University of British Columbia Vancouver Campus

Climate Action Plan 2010-2015

Climate Action Plan Report – 2010

July 2011

campus + community planning
campus sustainability

a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

1. Executive Summary

UBC developed its Vancouver Campus Climate Action Plan by leading campus-wide consultations and stakeholder working groups to develop targets and strategies for emission reductions. The Climate Action Plan sets out actions in six areas that are the key sources of UBC's greenhouse gas emissions: Campus Development and Infrastructure, Energy Supply and Management, Fleets and Fuel Use, Transportation, Business Travel and Procurement, and Food.

On March 24 2010, UBC President Stephen Toope announced the UBC Vancouver Climate Action Plan targets, committing UBC to aggressive greenhouse gas (GHG) emission reduction targets. 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 demonstrated climate leadership by delivering the Climate Action Plan within two years of signing the *University and College Presidents Statement of Climate Action*, including strategies for reducing optional or Scope 3 emissions, and with a vision for becoming a net energy producer and zero emission campus by 2050.

This inaugural report summarizes our progress in 2010, the first year of implementing the Climate Action Plan. Of the 111 actions and sub-actions identified, eight are complete, and a further eighty are in progress, ongoing or under development. The other 23 actions are not yet started, being re-evaluated, on hold, or longer-term goals. In 2010, GHG emissions for UBC's Vancouver campus buildings, fleet and paper amounted to 58,353 tonnes CO_2e, a 4 percent decrease from 2007 levels. As required by BC regulation, UBC purchased offsets for these emissions, an investment of $1.5 million, to become carbon neutral for 2010.

Key actions completed in 2010 included the launch of the Continuous Optimization program, which will reduce energy use and GHG emissions in core academic buildings by 10 percent below 2007 levels by 2015. In the arena of green buildings, UBC set specific standards for implementing LEED Gold, requiring that all new buildings achieve an energy performance rating 42 percent below Canada's Model National Energy Code for Buildings (MNECB). From dramatically reducing virgin paper purchases, to setting up a system to reuse furniture and supplies on campus, to increasing purchases from the UBC Farm and providing new state-of-the-art bicycle facilities, staff, faculty, and students in over 30 units across campus are working towards the ambitious targets outlined in the plan.

Upcoming actions to reduce emissions by 33 percent by 2015 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, reducing campus GHG emissions by 9 percent. UBC also recently gave the green light to one of the largest steam to hot water conversions in North America for its district energy system, reducing natural gas consumption and emissions by a further 22 percent.

UBC has laid the groundwork to achieve its climate action commitments and made good progress in the first year of implementation. The enthusiasm and dedication of individuals and groups across campus are key to UBC's success in achieving the bold vision outlined in the Climate Action Plan. We thank you for your commitment to climate action.

Orion Henderson
Director, Operational Sustainability

2. Overview of the Climate Action Plan

2.1 Vision and Commitments

The UBC Vancouver Campus Climate Action Plan was prepared by campus-wide consultations and working groups. The stakeholders, who included hundreds of students, staff, faculty and broader community members, 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.

2.2 Targets and Strategies

President Toope announced the Climate Action Plan targets on March 24 2010, committing UBC to ambitious campus-wide GHG reductions. Compared to a 2007 emissions baseline, GHG emissions 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. Since 72% of emissions occur at the steam plant, the strategies focus on energy supply and efficiency:

1. Generating clean heat and electricity through the UBC Bioenergy Research and Demonstration Project will reduce campus GHG emissions by 9 percent.

2. Optimizing academic building performance and improving behaviour change programs will reduce campus GHG emissions by 10 percent.

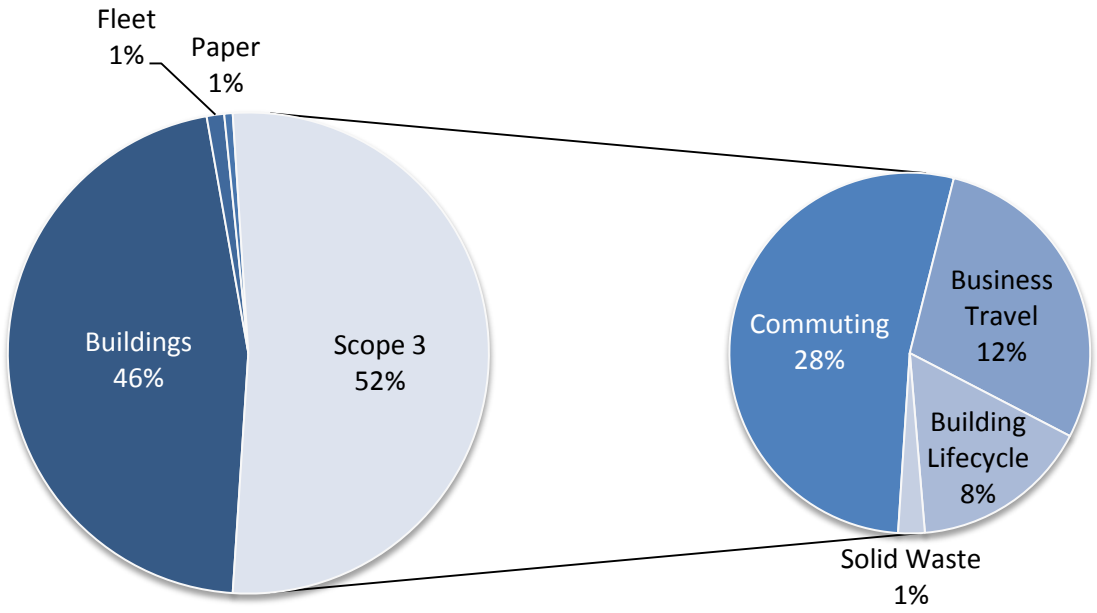
3. Converting the district heating system from steam to hot water will reduce campus GHG emissions by 22 percent.

These projects represent an investment of nearly $120 million by UBC. Although taking action is often envisioned as being expensive, UBC's Climate Action Plan outlined the business case for emissions reductions and the cost of inaction. Extensive sums would be required in coming years to maintain the status quo, including major capital investments to upgrade existing energy infrastructure. The estimated net present value of continuing to purchase conventional fuel, pay the carbon tax and purchase offsets for the business-as-usual path over the next 25 years is approximately $150 million. Taking action now provides an opportunity to avoid costs and divert funds towards 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.

3. 2010 Greenhouse Gas Emissions

The Climate Action Plan GHG reduction targets apply to emissions from core and ancillary buildings, TRIUMF, fleet and paper. Government regulation requires these emissions to be offset starting in 2010. Going beyond provincial requirements, the annual UBC Vancouver Campus GHG inventory also quantifies several categories of optional or Scope 3 emissions. The combined Scope 3 emissions from commuting, business travel, building lifecycle and solid waste were greater than the offsettable emissions in 2010. *Figure 1* shows the breakdown of the various emission categories.

Figure 1: UBC Vancouver Campus 2010 Emissions by Category



3.1 Emissions Breakdown

The 2010 emissions breakdown is compared to the 2007 baseline year emissions in *Table 1*. In 2010, total GHG emissions for UBC's Vancouver campus amounted to 58,353 tonnes CO_2e, a 4 percent decrease from 2007 levels. Over 96 percent of these emissions came from campus buildings, with 76 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.

Fugitive emissions of refrigerant gases were estimated to comprise less than 1 percent of UBC's total emissions and collecting 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.

Table 1: UBC Vancouver Campus Emissions, 2007 and 2010

Scope	Source	2007 Emissions (tCO_2e)[1]	2010 Emissions (tCO_2e)[1]	2010 Percent of offsettable emissions[1]
Scope 1 & 2 + Paper	**Core buildings**[2]	**46,480**	**41,810**	**72%**
	Steam (natural gas and light fuel oil)	*40,110*	*35,490*	*61%*
	Natural gas (direct burn)	*3,520*	*2,860*	*5%*
	Electricity	*2,860*	*3,460*	*6%*
	Ancillary buildings[3]	**11,410**	**14,170**	**24%**
	Steam (natural gas and light fuel oil)	*7,310*	*8,550*	*15%*
	Natural gas (direct burn)	*3,110*	*4,430*	*8%*
	Electricity	*990*	*1,190*	*2%*
	TRIUMF (1/11th)[4]	**230**	**250**	**0.4%**
	Fleet	**1,970**	**1,430**	**2.5%**
	Paper	**1,000**	**690**	**1.2%**
	Total Offsettable Emissions[5]	**61,080**	**58,350**	
Scope 3	**Commuting**	**28,880**	**33,540**	
	Staff and Faculty Air Travel	**13,600**	**18,180**	
	Building Lifecycle	**10,190**	**10,180**	
	Solid Waste	**1,930**	**1,510**	

[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. UBC is responsible for 1/11th of emissions.*
[5] *A portion of the fuel consumed in 2010 contains renewable content as mandated by BC's Renewable and Low Carbon Fuel Requirements Regulation. These emissions are reported as biomass and are not required to be offset. Biomass emissions not shown here amounted to 63.6 tonnes CO_2e in 2010.*

3.2 Comparison to Baseline Year

No major operational changes occurred in 2010 compared to the 2007 baseline year. UBC's Vancouver Campus building portfolio area increased by roughly 44,000 m^2 or 3% between 2007 and 2010. While faculty and staff numbers stayed relatively constant, student enrolment increased by over 3,300 full-time equivalent students from 2007 to 2010.

The decrease in emissions from 2007 to 2010 is partly due to overall milder weather in 2010, which required less steam heat for buildings. Steam-related emissions decreased in spite of cold snaps in late 2010 that required the steam plant to use light fuel oil, which has a higher carbon intensity than natural gas, compared to 2007 when no oil was used. Electricity consumption increased from 2007 to 2010, but does not have a significant effect on emissions due to its low carbon intensity.

The methodology for fleet emissions estimated off-campus vehicle fuel use more accurately this year and included boat fuel for the first time. Paper use at UBC has been steadily decreasing over the past decade. Emissions from paper were lower in 2010 compared to 2007, despite two additional suppliers being included in the inventory for the first time.

The increase in commuting emissions corresponds to the 16% increase in campus population from 2007 to 2010; there were only small changes in mode share over that period. Air travel emissions had not been calculated since 2006 due to a large margin of error in the methodology. The 2010 value was newly estimated but is still imprecise since mileage is not captured for the majority of air travel that is booked personally instead of through travel agents.

Campus emissions decreased from 2007 to 2010, despite the increase in student enrolment. The emissions from campus buildings along with fleet and paper amounted to 1.42 tCO_2e per full-time equivalent student in 2010, a 12 percent decrease in 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 2010 Key Performance Indicators Compared to 2007 Baseline

Key Performance Indicator	2007	2010	Change from 2007 to 2010
Floor Space (square meters)	1,236,499	1,280,637	+3.4%
Staff and Faculty Employees (full-time equivalent)	12,461	12,524	+0.5%
Student Enrolment (full-time equivalent)	37,589	40,962	+9.0%
GHG Emissions (tonnes of CO_2e)	61,082	58,353	-4.5%
GHG Emissions (tonnes of CO_2e / FTE student)	1.62	1.42	-12.3%

3.3 Offsets Applied to Become Carbon Neutral in 2010

As required by the provincial Greenhouse Gas Reduction Targets Act, UBC purchased a total of 60,792 tonnes of carbon offsets for the Vancouver campus and additional off-campus properties to become carbon neutral for 2010. The BC public sector as a whole invested in 729,782 tonnes of made-in-BC offsets supplied by the Pacific Carbon Trust.

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, amounted to 63.6 tonnes CO_2e and are not required to be offset.

4. Emissions Reduction Activities

4.1 Actions Taken to Reduce Greenhouse Gas Emissions in 2010

The Climate Action Plan sets out actions in six areas that are the key sources of UBC's GHG emissions. The attached Appendix provides a detailed update on each action in the plan. Of the 111 actions and sub-actions identified, eight are complete, and a further eighty are in progress, ongoing or under development. A summary of highlights are presented here.

4.1.1 Scope 1 and 2 Highlights

In 2010, the first year of implementing the Plan, highlights include:

Development and Infrastructure

- 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.

CIRS building under construction, June 2011. Photo by Michael Robinson.

- 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 Vancouver Campus Plan and Technical Guidelines, and all 5 LEED projects registered in 2010 are on track to achieve this target.

Energy

- Launched BC Hydro's Continuous Optimization 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 began showing energy reductions of 15 to 30%. A Monitoring, Targeting and Reporting system was developed to ensure that all buildings will continue to meet energy performance targets.
- In Totem Park Residence, 1100 students participated in the 'Do It In the Dark' international energy competition, saving 9,431 kWh over 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 and placing second overall in the competition.

Residents of Totem Park dine by candlelight during the 'Do it in the Dark' competition. Photo by Liz Ferris.

Fleets and Fuel

- Continued to integrate electric vehicles into the on campus fleet through purchase of four more electric trucks.

4.1.2 Scope 3 Highlights

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

Food

- Using the results of Lifecycle Analysis studies conducted by LFS students, specific ingredients and suppliers were selected by Food Services to improve the sustainability of the food system.
- Despite a poor growing season, various campus establishments increased their procurement of food from the UBC Farm.

Procurement and Business Travel

- Required the major campus supplier to automatically substitute 30 percent post-consumer recycled content paper for virgin paper, resulting in 97% of paper purchases having recycled content of 30 percent or greater. (When direct purchases through outside suppliers are included, 90% of total university paper purchase contains 30 percent post-consumer recycled content or better).
- Laid the groundwork for the launch of re-use it! UBC in January 2011. The site assists UBC faculty and staff in exchanging items like furniture and office supplies between departments (often for free). The site also features a ***Recyclopedia*** where users can find the proper way to recycle an ever-growing list of items on campus.

Photos of actual items that have been posted on the re-use it! UBC site and adopted by another department.

- A campus-wide waste audit was completed. The results will be incorporated into the Waste Action Plan currently under development to set new waste reduction targets.

Transportation (Commuting)

- Bicycle end-of-trip facilities are now specified in the Design Guidelines of the newly released Vancouver Campus Plan.
- A new, state-of-the-art bicycle parking facility 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.

Testing out the new hydraulic bike lift at Buchanan Tower. Photo by Spencer Kovats.

4.2 Plans to Continue Reducing Greenhouse Gas Emissions 2011 – 2015

4.2.1 Scope 1 and 2 Emissions

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

UBC Bioenergy Research and Demonstration Project

Construction of the UBC Bioenergy Research and Demonstration Project, a partnership with Vancouver-based Nexterra and General Electric, began 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 the 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 district heating system from steam to hot water, estimated to yield a 22 percent reduction in GHG emissions. Set to be one of the largest hot water conversions in North America, the project entails an $85 million capital investment on the Vancouver Campus and will replace 14 km of piping. The multi-year project will break ground in 2011.

Continuous Optimization

The Continuous Optimization program will continue to be deployed from 2011-2015, optimizing building performance and achieving emissions reductions in combination with enhanced behaviour change strategies. In 2011 energy conservation measures will be implemented in the first 17 buildings, and investigation of the next 25 buildings will start. In 2012 and 2013 the final two groups of buildings will begin the retro-commissioning process.

4.2.2 Scope 3 Emissions

While not directly responsible for Scope 3 GHG emission sources, UBC recognizes that they are within its sphere of influence and that the University can act to mitigate these emissions.

Transportation

In 2011, two new secure bicycle facilities will be built and several kilometers of safe shared use lanes will be created. The possibility of launching a bike sharing program on campus is being evaluated.

Business Travel and Procurement

Over the next year, travel emissions tracking systems will be evaluated for integration with UBC's expense software. UBC will continue to work with suppliers to eliminate packaging and reduce delivery trips to campus. A multi-year initiative will transition the campus to paperless operations.

Food

Students will perform Lifecycle Assessments on specific products to inform food purchasing decisions. The new CIRS café will serve as a model sustainable food outlet and test bed for initiatives like product labelling. Improved waste sorting signage will divert more organics and recyclables from the landfill.

5. Links to Relevant Reports

UBC Climate Action Plan
http://www.sustain.ubc.ca/sites/default/files/uploads/pdfs/UBC%20Vancouver%20CAP%20Final.pdf

Case Study: Planning for Climate Action
http://www.sustain.ubc.ca/sites/default/files/Case%20Study_ClimateAction.pdf

Appendix: Action Implementation Matrix (Technical Report #5) – 2010 Update

ID	Action	Responsible Portfolio(s)	Partnerships Required	Timeline	Status Update 2010 calendar year
		Department(s)	Internal & external	Milestones or specific general stage of the plan (<3 yrs, 3-5 yrs, >5yrs)	Progress to date; next steps if applicable
Campus Development and Infrastructure					
DV-01	Increase the energy efficiency of development on campus				
a)	Adopt MNECB 2011 when available for all new construction including core, ancillary, and market residential development. Target: 30% below current BC building code (about 45% below MNECB 1997) for all new buildings. This target would be similar to achieving 5 LEED points in energy and atmosphere.	Infrastructure Development	SHHS, Building Ops, Campus Sustainability	Commencing 2010. Adopt when available (expected in 2011).	Complete. Requirement for 42% below MNECB 1997 and 5 points in LEED EA credit 1 written into Vancouver Campus Plan and UBC Technical Guidelines.
b)	Commit all UBC ReNew buildings to achieve energy performance targets. Target: 20% below current BC building code (about 35% below MNECB 1997) for all ReNew buildings. This target would be similar to achieving 5 LEED points in energy and atmosphere.	Infrastructure Development	SHHS, Building Ops, Campus Sustainability	Commencing 2010.	Complete. Requirement for 33% below MNECB 1997 and 5 points in LEED EA credit 1 written into Vancouver Campus Plan and UBC Technical Guidelines.
c)	Adopt higher energy efficiency standards for the Residential Environmental Assessment Program (REAP).	Campus and Community Planning	Infrastructure Development, UBC Properties Trust	< 3 yrs	In progress. Will be completed in 2011.
d)	Develop a LEED® Guide to identify optional LEED® points that are a priority for UBC (e.g. energy and atmosphere) and to share lessons learned to date to guide consultants through LEED® certification at UBC.	Campus Sustainability	Building Ops, Infrastructure Development, SHHS, C&CP	< 3 yrs	In progress. A summary table was included in the Vancouver Campus Plan in 2010. The Guide will be completed in 2011.
e)	Develop design guidelines around site orientation to include passive solar heating and light access, tree shading, and co-locating buildings to support shared infrastructure.	C&CP	Infrastructure Development, Building Ops, SHHS, Properties Trust	< 3 yrs	Complete. The Vancouver Campus Plan prioritizes a compact campus, with opportunities for sharing infrastructure and resources and reducing energy usage to be considered in the siting review for each new project and in the more detailed site planning for the mixed-use hubs. The VCP Design Guidelines' section 2.3.10 — Sustainability Best Practice in Building Design — singles out passive design, orientation, shape and massing, windows and glazing as items to be considered early in the design process in order to improve energy performance and comfort.

ID	Action	Responsible Portfolio(s)	Partnerships Required	Timeline	Status Update 2010 calendar year
f)	Ensure that UBC's **Technical Guidelines** explicitly require highest standards of energy efficiency.	Infrastructure Development, Building Operations	Building Ops, SHHS, Properties Trust	Complete by end of fiscal year 2009-10.	**Ongoing**.
g)	Develop "**Energy Density Targets**" for new student housing and core academic development.	Infrastructure development	C&CP, Building Ops, SHHS, Properties Trust	Establish Targets by 2012, to be included in development by 2013	**In progress**. Study was initiated in 2010 and will be completed in 2011.
h)	Increase **infill development on the North Campus** as a means of increasing density and reducing emissions associated with achieving UBC's growth targets as outlined in the Vancouver Campus Plan (e.g., 50% of students housed on campus by 2030).	C&CP	Campus Sustainability	ongoing	**Ongoing**. The Vancouver Campus Plan emphasizes building mixed-use facilities with higher densities at designated infill locations on the North Campus. Student housing capacity will be increased to reduce commuting and provide a critical population mass to support a greater variety of academic and personal services operating on campus. A greater variety of housing types will be provided, recognizing the increasing diversity of students.
DV-02	**Establish long term funding to support energy efficiency for both new construction and existing buildings.**				
a)	Evaluate the legal and financial opportunities to **create new financing mechanisms for retrofits** .These could include the UBC endowment, working capital, GPO, etc.	Treasury		End of fiscal year 2009 - 2010	**Not yet started.**
b)	Incorporate energy efficiency awareness into **communications with financial donors and granting agencies** to ensure that the green and energy efficient features of buildings are properly funded.	Development Office	Infrastructure Development, Building Ops, SHHS	Ongoing	**Not yet started.**
c)	Develop funding mechanisms for **addressing energy efficiency in existing and new ancillary buildings** (e.g. housing and athletics facilities).	C&CP	SHHS, Athletics, Infrastructure Development	< 3 yrs	**Under development.** A new Community Energy Manager being hired in 2011 will address this.
d)	Include the **lifecycle costs** (e.g., operations and maintenance, energy costs, carbon tax, offset costs) when developing business cases for capital projects.	Infrastructure Development	Building Operations, SHHS, Properties Trust	Ongoing	**Under development.** High level LCC required by Board of Governors but no standardised system available at the project level.

ID	Action	Responsible Portfolio(s)	Partnerships Required	Timeline	Status Update 2010 calendar year
e)	Develop UBC specific **financial business case criteria** (e.g. payback thresholds, etc.) to guide the evaluation of facility upgrades.	Infrastructure Development, Treasury	Building Operations, SHHS, Athletics, Properties Trust	End of fiscal year 2009-10	**Under development.**
DV-03	**Implement comprehensive renovation projects for existing buildings.**				
a)	Support the **proposed UBC ReNew Phases 2 through 5** in order to continue retrofits of existing core buildings and ensure that high performance building envelopes and systems are included in ReNew projects. To support this initiative, project budgets should be allocated in such a way that 5% of the overall budget is put towards energy performance upgrades.	Infrastructure Development	Building Operations, Campus Sustainability	3 - 5 yrs	**Longer term goal.**
b)	Develop a **ReNew equivalent program for Ancillary Buildings** (Housing and Athletics).	Infrastructure Development	Building Operations, C&CP	Program development and approval by 2012.	**Not yet started.**
DV-04	**Work with our neighbors and partners to understand and reduce the complete UBC carbon footprint.**				
a)	Support the **University Neighbourhood Association** (UNA) in developing an emissions inventory and strategies for reducing emissions from campus neighborhoods.	Campus Sustainability	UNA, C&CP, SHHS, Properties Trust	Commence in 2010.	**Under development.** A Community Energy and Emissions Inventory and Plan will be completed in 2011-12.
DV-05	**Leverage our experiences in development and emission reduction for academic and research purposes.**				
a)	Support the inclusion of climate change and energy efficiency in the **Social, Ecological, Economic Development Studies** (SEEDS) **program** on campus to build a campus scale learning network and support the incubation of demonstration projects related to net positive energy and water.	Campus Sustainability	All departments	continuous	**Ongoing.** In 2010, 39 SEEDS projects addressed climate, energy or water themes.

ID	Action	Responsible Portfolio(s)	Partnerships Required	Timeline	Status Update 2010 calendar year
		Department(s)	Internal & external	Milestones or specific general stage of the plan (<3 yrs, 3-5 yrs, >5yrs)	Progress to date; next steps if applicable
Energy					
EN-01	Expand energy management activities on campus.				
a)	Develop an energy management program for all ancillary facilities. Target: Save 15% of housing and athletics energy consumption by 2020	Campus Sustainability	SHHS, Athletics	Start in year 2 (2011)	In progress. Ancillary energy management plans were completed in 2010. A full-time community energy manager being hired in 2011 will initiate the implementation of the energy management program.
b)	Implement full campus-wide energy monitoring, reporting and benchmarking.	Campus Sustainability	Building Operations	Start in year 1 (ongoing)	Ongoing. A monitoring, targeting and reporting system was developed in 2010. Energy reports will be distributed to departments beginning in 2011.
c)	Participate in the Canada Green Building Council's (CaGBC) Green Building Performance Initiative to benchmark with peers	Campus Sustainability		< 3 yrs	Being evaluated.
EN-02	Maintain optimal performance of existing systems.				
a)	Implement a continuous commissioning program for core academic buildings Target: 10% reduction in energy use in existing core buildings by 2015.	Building Operations	BC Hydro funding.	Program development to begin in 2010	Ongoing. UBC entered into an agreement with BC Hydro for the three-phase program, building on the success of a pilot in 2 buildings that started achieving targeted energy savings in 2010. Audits and analysis of the 17 buildings in Phase 1 began in 2010. On track to begin implementation of conservation measures of Phase 1 buildings and auditing of the Phase 2 buildings in 2011.
b)	Expand condition assessment activities and preventative maintenance to support energy efficiency in existing buildings.	Building Operations		< 3 yrs	Ongoing. Condition assessment is ongoing. Under development. A preventative maintenance program is being piloted.
c)	Ensure O&M staff receive adequate training (and certification) to allow them to operationalize the CAP and fulfill their mandates	Building Operations		Start in year 1	Ongoing. Operations Centre staff are participating in training through the Continuous Optimization program and the implementation of the monitoring, targeting and reporting system.
d)	Invest in the Sustainability Coordinators program (currently includes 140 volunteers) to increase participation in energy and GHG management efforts.	Campus Sustainability		Start in year 1	Ongoing. SC program includes over 150 volunteers, with a focus on energy each fall. The new engagement and behaviour change strategy will be completed in 2011.

ID	Action	Responsible Portfolio(s)	Partnerships Required	Timeline	Status Update 2010 calendar year
e)	Optimize **steam plant efficiency** through setting annual plant commissioning and optimization targets. **Target**: 1% annual saving in natural gas consumption	Building Operations			**In progress.** In 2010 adjustments were made to de-aerator venting.
EN-03	**Develop incentive systems for building operators and users to reduce energy and water consumption.**				
a)	Review utility rates, rate structure and departmental budgeting strategy to provide correct **market signal to encourage conservation.** This would include core, ancillary, and tenant buildings.	Building Operations / Campus Sustainability; Treasury	Budget Office	Start in year 1	**Under development.**
b)	Create **building-by-building user groups** to link Building Operations with faculty, staff and students (building users).	Building Operations		Start in year 1	**Under development.** May be an outcome of the communications strategy being developed for the Continuous Optimization program and the engagement strategy in Action EN-06 (b)
c)	Review **space planning requirements** and develop financial incentives to encourage departments to operate within the BC University Space Standards.	Infrastructure Development	Building Operations	< 3 yrs	**Ongoing.** UBC now charges departments for space.
d)	Expand the pilot test of a **real time energy management dashboard** to visualize and track building energy use. Include a broader range of user groups.	Building Operations, Campus Sustainability		Ongoing	**Ongoing.** Over 60 buildings were connected to Pulse's energy management software in 2010 in conjunction with the Continuous Optimization program. A communication strategy to engage users with this energy dashboard will be launched in 2011.
EN-04	**Control peak demand**				
a)	Develop and implement a **peak demand** management strategy **Target**: 10% reduction in Peak Demand	Building Operations / Campus Sustainability		2011 (once monitoring systems are more reliable)	**Under development.** A consultant was hired to conduct a pilot study in 2011.
b)	Support a UBC **Green IT strategy** for consolidation of IT Data Centres (server rooms, etc.) to achieve economies of scale in terms of resource efficiency	IT (Finance) / Campus Sustainability		< 2 yrs	**Under development.** The UBC IT strategy that will be completed in 2011 includes many green elements.
EN-05	**Prepare for the transition to a renewable energy system on campus.**				

ID	Action	Responsible Portfolio(s)	Partnerships Required	Timeline	Status Update 2010 calendar year
a)	Develop an energy supply transition strategy based primarily on implementing the recommendations of the **Alternative Energy Study Project** (i.e. to prepare for the transition from a steam heating to a heating water distribution system).	Building Operations, Campus & Community Planning	Infrastructure Development, SHHS, Athletics, Properties Trust	< 3yrs	**Complete.** Conversion of the steam system to hot water will begin in 2011.
b)	Conduct **thermal enclosure upgrades** during all envelope remediations.	Building Ops, Infrastructure Development		Start in year 1	**On hold.**
c)	Conduct reliability risk assessments for **new energy technology proposals**.	Building Operations		< 3 yrs	**Ongoing.** The risk assessment of the Bio-energy Research and Development Project is in progress.
EN-06	**Support the campus community in energy management activities.**				
a)	Promote an **Energy Management Office** (within Campus Sustainability) that all departments (including Ancillaries) can access for energy-related questions and advice.	Campus Sustainability	Building Operations, SHHS, Athletics	< 3 yrs	**In progress.** Currently two staff in Campus Sustainability provide energy-related advice. A community energy manager will be hired in 2011 to address ancillaries and community members.
b)	Develop a campus **community engagement strategy** to build awareness and encourage energy conserving behaviours.	Campus Sustainability		Start in year 1	**Under development.** Will be completed in 2011/12.
c)	Strengthen the relationship between the academy (teaching, research, and learning) and operations by establishing **joint research / operational programs** and projects aimed at providing tangible examples of energy efficiency/conservation, GHG emissions reduction and climate action.			< 3 yrs	**In progress.** The UBC Sustainability Initiative (USI), established in January 2010, is a strategic management group that promotes and unites UBC's sustainability efforts in teaching and learning, research and campus operations. Several "Campus as a Living Laboratory" projects are underway.
EN-07	**Reduce energy consumption from laboratory and research activities.**				
a)	Develop a **"Green" or "Low Carbon" Laboratories** initiative.	Campus Sustainability	Building Operations, Risk Management	< 3 yrs	**Under development.** A feasibility study will be conducted in 2011.

ID	Action	Responsible Portfolio(s)	Partnerships Required	Timeline	Status Update 2010 calendar year
		Department(s)	Internal and External	Milestones or specific stage of the plan (>3yrs, 3-5yrs, >5yrs)	Progress to date; next steps if applicable
Fleets and Fuel Use					
FF-01	Complete **E3 Silver Certification** of the operational fleet. In order to do this, UBC will need to obtain between 67 and 78 points in the E3 system. These points are obtained by implementing various actions in the following areas: • Green Fleet Action Plan • Training and Awareness • Idling Reduction • Vehicle Purchasing • Fuel Data Management • Operations and Maintenance • Trip and Route Planning • Utilization Management • Fuel Efficiency • GHG Reductions	Building Operations		Fall 2010	**Not yet started.** While E3 Certification is not yet being pursued, Building Operations has started the following actions: • Training and Awareness – conducted as required by each shop. • Idling Reduction – has been communicated to all Building Operations staff who operate vehicles. • Vehicle Purchasing – new procedures will be in place by fall 2011. • Fuel Data Management – in place since 2009. • Operations and Maintenance – conducted by the Building Operations Garage. • Fuel Efficiency – In 2011 a needs analysis will determine if vehicles are utilized efficiently. A plan is being developed to replace vehicles with more fuel efficient models.
FF-02	Continue to integrate **electric or ultra low consumption vehicles** into the 'on campus' fleet and increase the profile of these vehicles through signage and display to create awareness of UBC activities. **Target**: 20% of on campus fleet to be electric or ultra low consumption by 2015	Building Operations		Within 5 years	**Ongoing.** Building Operations purchased 4 electric trucks in 2010. Total of 19 electric or hybrid vehicles in all departments, or 5% of fleet.
FF-03	Review legal requirements and explore opportunities for allowing **low speed electric vehicles** to be registered for use on campus (e.g., "ZENN" cars and others). This may require a bylaw in concert with the City of Vancouver.	Building Operations	Metro Vancouver	Start in year 1	**In progress.** Building Operations currently uses low speed electric vehicles that are registered for use on Campus.
FF-04	Provide **right sizing** advisory service and enact policy which requires departments to evaluate the size and efficiency of their vehicle prior to purchase.	Building Operations	All depts		**Under development.** Being evaluated in 2011. Interviews with Building Operations Trades staff were conducted to identify proper vehicle sizing requirements.

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FF-05	Implement a **tracking system** for campus vehicles not currently serviced at the Land and Building Services facility.	Campus Sustainability	All Depts	Implement by December 2009 (data required under Bill 44)	**In progress.** Odometer readings were collected from individual vehicle owners/administrators to estimate fuel consumption for 2010 GHG reporting to the province. Achieved 45% response rate and developed method to estimate the remainder. Further improvements may be pursued.
FF-06	Establish a **departmental monitoring system** to ensure cost recovery on department vehicles used by projects and researchers (e.g., require odometer readings, fuel meter readings, etc).	Building Operations	All Depts	Start in year 1	**Under development.** The readings described above are not yet being communicated back to departments.
FF-07	Promote the costs and benefits of **centralized vehicle services** (established in the UBC Building Operations Fleet Management Business Plan) to UBC departments.	Building Operations	All Depts	Start in year 1	**Under development.** Being evaluated in 2011.

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		Department(s)	Internal and External	Milestones or specific stage of the plan (>3yrs, 3-5yrs, >5yrs)	Progress to date; next steps if applicable
Transportation (Commuting)					
TR-01	Explore the feasibility of implementing a **combined discounted transit-parking pass program** for staff and faculty (make bus pass a priority component of salary/compensation increase)	Transportation Planning, Parking	TransLink	> 5 years	**Longer term goal.**
TR-02	Evaluate opportunities to grant employee benefits or create **incentives for dedicated non-GHG commuters** (as part of Healthy Workplace Plan)	Central HR		3-5 years	**Longer term goal.**
TR-03	Improve **'end of trip' biking facilities** in technical standards (tie level of facility to occupancy, provide safe and secure bike parking, showers, etc)	Transportation Planning		< 3 years	**Complete.** Standards were re-written and incorporated into Vancouver Campus Plan Design Guidelines in 2010. Transportation Planning sits on the Development Review Committee to ensure new development and major renovations include end of trip facilities.
TR-04	Develop **preferential parking strategy** targeted at faculty and staff (ideally revenue neutral, focused on preferred location rather than lower rates/fees, target carpoolers, low emissions vehicles, low SOV users, scooters, small cars, etc)	Parking, Transportation Planning to cross-promote		< 3 years	**Under development.** Currently evaluating future requirements for electric vehicles and plug-in hybrids. Installed motorcycle/scooter parking in all six parkades.
TR-05	Study the feasibility of implementing a **U-Pass "tax" for UBC Residents** (i.e. charge new market residential development for 1 U-Pass per household, at the point of purchase)	Transportation Planning, UNA, Budget Office Planning	TransLink, UNA	> 5 years	**Re-evaluate. Longer term goal.**
TR-06	Partner with the Vancouver Area Cycling Coalition (VACC) to improve **cycling skills and awareness**	Transportation Planning	VACC	< 3 years	**Ongoing.** VACC Cycling skills courses held at UBC to align with Bike to Work Week in Spring and Fall.

ID	Action	Responsible Portfolio(s)	Partnerships Required	Timeline	Status Update 2010 calendar year
TR-07	Per Pictoform study being conducted by Parking Services, build **way-finding/ congestion reporting system** to mitigate traffic congestion (and emissions) on campus and enhance accessibility to pedestrians, cyclists, transit users, etc	Parking, Campus and Community Planning, Transportation Planning, Pictoform (consultant)	City of Vancouver (try to harmonize with regional way finding system)	3 - 5 years	**In Progress.** Wayfinding strategy underway by Campus and Community Planning to assist visitor movements arriving by car, bus and bicycle, and improve the pedestrian experience on campus. Prototype signage will be tested in 2011. Further work is required for more efficient and effective vehicular wayfinding.
TR-08	Building on the 'telecommuting guideline', consider developing an **employee transit policy** to assist staff in reducing GHG emissions associated with commuting (e.g., encourage flexible work hours for staff through staggered start times, compressed work weeks, telecommuting, etc)	HR		< 3 years	**Longer term goal.**
TR-09	Evaluate the feasibility of implementing a **cap on vehicle parking** on campus	Parking, Transportation Planning to cross-promote		< 3 years	**Ongoing.** The Vancouver Campus Plan limits institutional surface parking on campus through Policy 22: "Surface parking lots will be discontinued over time, through their use as future building sites or for other interim uses such as recreational areas." (Parking demand associated with new mixed use hubs and academic infill may be accommodated by one new underground parkade, if warranted). Four surface lots (approx 350 spaces) have been closed/removed: • B1 East Lot - 211 parking spaces • Scarfe Lot – 28 spaces • Osborne Faculty/Staff – 28 spaces • Museum Lot - 93 spaces
TR-10	Explore opportunities to expand **U-Pass to staff and faculty members**	Transportation Planning, HR, Faculty Assn	TransLink	> 5 years	**Longer term goal.**
TR-11	Provide **plug-in for electric assist vehicles**	Parking, Utilities, Building Ops, Transportation Planning, Infrastructure Development		< 3 years	**Under development.** The North Parkade bike cage and all new bicycle facilities will have power outlets for recharging electric bicycles. Investigation is ongoing regarding plug-ins for electric vehicles in parking facilities.

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TR-12	Review policy around **student resident parking permits** and assess the feasibility of: A) eliminating parking passes for 1st year students living on campus; B) raising rates significantly to discourage the purchase of parking permits by students living on campus.	Parking, SHHS, Transportation Planning		< 3 years	**Under development.** The cost of parking increased significantly in 2010 by an average of 25% for most permit holders and transient customers.
TR-13	Explore the feasibility of providing a **U-Pass opt-in for students who are currently not eligible.**	Transportation Planning, AMS, Enrollment Services	TransLink	TBD based on Translink negotiations	**Longer term goal.** Possibility that Translink's new Compass card will allow more flexible delivery options in 2013.
TR-14	Evaluate opportunities to revise UBC's Employee Housing Program to include incentives for staff and faculty to find **housing closer to campus**, thereby encouraging shorter commutes (e.g., financial assistance weighted to give more to employees that choose to live closer to campus)	Treasury, SHHS, UBC, HR, UNA		< 5 years	**Ongoing.**
TR-15	**Promote various commuting options** for staff, faculty and students (i.e., EPP, Flex, ICBC, etc)	Transportation Planning, HR		3 - 5 years	**Ongoing.** Promoted via Sustainability Coordinators, website and through other outreach initiatives as opportunities arise.
TR-16	Develop **Bike Buddy program** to encourage bike pooling (advertise on carpool notice board)	Transportation Planning	VACC	< 3 years	**Re-evaluate.** Has not been taken up by cycling community.
TR-17	Consider setting **limits on the transferability of parking passes** to discourage driving on campus (phase this in the next time parking fees get restructured)	Parking		> 5 years	**Re-evaluate.** This may actually discourage car pooling – consider removing from Climate Action Plan. Encourage flexibility instead.
TR-18	Improve **on-campus bike sharing program** (make available to conference guests)	Transportation Planning, AMS		TBD	**Under development.** Being evaluated.
TR-19	Evaluate opportunities to promote a culture of cycling with **guided on-campus bike tours**	Campus Sustainability		< 3 years	**Ongoing.** Bike tours are provided as part of outreach initiatives, as opportunities arise.
TR-20	Ensure the Campus Plan aligns with the CAP in terms of land use and the need for **infrastructure that encourages alternative transportation** (e.g., compact, mixed-use, walkable communities with more amenities on campus).	Campus Sustainability		Start in year 1	**Complete.** Vancouver Campus Plan completed in 2010.

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		Department(s)	Internal and External	Milestones or specific stage of the plan (>3yrs, 3-5yrs, >5yrs)	Progress to date; next steps if applicable
Business Travel and Procurement					
BTP-01	Update UBC Policy 83 (Travel and Related Expenses) to articulate UBC's commitment to **reducing emissions associated with operational business travel**.	Supply Mgmt (Travel Mgmt),	All Depts	Start in year 1	**Under development.** Currently creating sub-committee for Policy 83. Will create guidelines for Smart Travel and provide alternatives to travelling for meetings.
BTP-02	Convene a Task Team to refine and implement a user-friendly **measurement and reporting system to support flight reduction** by all UBC departments.	IT	Supply Mgmt (Travel Mgmt), Finance, Campus Sustainability, Department representatives	Start in year 1; Target 2012 for system roll out	**Under development.** Data can be captured by vendors but very high level reporting so breakdown by department level is hard to track. Investigating software capabilities for pulling this data.
BTP-03	Anticipating a future need to offset **emissions associated with research travel**, begin a dialogue between the Office of the VP of Research and the research granting agencies on the capacity to absorb the costs of carbon offsets for travel into research grants and use the offset fees to contribute to a reduction fund on campus.	Office of the VP of Research	Research Granting Agencies (NSERC, etc)	< 3 yrs	**Under development.** Initial meeting held between Travel Mgmt and VP. President's office currently reimbursing those who offset through Offsetters.
BTP-04	Fund and promote use of **video conferencing** facilities. Using Classroom Services as a model, investigate the potential of having a centralized booking system for video-conferencing facilities.	IT		Start in year 1	**Under development.** Telestudios renamed CTLT in 2010. Currently, only education-related meetings are free of charge. Working on creating a list of rooms all across campus with Video Conferencing (VC) capabilities.
BTP-05	Study the potential to create an off campus **central depot for shipments** in order to reduce the number of shipments coming to campus on a daily basis.	UBC-O AVP Admin and Finance (Supply Management)	All Depts, vendors	Start in year 1	**Under development.** MBA student project regarding central drop at Campus Mail Services for all inbound shipments or an off-campus drop location. May be limited by lack of infrastructure and space allocation. Originally hoping to use south campus as drop off location but construction has taken up this space.

ID	Action	Responsible Portfolio(s)	Partnerships Required	Timeline	Status Update 2010 calendar year
BTP-06	Use the Acklands-Grainger arrangement as a model to **consolidate deliveries for suppliers, shippers and couriers** in an effort to reduce the number of trips to-from and around campus. **Target**: Make arrangements with a minimum of 10 suppliers by 2012	UBC-O AVP Admin and Finance (Supply Management)		Start in year 1	**Under development.** Looking at current scientific deliveries (Fisher). Category Management will play a role in this and set targets for certain vendors.
BTP-07	Study workflow to identify opportunities to **eliminate paper from operations** and to assess the feasibility of various electronic / paperless systems and integration of digital technology and print management (e.g., handheld scanners, laser fiche, online viewers, electronic ordering, electronic submission of proposals, alternative practice to original signatures on approvals, etc)	UBC-O AVP Admin and Finance (Supply Management)	All Depts	< 3 yrs	**Under development.** Investigating Xerox Global Strategies and Docushare capabilities. Campus Mail is looking into hand held devices. Looking at sustainable workflows to reduce paper (PO's deliveries). Currently central finance procedures require signature – investigating alternatives.
BTP-08	Implement the Document Management Strategy and set target to **achieve paperless operations** to support UBC in a transition from a paper based to digital model	UBC-O AVP Admin and Finance (Supply Management)	All Depts	Already underway (set target once strategy is complete)	**Under development.** Researching other companies that are paperless.
BTP-09	**Eliminate the use of virgin paper** immediately. Communicate and encourage uptake of the current 30% post-consumer recycled content standard for paper purchasing on campus. **Target**: 80% of all paper purchases to contain recycled content by 2012	UBC-O AVP Admin and Finance (Supply Management)	All Depts	< 3 yrs	**Complete.** 97% of purchases through official supplier Unisource contain 30% post-consumer recycled content or better. When direct purchases through Grand & Toy and Staples are included, 90% of total university paper purchase contains 30% post-consumer recycled content or better. Next steps: Virgin paper purchases still account for 10%. Work on aligning departments with official vendor.
BTP-10	Replace packaged/carded stock with **bulk items** (e.g. pens) in Bookstore	Community Services (Bookstore)		< 3 yrs	**Under development.**
BTP-11	Require all suppliers to use **reusable or recyclable packaging** or to **uncrate and take back packaging** that is non-reusable or recyclable. **Target**: Arrangements with 50% of suppliers by 2015	UBC-O AVP Admin and Finance (Supply Management)	Suppliers and all Depts	3-5 yrs	**Under development.** Began looking into Pcard vendors and include package reduction strategies in sustainability scorecard.
BTP-12	Conduct a campus-wide **waste audit** and use the results to set waste reduction targets.	Campus Sustainability		< 1 yr	**Under development.** Waste Audit complete. Waste action plan underway in 2011.

ID	Action	Responsible Portfolio(s)	Partnerships Required	Timeline	Status Update 2010 calendar year
BTP-13	Work with UBC researchers to conduct **lifecycle analyses on common purchases** in an effort to define the embodied energy within the supply chain and show buyers at UBC the life cycle costs of their choices (e.g., LCA of laser vs. inkjet printers). Communicate these findings to the UBC Community. **Target**: Complete LCA studies for 5 common purchases by the Fall of 2010	UBC-O AVP Admin and Finance (Supply Management)	Faculty/ students	< 1 yr	**Under development.** Communicated SEEDS project guidelines and resource details to all Supply Management managers. Creating list of possible 10 commodities that would benefit from LCA (e.g.toner, printers, milk cartons)
BTP-14	Conduct outreach to ensure that all people making purchasing decisions on campus are aware of Supply Management resources to encourage **sustainable purchasing** (e.g., list of preferred vendors, Supplier Code of Conduct, Sustainable Purchasing Guide, template RFPs, etc.)	UBC-O AVP Admin and Finance (Supply Management)	Working Group members + Campus Sustainability (assist with outreach)	Start in year 1	**Under development.** BuySmart concept to be communicated via tradeshows, webinars, etc. Marketing strategy being developed. Preferred/pre-qualified vendors list is being updated. A sustainability aspect is included when adding vendors.
BTP-15	Create a policy for **3-way sharing of savings** (between the buying department, Finance and the Campus Sustainability) from smart purchasing decisions. Give a portion of the savings to a UBC 'sustainability fund' to support ongoing initiatives.	UBC-O AVP Admin and Finance (Supply Management), Finance, Campus Sustainability	All Depts	< 3 yrs	**Under development.** Discussion with stakeholders. Possibility to leverage vendor marketing funds. Have an agreement with Fisher (Fisher Fund, Recycling program).
BTP-16	Explore opportunities for **cost-sharing** across campus that allows researchers and departments to share the cost and resources (e.g., furniture, lab equipment, etc)	Provost	All Depts, Campus Sustainability, Supply Management, Budget Office	< 3 yrs	**Longer term goal.** Past experience has shown departments will purchase within their own budget regardless of neighbours' purchases.
BTP-17	Evaluate opportunities for **centralizing purchasing decisions** in order to achieve multiple benefits (i.e., sustainability leverage, efficiency, meeting user needs)	UBC-O AVP Admin and Finance (Supply Management)	All Depts, Campus Sustainability	Start in year 1	**Under development.** Looking through each category of operational spend to evaluate opportunities (Travel, logistics, Scientific supplies).
BTP-18	Expand list of preferred vendors to include **green hotels, car rental agencies** that provide low emissions vehicles, etc. Add current **green suppliers** to preferred vendor list by fall 2009.	UBC-O AVP Admin and Finance (Supply Management)	Suppliers + Supply Management	Start immediately	**Under development.** Travel Management to capture local hotel data for UBC. Hotels are negotiated under CAUBO. Need to share/communicate information better.

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BTP-19	Continue the commitment to **promote/ advertise sustainable or low emissions product options** at retail outlets on campus	UBC-O AVP Admin and Finance (Supply Management)	Retail outlets on campus (see similar action in Food list)	Start in year 1	**Not yet started.** Bookstore will be responsible.
BTP-20	Investigate options for asset disposal. Consider **online equipment inventory system** and SERF (Surplus Equipment Recycling Facility) in this investigation	Campus Sustainability	Finance, Supply Management	Start in year 1 (January 2010)	**Under development.** Re-Use It launch in January 2011, a one-year pilot starting with department to department transfers (furniture, office supplies, electronic equipment).
BTP-21	Implement industry standards for **energy efficient products** (i.e., EPEAT for electronics, Energy Star, etc). This would include energy efficient research equipment where applicable. Include annual reporting on this through inspirations and aspirations. **Target**: 50% of all equipment purchases to meet this requirement by 2010; 100% by 2015	UBC-O AVP Admin and Finance (Supply Management)	All depts.	Start in year 1	**Under development.** Discussion between Supply Management, IT& Bookstore.

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		Department(s)	Internal and External	Milestones or specific stage of the plan (>3yrs, 3-5yrs, >5yrs)	Progress to date; next steps if applicable
Food Note: An asterisk (*) next to an action denotes actions that derive from recommendations made by the UBCFSP					
FO-01	Integrate the UBC Food Systems Project with the Climate Action Plan. Use the CAP as a vehicle for advancing FSP recommendations, some of which are highlighted in this plan.	Food System Project (FSP) stakeholders and Campus Sustainability		Start in year 1	Ongoing. LFS 450 classes in Jan-Apr. each year address items in the CAP. • Successfully integrated UBCFSP with the CAP. 4 projects and 15 reports were completed in the UBCFSP 2010 term. • 4 projects developed for the UBCFSP 2011 term. • The ability of continuing this integration between the UBCFSP and the CAP is unknown at this time due to potential changes in LFS 450. Food Services continue to see value working directly with the LFS 450 students and will continue to invest in collaborative efforts, although all projects may not directly relate to the CAP.
FO-02	Using a Lifecycle Analysis (LCA) approach, establish a baseline inventory for the UBC food system. Use the inventory results to set targets and develop actions to reduce emissions, eliminate waste, and increase the sustainability of the food system. Target: Establish baseline inventory by Fall 2010	FSP stakeholders and Campus Sustainability		< 1 year	Under development. Overall baseline emissions inventory has not been pursued. Individual LCAs completed for chicken, pork, beef, meat alternatives (tofu), and rice. Recommendations adopted: SHHS switched to non-GMO tofu from a local processor in Victoria; pork sausages from Chile no longer purchased by SHHS (all-turkey sausages now). In 2011, sugars will be studied by LFS 450 (only one of four projects was selected due to limited class size).
FO-03	Engage UBC food providers (i.e., Food Services, AMS, UBC Farm, food retail outlets, etc) in building a network with local producers to increase sourcing of local food.	SHHS, AMSFBD UBC Farm, food retail outlets	Get Local BC or other established network	< 3 yrs	Ongoing. SHHS and AMS are sourcing whole fruits from Discovery Organics. The recent partnership with the City of Vancouver is now shaping this dialogue somewhat. External to UBC, networks of farmers and suppliers are required to make this work. In 2010/11, 48% of the combined total food and beverage expenditures by SHHS and AMS was locally grown and/or processed within 250 miles, or third party certified (organic, fair trade, etc).
FO-04*	Develop a sustainable food purchasing policy to articulate "when price and quality are comparable, UBC will purchase from the most local source." Reinforce this policy through the bid process by weighting evaluation criteria to favour suppliers that support sustainable, low carbon agricultural practices. Finally, promote the policy and evaluation criteria amongst all UBC Food Services outlets and to contracted vendors.	SHHS, AMSFBD	Supply Management	< 3 yrs	Ongoing. AMS has put similar wording in their RFP. SHHS has drafted a food procurement guide. LFS 450 may address this in 2012. UBC sets Sustainable Principles for sourcing that include Leadership, Social Inclusivity, Environmental Stewardship and Accountability. The Supplier Code of Conduct embedded into bids and contracts ensures companies that work with and sell goods and services to UBC must share and implement sustainability values, including: • Safe and healthy workplaces for the people who make products

ID	Action	Responsible Portfolio(s)	Partnerships Required	Timeline	Status Update 2010 calendar year
					• Products are produced with minimal ecological impact • Waste material from production are disposed of in an environmentally responsible manner • Processes are transparent and provide details on the environmental and social impacts of the products and services • Companies UBC sources from are "good neighbors" in their communities, offering where they can opportunities for groups to build capacity in social capital and expand CSR (corporate social responsibility) activities. Full details are available in the UBC Sustainable Purchasing Guide. UBC was awarded the first Canadian FairTrade University status by TransFair Canada in January 2011.
FO-05*	Increase food production at the UBC Farm. Use the farm to represent the types of food that can be grown, seasonally, in our climate.	UBC Farm	LFS, Campus Sustainability, UBCFS, AMSFS	3-5 years	Ongoing. 2010 was an anomalous year with very poor weather during the growing season; also, more area of UBC Farm was used for research than other years. As a result, UBC Farm experienced its first ever decline in food production. However there were successes in 2010: • Place Vanier increased its procurement from UBC Farm. • Agora Café is now preserving summer harvest produce from the LFS Orchard Garden and UBC Farm for use during winter months. (LFS 450) • 'Meet the Farmer Event' in March 2010 raised student awareness of UBC Food Services' increased use of UBC Farm and BC products. As a result of the event's success, it will be expanded to include AMS FBD and be held in a more central location in September 2010. In addition, an event template was developed to serve as planning resource for future similar events. (LFS 450) • As a result of previous LFS 450 groups' recommendations, UBC Farm flowers are now procured by UBCFS at both Place Vanier and Totem Residence to display on their dining tables and at special events. (LFS 450) • The Tapestry senior's complex started buying flowers from the Farm.
FO-06	Advocate for more edible landscapes (i.e., gardens, rooftop gardens, etc) on campus through participation in the development of the Public Realm Plan, Technical Guidelines for new buildings and the new Design Guidelines.	SHHS	C&CP, SALA, LFS, Campus Sustainability	< 3 yrs	Under development. • The AMS New SUB Committee reviewed and accepted proposal from LFS 450 for a rooftop garden to be included in the New SUB. Budget has been allocated and design team has agreed to build New SUB with appropriate infrastructure to accommodate a future garden. Future project SEEDS phases agreed (LFS 450) • New SUB rooftop garden design, vegetation, and preliminary management structure report complete. Summary shared and recommendations reviewed by Rooftop Garden Working Group (APBI 497). • LFS Orchard Garden was expanded to include blueberries, kiwi and dwarf apple trees among other crops recommended by the 2009 group LFSOG proposed plans (LFS 450, UBCFSP) LFS and UBC Farm are pursuing a model whereby students would manage multiple gardens and coordinate different crops.

ID	Action	Responsible Portfolio(s)	Partnerships Required	Timeline	Status Update 2010 calendar year
FO-07*	Provide **incentives** for consumers to purchase **healthy, low carbon food**: i) Gradually shift menus towards healthy, low carbon food options (e.g., offer "meat free" specials or "meat free" days on campus) ii) Evaluate opportunities to subsidize healthy food on campus with junk food (e.g., increase prices at vending machines and decrease costs of healthy food) iii) Offer targeted promotions through the UBC meal card iv) Promote ethical choices with the AMS "lov" card – local, organic or vegan v) Build a meal card program to promote sustainable, low carbon food options.	SHHS, AMSFBD	FSP/Working Group members, Food retail outlets on campus, Campus Sustainability	< 3 yrs (ongoing)	**Under development.** i) At least one vegetarian choice is always available at SHHS outlets, and hot vegetarian choices have been expanded to more locations. The CIRS café has approved a no-beef menu and will feature one meat free day per week. UBC was awarded 3rd place as best vegetarian-friendly university in Canada by PETA ii) Not yet started. Current offerings in vending machines contain 25% "Choose Most" or "Choose Often" items as designated by BC government guidelines for public buildings. iii) Not yet but there is interest in creating a systematic approach to this iv) AMS outlets promote 'lov' items. v) Not yet started. Sustainable, low carbon food offerings could be identified via student projects as Food Services does not have the resources to do this. CIRS Café and the CIRS faculty are looking into graduate student projects. Rather than a "meal card program", this is envisioned more as a loyalty rewards program, which will require background studies and integrated software that is not currently in place.
FO-08*	Develop a campus-wide **social marketing program** to promote sustainable, low carbon food choices, as well as recycling and composting at UBC. As part of this, evaluate the potential for a **food labeling system** on campus.	SHHS, AMSFBD	FRE, FNH (LFS), Waste Free UBC	<3 yrs	**Under development.** AMS installed 2 free, public, filtered water units combined with a soft campaign to reduce bottled water purchases on campus. SHHS installed water refill stations in 2 new operations as well as offering free tap water in all retail operations. Water refill stations are part of all future builds. Through a SEEDS project, AMS are conducting a worm composting pilot project in the prep kitchen. Composting is available at all food outlets on campus. The UBC campus-wide waste audit identified contamination as the biggest barrier to reaching exceptionally high segregation levels. Education continues to be a top priority in teaching the importance and proper separation required. LFS 450 students reviewed pre- and post-consumer behaviour around waste sorting and disposal in residence dining halls, made recommendations on how to improve separation rates and produce an effective "*Guide to proper waste separation practices at UBC*". As part of the CIRS café roll out, Food Services is developing labels that indicate locally sourced, made on campus, vegetarian, medication free, free range, etc. These labels will be extended to food items sold at all Food Services units in the next year.
FO-09*	Building on existing models, develop **curriculum for an interactive 100-level sustainability course** to engage students in learning about sustainable food systems. Through this course, provide opportunities for students to make the links between a healthy diet and a healthy planet through: i) practical studies on the UBC Farm	Land and Foods Systems (build on efforts by existing grad students)	UBC Farm, outside experts/lecturers	Start in year 1	i) **Re-evaluate.** Instead, an upper level undergraduate LFS practical studies course is being developed with UBC Farm. The season-long practicum with UBC Farm has had increased enrolment by UBC students. On the last Friday of each month there is a free community feast hosted by the Institute for Aboriginal Health Garden and the UBC Farm.

ID	Action	Responsible Portfolio(s)	Partnerships Required	Timeline	Status Update 2010 calendar year
	ii) lectures from sustainable food champions				ii) **Ongoing.** The Food Services Purchasing Manager presents at the Summer Institute in Sustainability offered by UBC Continuing Studies. Sustainable food systems and the importance of ethical sourcing are covered in this session. Food Services chefs and sustainable champions present to LFS students each April. Partnerships between Land and Food Systems faculty and Food Service staff for programs and education are on-going.
FO-10*	**Reduce packaging waste** from the UBC food system: i) Develop a case study with an external supplier to demonstrate packaging waste reduction - and build from there. ii) Provide incentives for customers to supply their own containers at UBC and AMS Food Services outlets and encourage contracted vendors to do the same.	SHHS, AMSFBD	Supply Management	Start in year 1	**Under development.** i) FS is recycling soft plastics. Includes: • Sandwich/bread bags • Shrink wrap from pallet deliveries • Plastic wrap from bottles and from Monte Cristo deliveries • Saran wrap (small amount of food contamination is okay). • Plastic food bags – e.g. from frozen vegetables; from frozen fruit if rinsed. • Plastic sleeve bags from disposable lids, cups • Plastic wagon covers used for deliveries when they have to be discarded • Shrink wrap from CK products or catering products ii) Introduced an Eco-to-go container exchange program in residence. Residence students are issued a container that they can wash and reuse, or can drop off dirty in an exchange bin in residence and collect a clean container for their take out meal. This option doubled the number of users of the containers and reduced disposable purchases by 25%. There was a soft launch of this option in retail outlets. A stronger marketing focus will be launched Sept 2011 in retail. Continue to offer the $0.15 discount to those who bring their own mug or container.
FO-11	Work collaboratively with Waste Free UBC to conduct a **composting audit**. Use the results to set goals for food waste reduction on campus.	SHHS, AMSFBD	Waste Free UBC	< 3 yrs	**Complete**. Waste audit was completed. Food Service locations had 70-80% compost activities. (Refer to FO-08 above).
FO-12*	Conduct research on **food waste recovery and nutrient reintroduction** into the production system.	LFS, FSP	UBC Farm	3 - 5 years	**Longer term goal.**
FO-13	Undertake a Feasibility Assessment for an **on-campus food processing** facility	SHHS, AMSFBD, LFS	FSP (potential for students to contribute through project work)	< 3 yrs	**Under development.** Community partners identified as Campus Sustainability, Center for Sustainable Food Systems at the UBC Farm, Agora, AMSFBD, Sprouts, LFS Food Science Group. Stakeholders Identified as: • Andrew Riseman, Associate Professor, Faculty of Land and Food Systems • Alvin Tejuco, Agora Manager • Mark Bomford, Director, Centre for Sustainable Food Systems at UBC Farm, • Jay Baker-French, Coordinator, LFS Orchard Garden

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FO-14*	Conduct plant-based research to identify **climate mitigation and adaptation** opportunities for the food system	LFS (FNH and Wine Research Centre), Botany, Forestry		3-5 years (and then ongoing)	Longer term goal.
FO-15	Conduct research on **carbon cycling and sequestration** associated with food production	Ag Eng, LFS, Botany, Forestry	UBC Farm (directed studies)	3-5 years (and then ongoing)	Longer term goal.

ID	Action	Responsible Portfolio(s)	Partnerships Required	Timeline	Status Update 2010 calendar year
		Department(s)	Internal and External	Milestones or specific stage of the plan (>3yrs, 3-5yrs, >5yrs)	Progress to date; next steps if applicable
Implementation					
IMP-01	Clearly define and communicate **accountabilities and responsibilities** for the CAP to all stakeholders involved in ongoing implementation.	VP FRO	Campus Sustainability	Start immediately	**Ongoing.** Targets were adopted by the Board and announced publicly by President Stephen Toope on March 24, 2010.
IMP-02	Invest in the enhancement of information systems in order to ensure consistent and accurate **data management**. Explore whether PeopleSoft has a module that UBC could buy off the shelf to assist in tracking and monitoring performance.	Finance	All Depts	< 3years	**Ongoing.** To date, in-house quality management system for tracking emissions data and performance has been developed by Campus Sustainability staff.
IMP-03	Establish **key performance indicators**, related to achieving climate action goals and targets and other sustainability targets (e.g. from Inspirations and Aspirations), for Managing Directors and Directors (where applicable).	VP FRO	Campus Sustainability	Start in year 1	**Under development.**
IMP-04	Identify where activities may be running counter to CAP goals and work to **create alignment** so that UBC is not just engaging in activities that reduce emissions, but also refraining from activities that increase emissions.	Campus Sustainability	All Depts	Ongoing	**Ongoing.** Responsibility of all climate action team members.
IMP-05	Explore opportunities to **formalize the management system** outlined in this plan to ensure successful implementation of the CAP and of other climate-related plans at UBC.	Campus Sustainability	All Depts	Start in year 1	**Under development.**
IMP-06	Improve **monitoring systems** as per the requirements defined in CAP Technical Report #3	Campus Sustainability	All Depts	Start immediately	**In progress.** Methodologies have been improved for calculating emissions included in reporting to provincial government (Scope 1, 2 and paper).