



Justice Institute of British Columbia - 2009 Carbon Neutral Action Report

Executive Summary

The Justice Institute of British Columbia (JIBC) is Canada's leading public safety educator - a dynamic post-secondary institution recognized nationally and internationally for innovative education in the areas of justice and public safety. The JIBC offers a range of applied and academic programs (certificates, diplomas, and degrees) that span the spectrum of safety – from prevention to response and recovery.

The JIBC is committed to reducing its carbon footprint and improve sustainability through environmentally responsible practices. In 2006 we began implementing operational changes which has resulted in significant reductions in energy and water consumption at our New Westminster Campus. Our efforts have resulted in a 38% reduction in 2008 natural gas consumption when compared to 2006 and a 6% per year decrease in the electricity usage when comparing 2008 with the previous 2 years.

In 2007 these initiatives were augmented by a Voltage Optimization Project at our New Westminster Campus which resulted in an estimated 5% reduction in electrical consumption. During the same year we began a program of replacing the Classroom lighting with a more energy efficient option while maintaining required lighting levels.

In 2008 we completed the Classroom re-lamping program and continued to make building automation control and program changes at our New Westminster campus in order to avoid unnecessary heating, cooling and lighting of unoccupied areas.

In October 2008 the Justice Institute of BC in partnership with BC Hydro commissioned an energy study of its New Westminster and Maple Ridge Campus' to review the facilities energy using systems and provide detailed recommendations for cost-effective options to improve the energy efficiency of both facilities.

The JIBC has established a comprehensive recycling program that includes paper, cardboard, printer toner cartridges, computers, fluorescent lamps, batteries, plastics, glass, metals, pallets and kitchen cooking oil. In addition, we encourage the use of re-usable dishes in our food services operation and require our janitorial contractor to use certified "green" cleaning products at our New Westminster Campus. In 2009 we expanded our recycling program to include electronic equipment (other than computers) and binders.

In 2007 we installed low flow touch-less faucets through out our New Westminster and Maple Ridge Campus' which has contributed to a 2008 reduction of 31% in water consumption at our New West Campus when compared with 2006.

Overviews

Actions Taken to Reduce Greenhouse Gas Emissions in 2009

In 2009 the JIBC, in partnership with BC Hydro completed a comprehensive energy study of our New Westminster and Maple Ridge Campuses to review the facilities energy using systems and provide detailed recommendations for cost-effective options to improve the energy efficiency of both facilities.



The Energy Study for the New Westminster Campus found the campus to be “very efficient by virtue of architecture and use of air to air heat recovery in the main air handling units”. The report did however recommend some energy conservation measures which included lighting system retrofits, installing occupancy sensors, vending machine controls and extending the building automation system to control our server room air conditioning units and entrance area force flow heaters.

In order to effectively implement the building automation changes recommended we elected to replace our existing building automation system (BAS) which was nearing the end of its service life. The BAS replacement project began in June and was approximately 55 % completed by December 31.

The system changes being implemented during the BAS project that are expected to reduce energy consumption include the following:

- 60 occupancy sensors in classrooms, change rooms and gun range to turn off lights, reduce heating \ cooling set points and air flow when these rooms are unoccupied.
- Occupancy sensors in gymnasium to reduce temperature set points and air flow when unoccupied – controlling the lights via occupancy sensors is not viable due to the type of lighting currently being utilized.
- Separate control schedule for gymnasium lighting.
- Control schedule for computer room air conditioner to raise set point and turn the unit off at night and on weekends when area is unoccupied.
- Control schedule for two unit heaters to lower set point and turn off units at night and on weekends when area is unoccupied and automatically shut them off if the overhead door in the area these units serve is opened.
- Automated control of two server room air conditioners so that only one unit is utilized to cool this room; both units operate at the same time with the existing control configuration.
- Control schedule for seven force flow entrance heaters to lower set point and turn off units at night and on weekends when building is unoccupied.
- An optimum start heating and cooling routine that will start the air handling units at the latest possible time to have the building at the occupied set point at start of occupancy.
- Boiler modulating control to re-set hot water supply temperature; as outside temperature rises, supply water temperature set point is lowered which will reduce boiler load.
- CO2 monitoring and demand control ventilation for the air handlers serving the classrooms, auditorium and gymnasium to ensure that the correct amount of outdoor air is brought into the building to maintain indoor air quality and unnecessary excess ventilation is eliminated.
- Pond pumps control to reduce pump run time by eight hours per week night and twelve hours per weekend day. In addition, lower horse power pump will be set to operate as primary pump with larger pump used as back up only.
- Additional trend logs to provide data to analyze building systems performance and provide information for further energy reduction initiatives.

In addition to the energy saving measures that were being implemented as part of the BAS replacement project we continued our building systems maintenance program to ensure that our equipment is operating efficiently.

At the New Westminster Campus we also continued to closely monitor energy consumption to identify trends in energy use and to ensure that the building is being operated optimally for the season. Additionally, monitoring energy use allows us to gauge the effectiveness of implemented energy-efficiency strategies.



The Energy Study for the Maple Ridge Campus recommended energy conservation measures which included lighting system retrofits, vending machine controls, optimum start program to control air handling units serving classrooms and changes to Fire Fighters gear drying room ventilation \ heating system.

At our Maple Ridge Campus we replaced all T-12 lamps with T8 lamps and implemented operational changes recommended in the energy study.

In addition to the actions taken to reduce greenhouse gas emissions in 2009 the JIBC also took the following steps to improve sustainability.

- Expanded existing recycling program to include, binders and electronic equipment, other than computers.
- Encouraged staff to set all applicable printers to automatically print double sided and posted information \ instructions at printer locations.
- Replaced paper based security reports with electronic on line version for our New Westminster Campus.
- Rain sensor control installed for landscape irrigation system at our New Westminster Campus; system will not operate if pre-set amount of rain has fallen.
- Continued to store and re-deploy good condition used furniture whenever possible.
- Reduced office supplies deliveries to our New Westminster Campus to two times per week.
- In our New Westminster Campus Cafeteria we switched from the use of portioned products to refillable containers.
- Replaced plastic coffee stir sticks with biodegradable wooden stir sticks and coffee spoons.
- Replaced table top napkin dispensers with a new dispenser designed to reduce waste.
- Began purchasing products specifically to reduce packaging.
- Encouraged our guests to use our mugs instead of a disposable coffee cup by offering a discount.

Plans to Continue Reducing Greenhouse Gas Emissions 2010 – 2012

Going forward we plan to continue implement selected energy conservation measures identified in the recent energy studies for our New Westminster and Maple Ridge Campus' and expand energy monitoring programs to include all facilities in order to benchmark facility performance, ensure energy reductions are maintained and potentially uncover additional energy conservation measures.

In addition we plan to partner with BC Hydro in their Continuous Optimization Program at our New Westminster Campus to ensure the persistence of the energy savings gains realized from the BAS replacement project and to set and track progress towards performance targets for energy use.

We also intend to expand our corporate awareness program to develop \ promote sustainability initiatives throughout the Institute.

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Actions Towards Carbon Neutrality

The actions listed below contribute to a reduction in greenhouse gas emissions from sources for which public sector organizations are responsible under the carbon neutral government regulation of the *Greenhouse Gas Reduction Targets Act*.

Action	Status (as of 12/31/09)	Performance to Date (as of 12/31/09)	Steps Taken in 2009	Steps Planned for 2010 -2012	Start Year	End Year
Mobile Fuel Combustion (Fleet and other mobile equipment)						
This section is not applicable to this organization						
Stationary Fuel Combustion, Electricity and Fugitive Emissions (Buildings)						
Planning/management						
Enrol in a building energy benchmarking program (e.g., GREEN UP)	In Development			Explore opportunities available through the Canada Green Building Council's Green Building Performance Initiative to benchmark our facilities.	2010	No End Date (Continuous)
Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)	In Development			Partner with BC Hydro in their Continuous Optimization program at our New Westminster Campus.	2010	2012
Owned buildings						
Establish energy performance baseline for owned buildings	Ongoing/In Progress	84	% of owned buildings have an established energy performance baseline	Energy performance baseline for New Westminster and Maple Ridge Campuses established via energy studies for these sites.	In 2010 \ 2011 we plan to collect data for balance of owned facilities in order to establish energy performance baseline.	2009 2011
Complete energy retrofits on existing, owned buildings	Ongoing/In Progress			The building automation system (BAS) for our New Westminster campus was replaced with a new system which incorporated various energy saving upgrades. The BAS replacement project began in June and was approximately 55 % completed by December 31. At our Maple Ridge campus all T12 lamps were retrofitted to utilize T8 bulbs and BAS schedules were modified to reduce energy consumption.	Going forward we plan to continue implement selected energy conservation measures identified in the recent energy studies for our New Westminster and Maple Ridge campus' subject to funding availability.	2009 2012
Retrofitting owned buildings						
Upgrade lighting systems during retrofits	In Development			At our New Westminster campus we plan to retrofit the gymnasium and certain common area lighting with lower wattage fixtures.	2010	2012
Upgrade/adjust control systems during retrofits	Ongoing/In Progress			Controls were added during the BAS replacement project at our New Westminster campus including, boiler water temperature modulation and motion sensors for classroom and change room lighting. In addition BAS control was extended to include various force flow heaters and cooling systems. BAS adjustments recommended in the energy study for our Maple Ridge campus were also implemented.	We intend to add motion sensor control to the gymnasium lighting along with additional lighting control schedules at the New Westminster campus to turn off lights in areas where they are not needed.	2009 2012
IT power management						
Install power management software which shuts down computers outside of regular business hours	In Development			A project for the review of power management software has been included in our fiscal 2010/11 project list. Implementation will depend on available funding.	2010	2011

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Action	Status (as of 12/31/09)	Performance to Date (as of 12/31/09)		Steps Taken in 2009	Steps Planned for 2010 -2012	Start Year	End Year
Implement server virtualization	In Development				Approximately 15% of our server environment is currently virtualized. The JIBC's general policy is to shift all applicable resources towards virtualization rather than individual servers for individual systems. Implementation will depend on available funding.	2010	2012
Apply auto-sleep settings on computer monitors and CPUs	In Development				A project for the review of power management software has been included in our fiscal 2010/11 project list. Implementation will depend on available funding.	2010	2011
Apply auto-sleep settings on printers, copiers, fax machines, and/or multi-function devices	In Development				Approximately 15% of devices have auto sleep settings applied. In 2010 we plan to apply these settings to all remaining devices with this option.	2010	2010
Appliances and electronic devices							
Replace refrigerators with ENERGY STAR models or source ENERGY STAR models for future purchases	In Development				We plan to implement a guideline to ensure all new refrigerators are Energy Star compliant.	2010	No End Date (Continuous)
Behaviour change program							
Ask staff to close blinds at end of work day to reduce heating/cooling demands	Ongoing/In Progress			Close the blinds campaign was implemented at select sites in 2009.	Campaign will be expanded to include all sites in 2010.	2009	No End Date (Continuous)
Encourage use of stairs instead of elevators	Ongoing/In Progress			The JIBC Wellness Committee encourages staff to use stairs with posters displayed at our New Westminster Campus.	Wellness Committee poster campaign will be continued.	2004	No End Date (Continuous)
Provide reminders for turning off lights (e.g., signs, stickers, messages)	Ongoing/In Progress			Turn off the lights stickers and poster campaign was extended to include all campuses; Maintenance, Security and Janitorial Staff are regularly encouraged to ensure lights are turned off in unoccupied areas.	In 2010 we plan continue this program and periodically reinforce the message in the weekly electronic newsletter sent to all staff.	2008	No End Date (Continuous)
Supplies (Paper)							
Paper Type							
Purchase 30% post-consumer recycled paper	In Development			Various paper types that utilize 30% post consumer recycled content were evaluated.	Select and implement Institute wide use of recycled paper.	2010	No End Date (Continuous)
Printer/document settings							
Switch networked printers and photocopiers to automatic double-sided	Ongoing/In Progress	40	% of network printers or photocopiers are set to automatic double-sided	Encouraged staff to set all applicable printers to automatically print double sided and posted information \ instructions at printer locations.	Campaign will be continued in 2010. In addition, the JIBC plans to form a Green Team to increase support for initiatives such as this.	2009	No End Date (Continuous)
Electronic media in place of paper							
Use electronic document library for filing common documents	In Development				Document libraries are being utilized by some groups; we intend to expand this practice in 2010.	2009	No End Date (Continuous)
Post materials online that were previously printed	In Development				Selected course materials are being converted into electronic format and some groups are filing reports in electronic format; we intend to expand this practice in 2010.	2009	No End Date (Continuous)
Behaviour change program							
Encourage staff to hold paperless meetings or presentations (i.e., no handouts)	In Development				Some groups currently encourage staff to hold paperless meetings; we intend to expand this practice in 2010.	2010	No End Date (Continuous)

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Encourage re-use of scrap paper	In Development			Some groups currently encourage staff to reuse scrap paper; we intend to expand this practice in 2010.	2009	No End Date (Continuous)