waste Action Plan</u> currently under development to set new waste reduction targets.

<p>Transportation (Commuting)</p>	<ul style="list-style-type: none"> • Bicycle end-of-trip facilities are now specified in the Design Guidelines of the newly released <u>Vancouver Campus Plan</u>. • A new, <u>state-of-the-art bicycle parking facility</u> opened at Buchanan Tower in January and another is under construction at North Parkade, bringing the total number of free, secure bike facilities across campus to seven.
--	--

3.2 Plans to Continue Reducing Greenhouse Gas Emissions 2011 – 2013

To achieve UBC’s ambitious emissions reductions targets in preparation for becoming a net energy producer by 2050, UBC has invested in several major capital projects that will become examples for cutting edge clean energy technology and innovative industry partnerships. Some highlights for achieving UBC’s goal of reducing emissions by 33 percent by 2015 include:

UBC Bioenergy Research and Demonstration Project

The UBC Bioenergy Research and Demonstration Project, a partnership with Vancouver-based Nexterra and General Electric, broke ground in February 2011. When completed in 2012, the \$27 million project will be the first biomass-fuelled, heat-and-power co-generation system of its kind in the world. Fuelled by clean wood biomass diverted from the landfill, the project will generate enough clean electricity to power 1,500 homes, and will eliminate 9 percent of GHG emissions per year from UBC’s Vancouver campus by reducing natural gas consumption. Showcasing campus as a living lab, the project will also provide research and learning opportunities for faculty and students.

Converting district heating system to a hot water system

Further reductions will be achieved by converting the current district heating system from steam to hot water, estimated to yield a 22 percent reduction in GHG emissions – an integral part of the University’s strategy to reduce GHG emissions by 33 percent by 2015. Set to be one of the largest hot water conversions in North America, the project entails an \$87 million capital investment on the Vancouver Campus and will replace 14 km of piping.

Centre for Interactive Research on Sustainability

The Centre for Interactive Research on Sustainability (CIRS) is nearing completion and will be North America’s most sustainable building when it opens in 2011. A state-of-the-art living green building, it will include environmentally progressive storm water management, wastewater treatment and ground-source heating. The CIRS building will be a true living lab—a home to inter-disciplinary researchers working in collaboration with industry and community partners to accelerate sustainability solutions. CIRS is currently targeting both LEED Platinum and the Living Building Challenge, the highest international standards for green buildings.

Continuous Optimization

The Continuous Optimization program will continue to be deployed from 2010-2014, optimizing building performance and achieving emissions reductions in combination with enhanced behaviour change strategies. Energy savings from conservation measures implemented in the first group of 17 buildings will start accruing in late 2011. By the end of 2013, the implementation phase will be completed in a total of 40 buildings and underway in a further 25 buildings. Energy audits for the final group of buildings will begin in 2013 with total emission reductions anticipated to be 10 percent by 2015.

4. Links to Relevant Reports

UBC Sustainability Initiative

<http://sustain.ubc.ca/>

Campus Sustainability: <http://sustain.ubc.ca/campus-sustainability>

Sustainability Research: <http://sustain.ubc.ca/research>

Sustainability Teaching and Learning: <http://sustain.ubc.ca/teaching-learning>

UBC Climate Action Plan

<http://sustain.ubc.ca/climate-action>

Inspirations and Aspirations: UBC Sustainability Strategy 2006-2010

http://sustain.ubc.ca/pdfs/ia/UBC_Sustainability_Strategy_2007.pdf

Place and Promise: The UBC Strategic Plan

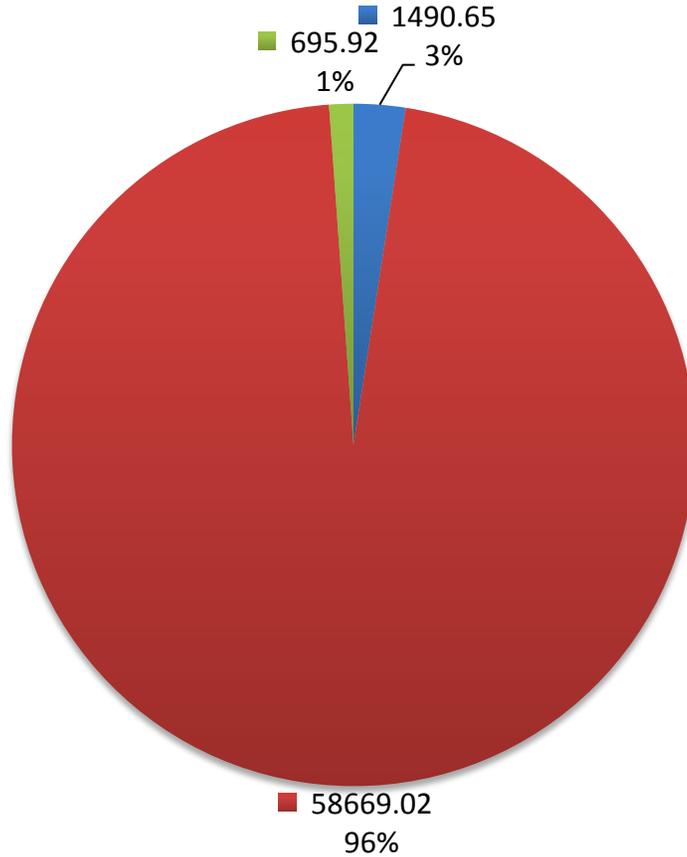
<http://strategicplan.ubc.ca/the-plan/sustainability/>

Campus Sustainability Case Studies

<http://sustain.ubc.ca/campus-sustainability/resource-exchange/case-studies>

University of British Columbia - Vancouver Campus

Greenhouse Gas Emissions by Source for the 2010 Calendar Year (tCO₂e*)



Total Emissions: 60855.59

- Mobile Fuel Combustion (Fleet and other mobile equipment)
- Stationary Fuel Combustion and Electricity (Buildings)
- Supplies (Paper)

Offsets Applied to Become Carbon Neutral in 2010

Total offsets purchased: **60792.03**. Total offset investment: **\$1,519,800.75**. Emissions which do not require offsets: **63.56** **

*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.

**University of British Columbia -
Vancouver Campus - 2010 Carbon Neutral Action Report**

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 12/31/10)	Performance to Date (as of 12/31/10)		Steps Taken in 2010	Steps Planned for 2011 -2013	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	17	% of vehicles are fuel- efficient models	4 electric trucks purchased in 2010.	Continue to purchase hybrid, bio diesel and electric vehicles when appropriate.	2009	No End Date (Continuous)
Replace larger vehicles with smaller models according to fleet "right-sizing" principles	Ongoing/In Progress			Continued to replace vehicles according to "right-sizing" principles.	Continue to replace vehicles according to "right-sizing" principles.	2009	No End Date (Continuous)
Perform regular fleet maintenance to improve fuel-efficiency	Ongoing/In Progress			Building Operations' vehicles, which comprise half of the fleet, are regularly serviced under its preventative maintenance program.	Continue with the preventative maintenance program.	2009	No End Date (Continuous)
Replace small maintenance vehicles with more fuel-efficient models	Ongoing/In Progress	100	% of small maintenance vehicles are fuel-efficient	All small maintenance vehicles are diesel or electric.	Continue to acquire fuel efficient or electric small maintenance vehicles only.	2009	No End Date (Continuous)
Behaviour change program							
Provide fleet driver training to reduce fuel use	Ongoing/In Progress			Continued to provide driver training to reduce fuel use.	Refresher course will be taken by all drivers of Building Operations vehicles.	2009	No End Date (Continuous)
Introduce anti-idling policy and/or raise anti-idling awareness for fleet drivers (e.g., signs, stickers, messages)	Ongoing/In Progress			Continued to enforce 2007 idling best practices guidelines. Further, anti-idling signage is in place by air intakes in some buildings on campus.	Continue to enforce the 2007 anti-idling guidelines.	2007	No End Date (Continuous)
Encourage carpooling in fleet vehicles	Ongoing/In Progress			Trades people travel to work sites on campus in shared vehicles. In addition, 8 Jack Bell ride share vehicles for commuting to work are also used during the work day for operational requirements.	Continue practice of carpooling on site.	2009	No End Date (Continuous)
Promote alternatives to fleet vehicle travel where possible (e.g., bicycles, public transit, walking)	Ongoing/In Progress			Bike-share program available to staff at Building Operations.	Continue ongoing bike share program for staff.	2009	No End Date (Continuous)
Other Mobile Fuel Combustion Actions							
Use alternative fuels.	Ongoing/In Progress	100	% of diesel vehicles in campus fleet use B5 biodiesel	B5 biodiesel is dispensed at on-campus fuel station.	Continue to dispense biodiesel at on-campus fuel station.	2006	No End Date (Continuous)
Purchase electric vehicles.	Ongoing/In Progress	19	fleet vehicles are electric	4 electric trucks purchased in 2010.	Continue to purchase electric vehicles when appropriate.	2009	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)	Ongoing/In Progress			Assessed benchmarking programs (GREEN UP, Energy Star, NRCAN's future offer); Decided not to participate yet.	Will re-evaluate program offerings.	2010	2010
Reduce office space (square meters) per employee	Ongoing/In Progress	14	is the current average rentable square meters per employee	Office space per employee was reduced 3.5% for administrative staff and 5.5% for academic staff compared to 2009.	Ongoing allocation as space is requested, new buildings are programmed and renovations are planned. Allocation will remain at or below the BCUSS allocation (based on total FTEs).	2005	No End Date (Continuous)

**University of British Columbia -
Vancouver Campus - 2010 Carbon Neutral Action Report**

Action	Status (as of 12/31/10)	Performance to Date (as of 12/31/10)		Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)	Ongoing/In Progress	55	% of buildings have a real time metering system installed	Additional 54 buildings connected to Pulse EMIS, bringing the total to 63. Real-time data for a further 16 buildings is available via ION.	7 newly constructed buildings will be connected.	2006	2013
Owned buildings							
Establish energy performance baseline for owned buildings	Ongoing/In Progress	16	% of owned buildings have an established energy performance baseline	Energy performance baselines were developed for 17 more buildings as part of the Continuous Optimization program. A Monitoring, Targeting and Reporting system was developed to ensure that buildings meet energy performance targets.	Weather-adjusted energy performance baselines will be developed for 63 additional buildings. Implementation of Monitoring, Targeting and Reporting system.	1998	No End Date (Continuous)
Register for performance labelling/certification for operations and maintenance of owned buildings (e.g., LEED EB:O&M)	Ongoing/In Progress	2	% of owned buildings have operations and maintenance labelling/certification	On hold until results of Continuous Optimization can inform this action.	Review the BOMA pilot when Continuous Optimization implementation is complete, to determine whether it would be advantageous to pursue certification on more buildings as part of Continuous Optimization program.	2009	2011
Achieve LEED NC Gold certification at a minimum for new construction or major renovations	Ongoing/In Progress	5	% of owned buildings are certified LEED NC Gold or LEED NC Platinum	Registered 5 new projects in the LEED system.	All new construction and major renovations will achieve a minimum of LEED Gold. A total of eight projects will reach completion between 2011 and 2013.	2004	No End Date (Continuous)
Incorporate integrated design process into new construction or during renovations of owned buildings	Ongoing/In Progress	100	% of buildings built or renovated since start year indicated used the integrated design process	An Integrated Design Process is employed on all major construction and renovation projects.	Continue to use IDP on all major projects.	2001	No End Date (Continuous)
Complete energy retrofits on existing, owned buildings	Ongoing/In Progress	63	% of owned buildings have undergone energy retrofits since start year indicated	Retrocommissioning completed for Buchanan Tower and Neville Scarfe complex of buildings. Renew of Buchanan D and Biosciences.	Retrocommissioning will be conducted on 70 more buildings as part of Continuous Optimization. Renew of other buildings.	2003	No End Date (Continuous)
Retrofitting owned buildings							
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress	100	% of retrofits since start year indicated had heating, cooling, and ventilation systems upgrades	UBC Renew revitalizes older buildings rather than demolishing them. This includes HVAC upgrades to make the buildings more energy-efficient. In 2010, Renew of Buchanan complex was completed; Biological Sciences West and South Renew was underway.	Continue to upgrade older buildings instead of demolishing them through UBC Renew, which will include HVAC upgrades.	2003	No End Date (Continuous)
Upgrade lighting systems during retrofits	Ongoing/In Progress	54	% of retrofits since start year indicated had lighting systems upgrades	Three buildings were relamped from 32W T8 to 25W T8 bulbs.	The progressive relamping schedule will continue in several buildings every year. Continue to switch from 32W to 25W T8 lamps. In some buildings, LED fixtures will replace fluorescent lights.	2003	No End Date (Continuous)
Upgrade/adjust control systems during retrofits	Ongoing/In Progress	90	% of retrofits since start year indicated had control system upgrades or adjustments	Retrocommissioning completed for Buchanan Tower and Neville Scarfe complex of buildings. Audits commenced for 17 laboratory buildings in next phase of retro-commissioning project.	Control system adjustments will be conducted on 70 buildings as part of Continuous Optimization program.	2003	No End Date (Continuous)
Improve building insulation (including windows) during retrofits	Ongoing/In Progress	67	% of retrofits since start year indicated had insulation improvements	As part of BioSciences Renew, windows were upgraded from single to double glazing and insulation was improved.	Envelope improvements will continue as part of UBC Renew.	2003	No End Date (Continuous)
Install an on-site renewable energy demonstration project	Ongoing/In Progress			Approval was granted for a biomass gasification system that will operate in co-generation mode for electric power production and thermal mode to produce steam. The project is a partnership with Nexterra Systems Corp. and GE Power & Water.	Construction begins early 2011 with start up scheduled for fall of 2011. The system will generate 9600 lb/hr of steam and 2 MW of electricity.	2008	No End Date (Continuous)
IT power management							

**University of British Columbia -
Vancouver Campus - 2010 Carbon Neutral Action Report**

Action	Status (as of 12/31/10)	Performance to Date (as of 12/31/10)		Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Install power management software which shuts down computers outside of regular business hours	Ongoing/In Progress			Pilot study of software in a computer lab to assess energy savings and barriers to implementation.	Power management software will be evaluated as part of a broader green IT strategy.	2010	No End Date (Continuous)
Implement server virtualization	Ongoing/In Progress			600 servers were virtualized.	Proceeding at rate of 10-15 servers per week.	2009	No End Date (Continuous)
Apply auto-sleep settings on computer monitors and CPUs	Ongoing/In Progress			Autosleep settings recommended through Sustainability Coordinators Toolkit: http://www.sustain.ubc.ca/campus-sustainability/turn-computers-and-monitors .	Continue to promote autosleep settings through Sustainability Coordinators Toolkit.	2005	No End Date (Continuous)
Remove stand-alone printers, copiers, and/or fax machines and install multi-function devices	Ongoing/In Progress	3	% reduction in printers, copiers, and/or fax machines since start year indicated	Implementation of Xerox Document Management Strategy (a partnership with Xerox Global Services) across campus. 16 departments have signed up to date.	Ongoing communication to campus about XDMS and XGS partnership. Create report to track key performance indicators.	2009	No End Date (Continuous)
Apply auto-sleep settings on printers, copiers, fax machines, and/or multi-function devices	Ongoing/In Progress	3	% of devices have auto-sleep settings applied	All devices through Xerox Document Management Strategy are enabled with power saver settings. All departments that sign up are also given training by the on-site Xerox employee in regards to the sustainable features and functionalities.	Ongoing communication to campus about XDMS and XGS partnership. Create report to track key performance indicators.	2009	No End Date (Continuous)
Replace computers with ENERGY STAR models during regular computer upgrades	Ongoing/In Progress			Standard when ordered through Supply Management.	Ongoing when ordered through Supply Management.	2009	No End Date (Continuous)
Appliances and electronic devices							
Replace refrigerators with ENERGY STAR models or source ENERGY STAR models for future purchases	Ongoing/In Progress			Standard when ordered through Supply Management. This is end-user driven to a certain point (need to educate).	Continue to engage vendors and end users on adopting Energy Star equipment. Supply Management will be incorporating UNSPCS codes for commodity tracking to report on type of appliance purchased to confirm if energy efficient units are purchased.	2009	No End Date (Continuous)
Replace other appliances or electronic devices with ENERGY STAR models or source ENERGY STAR models for future purchases	Ongoing/In Progress			Standard when ordered through Supply Management. This is end-user driven to a certain point (need to educate).	Continued replacement of other appliances with ENERGY STAR models when ordered through Supply Management. Use the UBC Equipment Inventory System (EIS) to look at equipment on campus and incorporate UNSPCS codes for commodity tracking to report on type of appliance purchased to confirm if energy efficient units are purchased.	2009	No End Date (Continuous)
Replace desk lamp incandescent bulbs with compact fluorescent (CFL) bulbs or source more efficient desk lamps for future purchases	In Development			Request for Information (RFI) sent to vendors which included section on sustainability.	Update UBC Purchase Card (Pcard) vendor list on Procurement website to list vendors that have committed to sustainability actions. Include sustainability training during Pcard training, including training new and existing staff to purchase CFL bulbs. Waste Management is also looking into purchasing bulb-eater to properly recycle lightbulbs on campus and reduce the amount of light bulbs that end up in landfill.	2010	No End Date (Continuous)
Behaviour change program							
Help staff reduce personal energy use through "workstation tune-ups"	Ongoing/In Progress			Developed enhanced energy conservation training for office environments. Continued promotion of existing energy conservation toolkits which includes turning off computers and monitors and reducing phantom load. Developed New Employee Sustainability Checklist which has an energy conservation focus.	Continue to promote energy conservation toolkits for office environments. Launch new training series to all new Sustainability Coordinators. Launch New Employee Sustainability Checklist to all new employees at UBC (through HR and Sustainability Coordinator program). Explore opportunity to set up workstation tuneup online tool similar in scope to BC Hydro's.	2010	No End Date (Continuous)

**University of British Columbia -
Vancouver Campus - 2010 Carbon Neutral Action Report**

Action	Status (as of 12/31/10)	Performance to Date (as of 12/31/10)		Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Ask staff to unplug electrical equipment or switch off power bars when not in use	Ongoing/In Progress			Ongoing promotion of Phantom Power Toolkit. New Employee Sustainability Checklist and Sustainability Coordinator Orientation Package includes a section on unplugging equipment and turning off power bars.	Continued promotion of unplugging electrical equipment and switching off power bars through new employee sustainability checklist.	2009	No End Date (Continuous)
Ask staff to close blinds at end of work day to reduce heating/cooling demands	Ongoing/In Progress			New Employee Sustainability Checklist has a section on closing blinds. Online toolkits will now include recommendations for shutting blinds.	Continued promotion of heating/cooling demand management through new employee sustainability checklist.	2010	No End Date (Continuous)
Provide tips to staff on saving energy in the office while working outside of regular business hours	Ongoing/In Progress			Ongoing promotion of lights-out and computer energy conservation toolkits ask staff who are last to leave the work place to make sure all lights are turned off, non-essential equipment unplugged and computers turned off.	Promote this activity through New Employee Sustainability Checklist. Development of a baseline tool to assess number of people taking this action.	2003	No End Date (Continuous)
Provide reminders for turning off lights (e.g., signs, stickers, messages)	Ongoing/In Progress			Lights-out stickers, lights-out posters, computer-off stickers, unplug stickers and energy conservation posters available through the Campus Sustainability Office. This is continuous.	Enhance prompts and communications around energy conservation; promote Sustainability Coordinator orientation package; and develop a baseline tool to assess number of people taking this action.	2003	No End Date (Continuous)
Other Stationary Fuel Combustion and Electricity Actions							
Develop Energy Density Targets for new construction and major renovations, as per UBC Climate Action Plan	Ongoing/In Progress			Retained a consultant to develop Energy Density Targets for new construction, including labs, classrooms, offices and student residences.	Retain a consultant to develop Energy Density Targets for major renovations.	2010	2012
Use UBC's Residential Environmental Assessment Program for Green Building Certification of residential buildings owned by UBC Properties Trust	Ongoing/In Progress	4	buildings are REAP certified	Earned REAP Silver certification on 2 neighbourhood residential buildings. Piloting use of REAP on new student residence construction project to deliver equivalence to LEED Gold.	Earn REAP Gold on all UBC-owned residential buildings. Assess student residence pilot and if successful, develop REAP Application Guide for Student Residences.	2010	No End Date (Continuous)
Develop UBC-specific standards for implementing LEED Gold	Ongoing/In Progress			Requirement that new buildings achieve energy reduction of 42% below MNECB (5 points from LEED-NC 2004 EA credit 1) was integrated into the UBC Technical Guidelines and communicated to every project team. All 5 LEED projects registered in 2010 are on track to achieve this target. The Vancouver Campus Plan Design Guidelines published in 2010 include a table for "LEED Implementation at UBC", identifying LEED credits that are mandatory or prohibited at UBC and additional UBC requirements for implementing credits.	A "LEED Implementation Guide for UBC" will be completed in 2011. Final LEED scorecards and certification results for all completed projects will be collected to verify that targets are achieved.	2009	No End Date (Continuous)
Replace computers with virtual desktops.	Ongoing/In Progress	200	replacements	In 2010, 200 virtual desktops were rolled out.	Program is proceeding at rate of 1000 virtual desktops per year. For 2011, we will also be focusing on developing a centralised data storage solution.	2010	No End Date (Continuous)
Supplies (Paper)							
Paper Type							
Purchase 30% post-consumer recycled paper	Ongoing/In Progress	88	% of total paper purchased contains 30% recycled content	Automatic substitution of 30% recycled for virgin paper by official supplier has resulted in 96% purchase of 30% recycled content from that vendor. However virgin paper was purchased through other vendors. Continue to promote use of 30% post-consumer paper through Purchasing guide and Sustainability Coordinators (SC) Toolkit.	Reach target of 99% of paper purchases to be post-consumer recycled through preferred vendor. Development of a baseline tool to assess number of departments purchasing copy paper with a minimum of 30% post-consumer waste content. Improve tracking to include paper sales with other paper suppliers.	2003	No End Date (Continuous)

**University of British Columbia -
Vancouver Campus - 2010 Carbon Neutral Action Report**

Action	Status (as of 12/31/10)	Performance to Date (as of 12/31/10)		Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Purchase 100% post-consumer recycled paper	Ongoing/In Progress	1	% of total paper purchased contains 100% recycled content	Emphasis is on 30% content rather than 100% as recommended by business case study in 2009. Certain business units do procure paper with 100% post-consumer content and 100% post-consumer recycled option is listed in SC Toolkit.	Improve tracking and education to include paper sales with other paper suppliers.	2007	No End Date (Continuous)
Printer/document settings							
Switch networked printers and photocopiers to automatic double-sided	Ongoing/In Progress	3	% of network printers or photocopiers are set to automatic double-sided	At the end of 2010, the printer fleet was reduced by 370 units, to a total of 8450 units. According to Xerox Global Services (XGS) 265 units were confirmed to have automatic double-sided settings and users are trained how to use these features by an on-site Xerox employee. Continued promotion of SC Toolkit and posters promoting double sided printing in UBC departments. http://www.sustain.ubc.ca/campus-sustainability/double-sided-printing .	Ongoing communication to campus about XGS partnership. Develop tracking mechanism to record how many departments are using double-sided feature. Continue promotion of SC Toolkit and posters promoting double sided printing in UBC departments.	2009	No End Date (Continuous)
Apply "print and hold" settings to networked printers to eliminate unclaimed print jobs	Ongoing/In Progress	3	% of network printers have 'print and hold' settings applied	All XGS devices have print and hold settings and users are trained how to use these features by an on-site Xerox employee.	Ongoing communication to campus about XGS partnership. Develop tracking mechanism to record how many departments are using print and hold settings.	2009	No End Date (Continuous)
Reduce default margin size in standard document templates (e.g., letters, briefing notes, forms, etc.)	Ongoing/In Progress			Continued SC Toolkit promotion for reduction of default margin size online through sustainability coordinator online toolkits; the toolkit asks UBC staff to reduce margins from 1.25 inches to 1 inch. http://www.sustain.ubc.ca/campus-sustainability/paper-saving-through-reduced-margins .	Ongoing promotion of SC Toolkit. Development of a baseline tool to assess number of staff in UBC departments with reduced margin settings.	1999	No End Date (Continuous)
Electronic media in place of paper							
Install collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	In Development			Supply Management and IT departments started to explore document sharing solutions.	Develop strategy.	2010	No End Date (Continuous)
Use electronic document library for filing common documents	In Development			Supply Management and IT departments started to explore electronic document library solutions.	Develop strategy.	2010	No End Date (Continuous)
Post materials online that were previously printed	In Development			Supply Management and IT departments started to look at E-procurement options to eliminate the process of paper requisitions when procuring through Supply Management.	Currently planning to install E-procurement system for the 2012/13 fiscal year that will replace the current paper based program and revamp the entire procure to pay program.	2010	No End Date (Continuous)
Switch to an electronic payroll notification system in place of paper pay stubs	Ongoing/In Progress			The switch happened in 2006. Continued use of electronic payroll system. All new staff use electronic payroll notification system.	Continued use of electronic payroll system.	2006	No End Date (Continuous)
Behaviour change program							
Encourage staff to hold paperless meetings or presentations (i.e., no handouts)	Ongoing/In Progress			Continued promotion of Sustainable Purchasing Guide which promotes paperless meetings/events and offers strategies to do so. http://www.sustain.ubc.ca/sites/default/files/uploads/pdfs/PrintingAndPaper.pdf	Development of a baseline tool to assess number of departments that hold paperless meetings/events.	2009	No End Date (Continuous)
Encourage re-use of scrap paper	Ongoing/In Progress			Continued SC Toolkit promotion for paper reduction through paper reuse and double sided printing. http://www.sustain.ubc.ca/sites/default/files/uploads/pdfs/PrintingAndPaper.pdf	Development of a baseline tool to assess number of departments which have a system in place to collect previously used paper for future printing and/or paper use.	1999	No End Date (Continuous)
Other Paper Supplies Actions							

**University of British Columbia -
Vancouver Campus - 2010 Carbon Neutral Action Report**

Action	Status (as of 12/31/10)	Performance to Date (as of 12/31/10)	Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Toolkit to promote paper reduction through the use of email filing rather than printing emails	Ongoing/In Progress		Yearly distribution of SC Toolkit online and through Sustainability Coordinators. http://www.sustain.ubc.ca/campus-sustainability/paper-reduction-through-email-filing .	Development of baseline tool to assess number of staff that file emails electronically rather than printing.	2003	No End Date (Continuous)
Promote paperless travel	In Development		Encourage staff to have boarding passes and itineraries sent online reducing the need for paper. Planning started to eliminate the current paper based reimbursement program for Travel and Expenses.	For non CFI / Tricouncil travel, continue to spread awareness to travellers to minimize or eliminate paper usage around printing these types of documents. Eliminate paper based reimbursement program in 2011/12, eliminating 90% of the amount of paper transactions for Travel and Expenses (compared to baseline of 32K travel reqs printed in 2010).	2010	No End Date (Continuous)

**University of British Columbia -
Vancouver Campus - 2010 Carbon Neutral Action Report**

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 12/31/10)	Performance to Date (as of 12/31/10)	Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Business Travel						
Policy and budgeting						
Create a low-carbon travel policy or travel reduction goal	In Development		A travel and expense subcommittee was formed to upgrade UBC's expense reimbursements system to include reporting system to capture carbon emissions from air travel. Updated Sustainable Purchasing Guide includes section on Business Travel, encouraging staff to make low-carbon travel choices. http://www.sustain.ubc.ca/sites/default/files/uploads/pdfs/BusinessTravel.pdf .	Customize UBC's expense reimbursement system to report carbon emissions by travel through capturing city pair attributes and producing summary report. UBC Travel to determine travel profile to create carbon emissions baseline. Policy updates to encourage travellers to reduce emissions through sustainable travel alternatives (such as teleconferencing).	2009	2012
Behaviour change program						
Train staff in web-conferencing	Ongoing/In Progress		Continued promotion of web conferencing in the UBC Sustainable Purchasing Guide.	Continued promotion of web conferencing in the UBC Sustainable Purchasing Guide.	2010	No End Date (Continuous)
Train staff in video-conferencing or provide technical support for video-conferencing set-up	Ongoing/In Progress		Continued promotion of video conferencing in the UBC Sustainable Purchasing Guide.	Continued promotion of video conferencing in the UBC Sustainable Purchasing Guide.	2010	No End Date (Continuous)
Encourage staff to consider virtual attendance/presentation at events where possible	Ongoing/In Progress		Continued promotion of virtual attendance in UBC Sustainable Purchasing Guide.	Continued promotion of virtual attendance in UBC Sustainable Purchasing Guide.	2010	No End Date (Continuous)
Encourage carpooling to meetings	Ongoing/In Progress		Continued to encourage carpooling to meetings by maintaining fleet of 5 Zipcar vehicles and 7 Co-operative Auto Network vehicles. Continued promotion of SOV alternatives, held carpool focus group and conducted evaluation of alternative ridematching options. Full transportation information available at http://trek.ubc.ca/	Add 3-7 more Co-operative Auto Network vehicles to the carshare fleet. Continue to examine the role of carpool / vanpool in the suite of transport demand management measures available to UBC.	1997	No End Date (Continuous)
Encourage alternative travel to meetings (e.g., bicycles, public transit, walking)	Ongoing/In Progress		Continued promotion of alternatives to SOV (Employer Pass Program, Upass, bike facilities, campus shuttles, pedestrian oriented campus). Explored options to expand portfolio to include bike share system. Full transportation information available at http://trek.ubc.ca/	Continue to explore the feasibility of implementing public bike share system at UBC. Continue to explore options for improving transit service to UBC, including rapid transit option. Improvements to the public realm and master plan to pedestrianize campus.	1997	No End Date (Continuous)
Other Business Travel Actions						
Promote Sustainable Hotels Program	In Development		Highlighted carbon neutral hotels by listing options on the Supply Management website.	Measure performance against baseline.	2010	No End Date (Continuous)
Education, Awareness, and Engagement						
Team-building						

**University of British Columbia -
Vancouver Campus - 2010 Carbon Neutral Action Report**

Action	Status (as of 12/31/10)	Performance to Date (as of 12/31/10)	Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Create Green, Sustainability, Energy Conservation, or Climate Action Teams with executive endorsement	Ongoing/In Progress	92 % of faculties (13 out of 14) have staff Sustainability Coordinators, with endorsement from UBC's Board of Governors.	Sustainability Coordinator program maintained enrollment of 150 Sustainability Coordinators who use 2-4 hours per month of paid staff time approved by the Board of Governors in 1999. Residence Sustainability Reps Program engaged 80 student leaders in residence through outreach and support of new committee in suite-style housing. 8 events were held in 2010.	Ongoing support for committees.	2003	No End Date (Continuous)
Provide resources and/or dedicated staff to support teams	Ongoing/In Progress		Continued coordination of Sustainability Coordinator program and outreach and support to student sustainability committees in residence. http://www.sustain.ubc.ca/sustainability-coordinators	Ongoing FTE position and student intern position.	2003	No End Date (Continuous)
Providing behaviour change education/training to teams (e.g., community-based social marketing)	Ongoing/In Progress		Training event held in 2010 with 20 new Sustainability Coordinators to educate and train new SCs on social marketing/behaviour change and how it applies to energy conservation and zero waste initiatives in the workplace.	Annual training event for new Sustainability Coordinators. Ongoing in-person orientation sessions for new SCs. Introduction of a new SC Program orientation package and baseline questionnaire which showcases behaviour change tips and strategies.	2003	No End Date (Continuous)
Awards/Recognition						
Establish a sustainability/green awards or recognition program	Ongoing/In Progress		130 staff, senior management, students and faculty attended the annual Sustainability Appreciation Luncheon to recognize and celebrate staff, student and faculty efforts in the Sustainability Coordinators and SEEDS programs. 3 online feature stories (Robson Square composting pilot, Styrofoam recycling pilot, Do It in the Dark energy competition) recognizing staff and student sustainability contributions were published.	Continued support and planning for the Annual Sustainability Appreciation Luncheon. Increased effort to use www.sustain.ubc.ca website and other communications outlets (ie. e-newsletters) as a tool to recognize staff, student and faculty contributions to sustainability on campus.	2008	No End Date (Continuous)
Staff Professional Development						
Support green professional development (e.g., workshops, conferences, training)	Ongoing/In Progress		28 green professional development opportunities attended by Campus Sustainability Office staff. 6 educational events offered through the Sustainability Coordinator program to UBC staff.	Ongoing professional development and support for Campus Sustainability Office staff. Ongoing internal professional development opportunities targeted to staff Sustainability Coordinators. Ongoing support for professional development opportunities for Campus Sustainability Office student interns.	2003	No End Date (Continuous)
Staff awareness/education						
Provide education to staff about the science of climate change	Ongoing/In Progress		Various academic departments including the Institute of Resources, Environment and Sustainability offer public lecture series on various sustainability related subjects including lectures on climate change. Ongoing tuition fee waiver available for staff can be used to enroll in undergraduate courses, some of which include climate change science.	Continued lectures and course offerings on climate change science.	Started before 1995	No End Date (Continuous)
Provide education to staff about the conservation of water, energy, and raw materials	Ongoing/In Progress		6 events held in 2010 on waste reduction, sustainable purchasing, energy conservation in the work place, battery recycling, green house gas emissions reductions, transportation alternatives. Ongoing promotion of online toolkits which educate staff on energy conservation, GHG reduction, zero waste and alternative transportation.	Ongoing educational events for Sustainability Coordinators. Ongoing promotion of online toolkits.	2003	No End Date (Continuous)

**University of British Columbia -
Vancouver Campus - 2010 Carbon Neutral Action Report**

Action	Status (as of 12/31/10)	Performance to Date (as of 12/31/10)	Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Provide green tips on staff website or in newsletters	Ongoing/In Progress		12 monthly newsletters delivered to Sustainability Coordinators, providing updates, tips and links to events and resources on sustainability issues . 4 Green Research e-newsletters published through UBC's Department of Health, Safety, and Environment providing green research information to UBC faculty and staff.	Continued distribution of monthly e-newsletters.	2003	No End Date (Continuous)
Provide sustainability education during new staff orientation	Ongoing/In Progress		Booth with sustainability materials and resources offered at quarterly new staff and faculty orientation.	Continued participation in quarterly new staff orientation.	2005	No End Date (Continuous)
Client/public awareness/education						
Provide education to clients/public about the science of climate change	Ongoing/In Progress		Institute of Resources, Environment and Sustainability puts on public lecture series on various sustainability related subjects, including lectures on climate change.	Continued lecture series on climate change science.	2008	No End Date (Continuous)
Provide education to clients/public about the conservation of water, energy, and raw materials	Ongoing/In Progress		Public release of toolkits on website: http://www.sustain.ubc.ca/campus-sustainability/getting-involved/sustainability-coordinators/sctoolkit .	Continued updating and dissemination of toolkits and newsletter.	2003	No End Date (Continuous)
Provide green tips on client/public website or in newsletters	Ongoing/In Progress		The UBC Sustainability Initiative launched its Twitter account that sends out short timely newsbites, tips and resources to approximately 1,700 followers.	Continued use of Twitter as a communications tool to the UBC internal and external community.	2003	No End Date (Continuous)
Other Education, Awareness, and Engagement Actions						
Offer and promote sustainability learning opportunities through undergraduate, graduate, and continuing studies academic programs	Ongoing/In Progress		<p>UBC offers more than 350 courses at the undergraduate and graduate level that address environmental, social and techno-economic aspects of sustainability in over 50 subjects. Comprehensive sustainability course listing online: http://sustain.ubc.ca/teaching-learning/curriculum/courses.</p> <p>UBC offers more than 25 undergraduate, graduate and professional programs that allow students to orient their degree on a sustainability subject area. http://sustain.ubc.ca/teaching-learning/curriculum/programs.</p> <p>The UBC Continuing Studies Centre for Sustainability (CSCS) offers programs in: Award of Achievement in Sustainability Management, Certificate in Decision Making for Climate Change, Certificate in Organizational Strategies for Sustainability offered to the wider community. http://sustain.ubc.ca/teaching-learning/continuing-education/continuing-studies-centre-sustainability.</p>	<p>Continue to offer and promote sustainability learning opportunities through undergraduate, graduate, and continuing studies academic programs.</p> <p>Starting Sept 2011, a Student Advisor in CIRS will be hired to council students campus wide on curricular and co-curricular sustainability learning opportunities.</p> <p>The new Teaching and Learning Fellowship Program will continue to work with faculty to plan and implement campus-wide sustainability education efforts and develop new courses.</p>	Started before 1995	No End Date (Continuous)

**University of British Columbia -
Vancouver Campus - 2010 Carbon Neutral Action Report**

Action	Status (as of 12/31/10)	Performance to Date (as of 12/31/10)	Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Support faculty to incorporate sustainability into academic programs, courses and initiatives	Ongoing/In Progress		<p>Held 2010 Sustainability Education Intensive, a faculty development workshop run by the Centre for Teaching, Learning & Technology (CTLT) to support faculty to integrate sustainability in their teaching. http://sustain.ubc.ca/teaching-learning/support-educators/education-initiatives-supporting-sustainability.</p> <p>Launched the Teaching & Learning Fellowship Program , which brings together 6 outstanding UBC faculty members who are leaders in sustainability education to share ideas and advance sustainability curricula on campus. http://sustain.ubc.ca/teaching-learning/fellowship-program.</p> <p>Launched The Spotlight Program. 4 grants awarded and implemented to expand, revise and/or retool existing courses and increase their relevance to sustainability issues and accessibility to UBC students. http://sustain.ubc.ca/teaching-learning/support-educators/teaching-learning-office-initiatives.</p>	Continue to support faculty to incorporate sustainability into academic programs, courses, and initiatives.	2006	No End Date (Continuous)
Advance sustainability in campus operations by coordinating and supporting partnerships between staff, faculty and students via SEEDS program	Ongoing/In Progress		The SEEDS (Social, Ecological, Economic, Development Studies) program coordinated 75 (64 new, 11 multi-year) projects that resulted in 135 student sustainability reports and involved 59 staff, 25 faculty members and 513 students. The outcomes of many of these reports will be implemented or affect the decision-making of staff related to sustainability at UBC.	Ongoing coordination of SEEDS program to engage students, staff, and faculty in sustainability research and projects on campus.	2000	No End Date (Continuous)
Increase student engagement in energy conservation initiatives in residences	Ongoing/In Progress		1100 residence students in Totem Park Residence participated in 'Do It In the Dark' international energy competition, saving 9,431 kWh over the duration of the 3-week competition. Achieved 17.4% aggregate reduction in electricity use over the baseline period (two weeks before the competition).	<p>Provincial Do It in the Dark competition - participation in a province-wide energy competition hosted by goBeyond in March 2011.</p> <p>Coordination of the 2nd annual Do It in the Dark competition through the Campus Conservation Nationals.</p>	2008	No End Date (Continuous)
Increase student engagement on climate action by supporting GoBeyond project	Ongoing/In Progress		Supported goBeyond (http://www.go-beyond.ca) by offering two paid internship positions through the Campus Sustainability Office for UBC campus outreach activities on climate action. In 2010, goBeyond held 10 events at UBC, had 35 active student volunteers, engaged 1560 people directly through presentations, events and taking challenges, and reached over 1000 students through climate justice teach-ins.	Continued support for and collaboration with goBeyond.	2001	No End Date (Continuous)
Provide sustainability education during new student orientations	Ongoing/In Progress		UBC Campus Sustainability Office hosted a sustainability lounge at Imagine UBC new Student Orientation, which gathered over 15 student and departmental sustainability groups on campus to promote their initiatives and activities. Over 450 students signed the UBC Sustainability Pledge, pledging to commit to sustainable lifestyle choices during their academic career at UBC.	Continued outreach and engagement at the Imagine UBC new student orientation event.	Started before 1995	No End Date (Continuous)
Install AMS Water Refillz stations at the Student Union Building to decrease bottled water consumption on campus	Ongoing/In Progress		The AMS has installed two new Waterfillz water bottle refilling stations as part of a year-long campaign to help students develop sustainable water consumption habits. 30,000 refills on the stations were recorded from Sept - Dec 2010. 50% decrease in revenue from vended water bottle sales at AMS.	Commit to a Water Bottle Free New SUB when it opens in 2014. Aim to secure funding to install water bottle refill stations around campus and to continue publicizing them to reinforce behavior change.	2010	No End Date (Continuous)

**University of British Columbia -
Vancouver Campus - 2010 Carbon Neutral Action Report**

Action	Status (as of 12/31/10)	Performance to Date (as of 12/31/10)	Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Provide campus engagement and educational opportunities on sustainability by hosting events and initiatives for staff, faculty, and students	Ongoing/In Progress		<p>Listing of sustainability-oriented student groups and volunteer opportunities to help students find relevant co-curricular opportunities: http://sustain.ubc.ca/teaching-learning/beyond-classroom.</p> <p>USI held Campus as a Living Laboratory Symposium. 400 students, staff, faculty and community members attended workshops addressing campus sustainability. http://www.sustain.ubc.ca/CLLSymposium.</p> <p>UBC Reads Sustainability featured leading authors on sustainability topics to engage in campus-wide discussions on sustainability: http://ubcreadssustainability.com/about-ubc-reads-sustainability.</p>	Ongoing coordination of campus sustainability initiatives and events for students, staff, and faculty.	2009	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	In Development		A new water engineer was hired to create a Water Action Plan for the campus, which will focus on water conservation and demand management. This Plan will address replacement of old water fixtures.	A Water Audit of 7 UBC buildings is being conducted in 2011 to help develop an informed water conservation strategy and action plan. The Water Audit and Water Action Plan are anticipated to be complete in 2011. Actions to reduce potable water consumption will be undertaken in subsequent years.	2010	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	In Development		A new water engineer was hired to create a Water Action Plan for the campus, which will focus on water conservation and demand management. This Plan will address building-level uses including cooling tower equipment, toilets and landscape features.	A Water Audit of 7 UBC buildings is being conducted in 2011 to help develop an informed water management strategy and action plan. The Water Audit and Water Action Plan are anticipated to be complete in 2011. Actions to reduce potable water consumption will be undertaken in subsequent years.	2010	No End Date (Continuous)
Introduce a stormwater management landscape strategy (e.g., vegetated roofs, permeable paving, rain gardens, bioswales)	Ongoing/In Progress		The UBC Vancouver Campus Plan, adopted June 2010, specifies a natural systems approach to stormwater management. Stormwater model completed. LIDAR survey and cliff/ravine analysis completed to determine susceptibility to climate change- and development-induced stormwater increases.	Dry overland stormwater flood routes under review. Conceptual development of large stormwater detention facilities in South Campus to avoid mass-washing of ravine bed at cliff outfall area. Finalize stormwater strategy with key stakeholders. Develop Integrated Stormwater Management Plan based on flood and cliff erosion mitigation plus improving water quality (when and where necessary) by implementing operational management plan.	2002	No End Date (Continuous)
Waste reduction/diversion						

**University of British Columbia -
Vancouver Campus - 2010 Carbon Neutral Action Report**

Action	Status (as of 12/31/10)	Performance to Date (as of 12/31/10)	Steps Taken in 2010	Steps Planned for 2011 -2013	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	44 % of recycled waste diverted from landfill (including e-waste, organics going to the on-campus in-vessel composter, and batteries) in 2010	Continued to operate styrofoam recycling pilot in UBC Brain Research Centre. Supply Management continued to operate bubble wrap reduction pilot project in libraries and printer cartridge recycling roundups across campus. Started plastic recycling project in labs. Furniture reuse feasibility study was completed. Solid waste audit conducted between March and September 2010. This initiative will inform changes and improvements to UBC policies, waste reduction strategies and infrastructure required to move towards a target of zero waste. UBC Waste Free Committee remained active: http://www.sustain.ubc.ca/campus-sustainability/greening-the-campus/ubc-waste-free .	Conduct feasibility study on success of pilot and costs associated with continuation of styrofoam recycling project. If the pilots (plastic recycling in labs, styrofoam recycling, plastic wrap recycling) are successful, the programs will be expanded across campus. Release Solid Waste Audit Report and begin Waste Management Plan process. Continue working towards the USI and the Metro Vancouver target rates for waste diversion in conjunction with the results of the waste audit Launch of the new Re-Use It website at UBC. Continued expansion of the Call2recycle battery program through HS&E. Further additions of UNA buildings to the Organics Program. E-Waste program expansion for drop off and campus collection of E-waste.	1997	No End Date (Continuous)
Implement a hazardous waste reduction and disposal strategy	Ongoing/In Progress		90 UBC faculty, staff and lab personnel attended the 2010 Green Research Workshop to learn about hazardous materials substitution and source reduction, new opportunities in laboratory solid waste management and how to assess the energy consumption of laboratory equipment. In addition, 4 issues of the Green Research newsletter were distributed. 800 new employees were trained and written procedures were followed through the UBC Laboratory Pollution Prevention and Hazardous Waste Management Manual. Considerable source reduction was achieved in all of the main waste streams. The chemical waste, biohazard risk groups 1 and 2, solvents and pathological waste were reduced by 41%, 18%, 18% and 4% respectively. The pharmaceutical, biomedical, and sharps waste streams were reduced 10%, 10% and 37% respectively. Continued to operate active recycling programs [chemical exchange, solvent recovery, silver recovery, oil and paint recycling, lab plastic recycling, battery recycling].	Continue to promote and implement hazardous waste reduction and disposal strategies, trainings, and programs, including the Green Research Initiative annual workshop, quarterly newsletter, and new green research challenge.	1996	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.)	Ongoing/In Progress		Second edition of the Sustainable Purchasing Guide was launched: http://www.sustain.ubc.ca/sites/default/files/uploads/pdfs/UBCSustainablePurchasingGuide_version2.pdf . This guide should be followed for all goods under \$3,500 usually purchased on the UBC Purchasing Card (Pcard).	Update preferred/prequalified vendor list for Pcard users.	2009	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.)	Ongoing/In Progress		Weight given to sustainability is minimum 10% in RFP process and is always encouraged to be higher, but is end-user driven.	Start discussion around having a higher standard % for sustainability where possible. Find out which groups need to be involved other than Supply Management.	2010	No End Date (Continuous)

**University of British Columbia -
Vancouver Campus - 2010 Carbon Neutral Action Report**

Action	Status (as of 12/31/10)	Performance to Date (as of 12/31/10)		Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Implement sustainable purchasing program for cleaning products, disposable paper products and trash bags	Ongoing/In Progress			100% of the academic buildings on campus are cleaned using Green Seal green and sustainable cleaning products. Continued to use 100% recycled paper towels and toilet paper and "value plus" degradable garbage bags manufactured in Canada in all academic buildings.	Continue to maintain the green cleaning program implemented.	2007	No End Date (Continuous)
Require a minimum purchase of sustainable, and organic food and beverages supplied by contracted food suppliers or caterers	Ongoing/In Progress	4	% of the combined total food and beverage purchase (in cost) meets these requirements	According to life-cycle analysis studies, non-GMO tofu is now procured from a local processor; pork sausages are no longer procured from Chile. Whole fruits are sourced from a BC organic supplier. Increased procurement of food from UBC Farm. AMS food procurement RFP now includes requirement for local food. UBC Student Housing and Hospitality Services (SHHS) drafted a food procurement guide. More UBC Food Sustainability initiatives available at: http://www.food.ubc.ca/sustainability/sustainability-initiatives .	Conduct LCA studies on solid dairy products, wheat flours, sugars, white fish and liquid eggs. Engage providers to build a network of local food producers. Develop a sustainable food purchasing policy and reinforce it through the bid process by weighting evaluation criteria to favour suppliers that support sustainable, low carbon agricultural practices. Promote the policy and evaluation criteria amongst UBC outlets and contracted vendors. Replace existing herbal tea line with FairTrade Organic tea product line. Pursue fair trade designation of the campus.	2001	No End Date (Continuous)
Building construction, renovation, and leasing							
Establish a policy to reuse materials where possible and divert construction and demolition debris from landfills and incineration facilities	Ongoing/In Progress			Made 2 LEED credits for Construction Waste Management mandatory for all new construction and major renovations: minimum 75% construction waste diversion. Added these UBC mandatory credits to Vancouver Campus Plan Design Guidelines (LEED Implementation Table).	Maintain 75% diversion rate for residential construction as mandatory according to UBC's Residential Environmental Assessment Program.	2005	No End Date (Continuous)
Incorporate lifecycle costing into new construction or renovations	Ongoing/In Progress	100	% of business cases incorporating lifecycle costing since start year indicated	Continued to use lifecycle costing is used in all new construction and major renovation projects.	Continue to use lifecycle costing for all new construction and major renovation projects.	2000	No End Date (Continuous)
Indoor air quality							
Enforce a scent-free policy (e.g., no strong perfumes, deodorants, etc.)	Ongoing/In Progress			Scent free policy is addressed at the department level. Information encouraging a scent-free workplace is distributed to departments and information regarding indoor air quality is posted on the HSE web site: http://www.hse.ubc.ca/safety/occupational-hygiene/indoor-air-quality-iaq . IAQ assessments are performed by Health, Safety and Environment (HSE) staff on an as needed basis.	Continue to promote a scent free workplace and conduct IAQ assessments on an ongoing basis.	Started before 1995	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			Continued to source products according to performance requirements in Technical Guidelines, which specify use of low or no-VOC adhesives, flooring and carpets; and lowest-range VOC products in each paint category (preferably "3-Tree" and Eco-Logo certified).	Annual review of Technical Guidelines.	2002	No End Date (Continuous)
Commuting to and from home							
Introduce telework/work from home policy	Ongoing/In Progress			Continued to provide telecommuting and work from home guidelines for Management & Professional (M&P) staff. http://www.hr.ubc.ca/faculty-staff-resources/telecommuting/ .	Continue to provide telecommuting and work from home guidelines for Management & Professional (M&P) staff.	2009	No End Date (Continuous)
Offer staff a compressed work week	Ongoing/In Progress			Continued to provide flexibility in UBC collective agreements to allow for compressed work weeks where it is operationally feasible.	Continue to provide flexibility in UBC collective agreements to allow for compressed work weeks where it is operationally feasible.	2000	No End Date (Continuous)

**University of British Columbia -
Vancouver Campus - 2010 Carbon Neutral Action Report**

Action	Status (as of 12/31/10)	Performance to Date (as of 12/31/10)		Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Encourage commuting by foot, bicycle, carpool or public transit	Ongoing/In Progress	65	% of campus users commute by foot, bicycle, carpool, or public transportation	Published updated design standards and requirements for bike parking on campus as well as the first 10 year Campus Cycling Plan. Hosted a car-pool focus group to determine the challenges of carpooling and investigated alternative ride-matching software. Updated website and rebranded office to improve communication and accessibility of programs. Increased number of TransLink Employer Pass subscribers by 9.2% from 2009, with 1170 subscribers in 2010. Continued mandatory UPass program for all students. To date, transit ridership has increased by 232% since 1997. Vehicle trips have decreased by 15% since 1997, despite a 42% growth in population. 2010 Transportation Report available at: http://trek.ubc.ca/2011/04/04/2010-transportation-status-report/ .	Complete two additional secure bike parking facilities, resulting in ~ 128 additional bike parking spaces (34% increase). Increase bicycle lockers by 77% (from 52 to 92 spaces). Install 2 automatic bicycle counters to monitor trends in bicycle travel on campus. Maintain and enhance Transportation Demand Management (TDM) portfolio. Develop updated Strategic Transportation Plan and continue to participate in UBC Line Rapid Transit Study.	1997	No End Date (Continuous)
Provide shower or locker facilities for staff/students who commute by foot or by bicycle	Ongoing/In Progress			Developed revised campus policy for the provision of bicycle storage, showers and lockers in all new academic building developments and in major renovations. Reviewed projects at the Development Permit stage to ensure consistency with new guidelines. Full transportation information available at: http://transportation.ubc.ca .	Continue to examine projects for compliance with guidelines. Monitor successes and challenges and update guidelines if warranted. Provide in-kind support to departments or units interested in developing end-of-trip facilities.	1997	No End Date (Continuous)
Provide secure bicycle storage	Ongoing/In Progress	815	registered secure bike parking users	Construction of Buchanan Tower Secure Bike Parking Facility increased secure bike parking by 34%, providing 96 additional spaces. Improved access and management of bicycle locker program, including fee reduction from \$23/month to \$10/month. Full transportation information available at: http://trek.ubc.ca/	Construction of two additional secure bike parking facilities, providing ~ 128 additional secure parking spaces. Purchase additional bicycle lockers, creating 40 additional spaces on-campus, an increase of 77%. Make improvements to existing secure storage facilities, including installation of apparel lockers.	1997	No End Date (Continuous)
Modify parking fees or parking availability for staff/students	Ongoing/In Progress			The cost of parking increased significantly in 2010 by an average of 25% for most permit holders and transient customers. Reduced approximately 300 surface lot spaces in 2010.	Faculty/Staff rates: raised approx. 2.5% in both 2011/12 and 2012/13 Student rates: raised approx. 0% in 2011/12 and 2% in 2012/2013 Parkade hourly rates: raised approx. 0% in 2011/12 and 33% in 2012/2013 On Street daily rates: raised approx. 0% in 2011/12 and 25% in 2012/2013	2010	No End Date (Continuous)
Other Sustainability Actions							
Expand preferred vendor agreements that advance sustainability	Ongoing/In Progress			Xerox has signed up 16 departments on campus and reduced the amount of devices by 49% overall (370 devices total). Training on sustainable features and functionalities is provided. Xerox has also set up a 3-year sustainability fund (\$12,000 over 3 years) that goes towards sustainable projects on campus. Fisher Scientific contract renewed for one more year. Continued to fund Green Research initiative and also support the Fisher/Corning Plastics in labs initiative. http://www.sustain.ubc.ca/campus-sustainability/campus-programs/green-research-program .	Launch new Supply Management website which will feature updated vendor list to make sustainable purchasing easy to do. Develop Sustainability scorecard to communicate how vendors align with UBC supplier code of conduct and measure their impact. Add 10 preferred contacts in key commodity areas. Supply Management will also upstream supply chain improvements by working with 10 preferred and pre qualified vendors to reduce waste by reducing packaging and changing the shipping methodologies upstream.	2010	No End Date (Continuous)

**University of British Columbia -
Vancouver Campus - 2010 Carbon Neutral Action Report**

Action	Status (as of 12/31/10)	Performance to Date (as of 12/31/10)	Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Provide housing for students, staff and faculty on campus, reducing commuting needs	Ongoing/In Progress		<p>8500 student beds on campus were available in 2010. An additional 735 faculty and staff units were also available on campus, including 537 rental units and 198 co-development units.</p> <p>In 2010, a UBC student housing demand study was presented, outlining the need and demand for future on-campus student housing and to input the results and findings into the Vancouver Campus Plan: http://www.housing.ubc.ca/files/van/pdf/others/student_housing_demand_study.pdf.</p>	<p>Totem Park Infill will provide 566 new student beds by 2011. The Ponderosa Hub Project will provide an additional 1,100 student beds by 2015.</p> <p>In order to build a model sustainable university community, UBC is developing a Housing Action Plan between 2011-2012 to improve housing choice and affordability for faculty, staff and students on the Vancouver campus. http://www.planning.ubc.ca/vancouver_home/plans_and_policies/ubc_housing_action_plan.php.</p>	Started before 1995	No End Date (Continuous)