



Justice Institute of British Columbia - 2010 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; a 6% per year decrease in the electricity usage when comparing 2008 with the previous 2 years and a reduction of 31% in 2008 water consumption compared with 2006.

In 2009 the Justice Institute in partnership with BC Hydro completed an energy study of its New Westminster and Maple Ridge Campus' to review the facilities energy using systems, provide energy consumption baseline information and detailed recommendations for cost-effective options to improve the energy efficiency of both facilities. In 2010 energy consumption reductions at our New West campus resulted in a decline in greenhouse gas emissions of approximately 25% compared to 2008.

The JIBC has established a comprehensive recycling program that includes paper, cardboard, binder, printer toner cartridges, electronic equipment, 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.

Greenhouse Gas Emissions and Offsets Applied to Become Carbon Neutral in 2010

- Buildings - 531.13 tonnes
- Fleet - 82.86 tonnes*
- Supplies - 82.29 tonnes
- Offsets applied to become carbon neutral in 2010 - 696.28 tonnes

*Greenhouse Gas emissions reported for fleet operations are net of 2.94 tonnes which represent biomass emissions from the renewable fuel portion in emissions.

Overviews

Actions Taken to Reduce Greenhouse Gas Emissions in 2010



New Westminster campus

The JIBC, in partnership with BC Hydro completed a comprehensive energy study of our New Westminster and Maple Ridge Campuses in 2009. The study reviewed the facilities energy using systems and provided 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 to control lights \ HVAC and extending the building automation system control to additional heating and cooling systems.

In order to effectively implement the changes recommended we elected to replace our existing building automation system (BAS) which was nearing the end of it’s service life. The BAS replacement project began in June 2009 and was completed in July of 2010. The system changes implemented during the BAS project are expected to reduce energy consumption by approximately 9% at our New West Campus.

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.

Maple Ridge Campus

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 in 2010 we installed motion sensors to control lighting in storage areas and one classroom on a trial basis. In addition, a pump variable frequency drive was installed and operational changes were implemented which have resulted in an 80% reduction of energy consumed by the two associated processes. All exit lights were also retrofitted to LED fixtures.

Improving Sustainability

In addition to the actions taken to reduce greenhouse gas emissions in 2010 the JIBC also took the following steps to improve sustainability.

- Expanded our recycling program to include compost from our cafeteria in New Westminster.
- Hosted our first sustainable commuting event to promote alternative transportation choices to staff.
- Received executive endorsement to form JIBC Green Team in order to expand our corporate awareness program and develop \ promote sustainability initiatives throughout the Institute.
- Continued to encourage staff to set all applicable printers to automatically print double sided.
- Continued to store and re-deploy good condition used furniture whenever possible.
- Continued green purchasing practices in our food services operation to reduce packaging.

Plans to Continue Reducing Greenhouse Gas Emissions 2011 – 2013



Maple Ridge

- Install motion sensors to control lights in remaining classrooms and storage rooms.
- Modify water recycling system for Fire Fighter training which is expected to reduce energy consumed by this system by 90%.
- Install a new water extractor washing machine which will eliminate the use of gas fired dryers for Fire Fighter turn out gear.
- Replace existing building automation system.
- Continue energy monitoring program to benchmark facility performance.

Chilliwack

- 2011, Install solar panels to supplement heating for domestic hot water.
- Continue energy monitoring program to benchmark facility performance.

New Westminster


- Continue energy monitoring program and engage third party provider of energy monitoring, targeting and reporting services in order to ensure energy reduction targets are being met and that periods of off target energy performance are quickly identified so that corrective actions can be taken.
- 2011, investigate feasibility of retrofitting gymnasium lighting and adding lighting control schedules for other areas.

Victoria

- Retrofit existing lighting with energy efficient T8 fixtures and remove redundant lighting before moving into new Campus location.

Kelowna

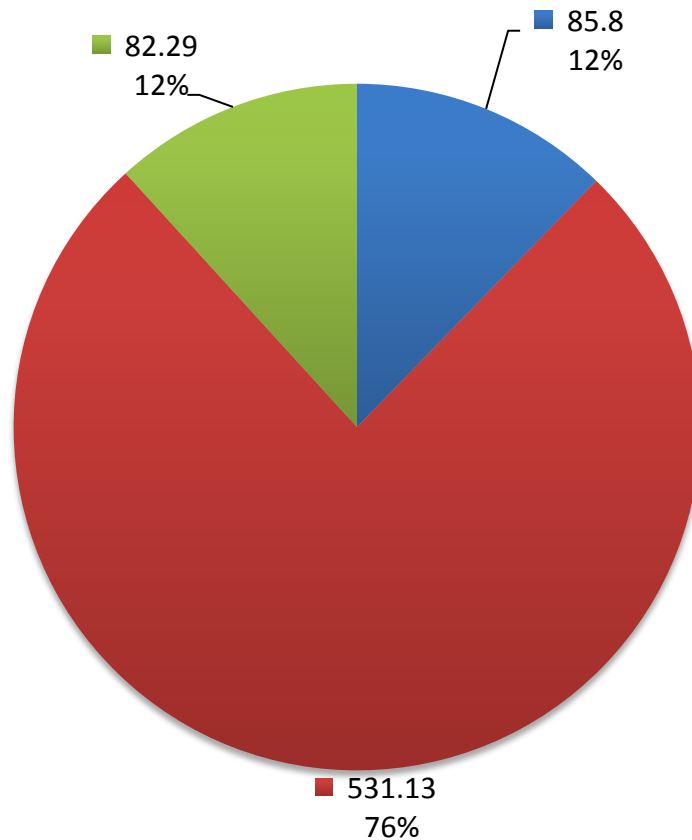
- Continue energy monitoring program to benchmark facility performance.



Tracey Ternoway CA,
Vice President, Finance and Administration

Justice Institute of British Columbia

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



Total Emissions: 699.22

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

Offsets Applied to Become Carbon Neutral in 2010

Total offsets purchased: **696.28**. Total offset investment: **\$17,407.00**. Emissions which do not require offsets: **2.94** **

*Tonnes of carbon dioxide equivalent (tCO₂e) is a standard unit of measure in which all types of greenhouse gases are expressed based on their global warming potential relative to carbon dioxide.

** Under the *Carbon Neutral Government Regulation of the Greenhouse Gas Reduction Targets Act*, all emissions from the sources listed above must be reported. As outlined in the regulation, some emissions do not require offsets.

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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 12/31/10)	Performance to Date (as of 12/31/10)	Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Mobile Fuel Combustion (Fleet and other mobile equipment)						
This section is either not applicable, not yet evaluated, or was completed before 2010						
Stationary Fuel Combustion, Electricity and Fugitive Emissions (Buildings)						
Planning/management						
Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)	Completed in 2010		A project to replace the building automation system for our New Westminster campus was completed in 2010. The new system includes real time metering complete with comprehensive trend logs.		2009	2010
Owned buildings						
Establish energy performance baseline for owned buildings	Completed in 2010	100	% of owned buildings have an established energy performance baseline Energy performance baseline for all owned facilities established.		2009	2010
Complete energy retrofits on existing, owned buildings	Ongoing/In Progress		A project to replace the building automation system (BAS) for our New Westminster campus was completed in 2010. The new system incorporated several energy saving upgrades which are expected to reduce energy consumption by approximately 9%. At our Maple Ridge Campus the installation of a pump variable frequency drive and operational changes have resulted in an 80% reduction of energy consumed by the two associated processes. Motion sensors to control lighting have been installed in storage areas and one classroom. All exit lights have been retrofitted to LED fixtures.	New Westminster campus – 2011, investigate feasibility of retrofitting gymnasium lighting and adding lighting control schedules for other areas. Maple Ridge campus – 2011, install motion sensors to control lights in remaining classrooms and storage rooms; modification to water recycling system which is expected to reduce energy consumed by this system by 90%; installation of a new water extractor washing machine resulting in elimination of gas fired dryers; 2012, replace existing building automation system. Chilliwack campus – 2011 install solar panels to supplement heating for domestic hot water. Victoria campus – 2011, retrofit existing lighting with energy efficient T8 fixtures.	2009	2012
IT power management						
Install power management software which shuts down computers outside of regular business hours	In Development			This will be reviewed as part of the Desktop Lifecycle Replacement project and implemented if funding is available.	2011	2013
Implement server virtualization	Ongoing/In Progress	25	% of servers have been virtualized since start year indicated The percentage of virtualized servers increased from approximately 15 to 25%.	Work to virtualize servers will continue.	2010	2013
Apply auto-sleep settings on computer monitors and CPUs	In Development			This will be reviewed & implemented as part of the Desktop Lifecycle Replacement project.	2011	2013
Remove stand-alone printers, copiers, and/or fax machines and install multi-function devices	In Development			A print management project will be implemented to review & address this.	2011	2013

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Action	Status (as of 12/31/10)	Performance to Date (as of 12/31/10)		Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Apply auto-sleep settings on printers, copiers, fax machines, and/or multi-function devices	In Development				A print management project will be implemented to review & address this.	2011	2013
Replace computers with ENERGY STAR models during regular computer upgrades	Ongoing/In Progress			Monitors, printers, laptops, computers purchased in 2010 were ENERGY STAR compliant.	All monitors, printers, laptops, computers purchased will be ENERGY STAR compliant.	2009	No End Date (Continuous)
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.	2011	2011
Behaviour change program							
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 posters are displayed at all campuses; Maintenance, Security and Janitorial Staff are regularly encouraged to ensure lights are turned off in unoccupied areas.	Turn off the lights campaign will be continued.	2008	No End Date (Continuous)
Supplies (Paper)							
Paper Type							
Purchase 30% post-consumer recycled paper	In Development			The Print Shop which prints the majority of the Institute's course materials began using paper with 30% recycled content.	Expand use of 30% recycled content paper throughout the Institute.	2010	No End Date (Continuous)
Printer/document settings							
Switch networked printers and photocopiers to automatic double-sided	In Development	50	% of network printers or photocopiers are set to automatic double-sided	Continued to encouraged staff to set all applicable printers to print double sided by default.	Campaign will be continued. 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 going forward.	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 going forward.	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 going forward.	2010	No End Date (Continuous)
Encourage re-use of scrap paper	In Development				Some groups currently encourage staff to reuse scrap paper; we intend to expand this practice going forward.	2009	No End Date (Continuous)