

Vancouver Island University

Carbon Neutral Action Report - 2011

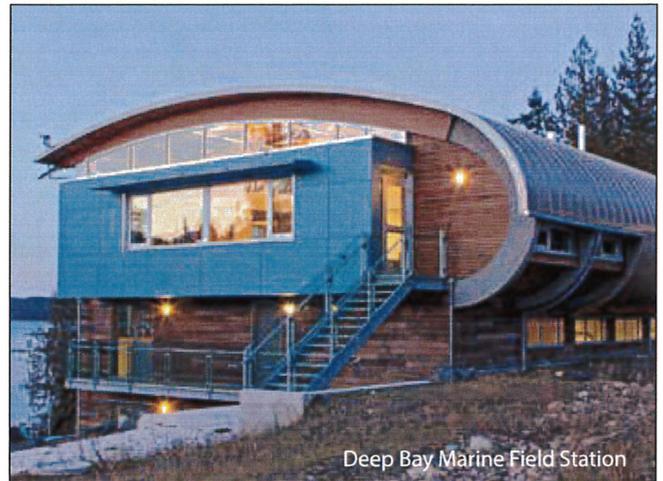
Summary



Summary of 2011 Carbon Neutral Actions at VIU

The year of 2011 saw the culmination of a very busy period of major projects delivery, largely funded through stimulus packages of the federal and provincial governments over the period from 2009 through a portion of 2011.

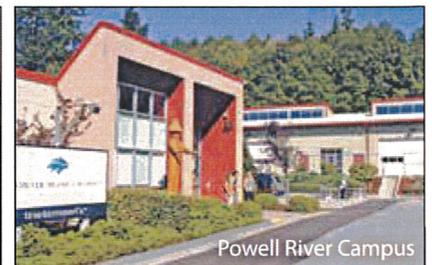
The Deep Bay Marine Field Research Station was substantially completed by February of 2011, and the new Cowichan Campus of VIU was completed and occupied in June of 2011. The Deep Bay Facility is a candidate for LEED® Platinum certification while the Cowichan Campus is a candidate for LEED® Gold certification, via the Canadian Green Building Council (CaGBC).



Further, the International Centre for Sturgeon Studies and the Gathering Place both on the Nanaimo Campus, plus the new Trades Facility at the VIU Powell River Campus, entered their first full year of operation in 2011. These latter facilities were constructed to feature LEED® Gold conservation attributes, although none of them will be registered for certification under the LEED® system.

2011 was a year of severe financial constraint for VIU and for other post secondary institutions across the Province, as British Columbia applied funding restrictions to public sector organizations during the economic downturn of 2008. As a result, very little capital was available to invest in any repairs or improvements to the VIU buildings or physical plant infrastructure, although a minor lighting improvements project was implemented in the Welding Shop at the Nanaimo Campus.

A renewed emphasis was placed on Behaviour Change Programs as a means of continuing to seek ways to conserve energy, and the BC Hydro sponsored Workplace Conservation Awareness initiative entered its second year with VIU. We were proud to have been chosen as a pilot project for the 2010 year, and to be renewed in the program for the second year in 2011. The Ugly Sweater Campaign (a component of





the WCA initiative) of 2010 received some recognition from interested parties at the University of Colorado, and from an online newsletter organization headquartered in the United Kingdom and with subscribers all over Europe.

Total Emissions in 2011 versus Total Offsets:

VIU Total Emissions for 2011 were 3268 tonnes of eCO₂, while VIU offset a total of 3239 tonnes – a difference of 29 tonnes (rounded for convenience). The difference in these two figures can be attributed to the use of bio-diesel fuel in the VIU Heavy Equipment fleet, added to the use of select vehicles for School Bus duty as defined in the Green House Gas Reduction Act.

Carbon Offsets Changes for 2011 over Offsets for 2010:

VIU Total Offsets for 2011 were 3239 tonnes of eCO₂, while the Total Offsets for 2010 were 3070 tonnes (rounded for convenience). The difference of 169 tonnes of eCO₂ is due to a significant increase in facilities through the completion of projects, as follows:

1. Cowichan Campus: 4416 m² new versus previous campus of 2973m²
2. Powell River Trades Facility: 519 m² of new space
3. Deep Bay Marine Field Research Station: 1199 m² of new space
4. International Centre for Sturgeon Studies (addition to Nanaimo Campus): 1158 m² of new space
5. The Gathering Place (addition to Nanaimo Campus): 363 m² of new space.

Total area of new space for the VIU organization in the 2011 calendar year is 7655m², less the area of the previous Cowichan Campus at 2973m², leaves a net total of new area of 4682m².

The above new facilities are heated electrically, with natural gas, or through a combination of alternative energy systems (Cowichan and Deep Bay) with natural gas back up, or “peaking” systems. Therefore, the reliance on fossil fuels has increased in 2011 over 2010, which in turn has resulted in higher Green House Gas emissions for the organization.

Looking Forward to a Climate Neutral and Sustainable Future:

For the year of 2012, and into the future, VIU plans to maintain its interest and investments in conservation work, on energy utilities and on water consumption, and to reduce its greenhouse gas (GhG) emissions in accordance with the Greenhouse Gas Reduction Act (Bill 44, 2007), all as detailed in the Carbon Neutral Report.

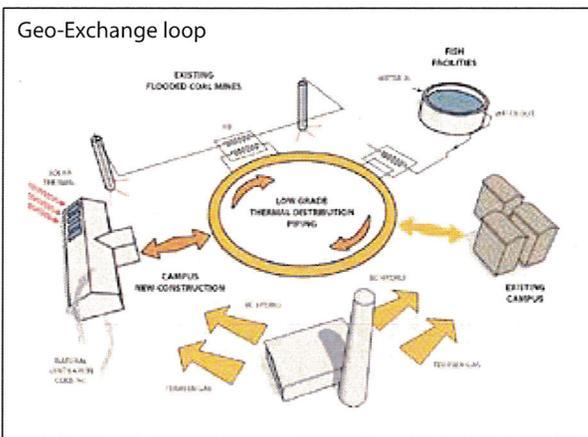
We are looking forward to the procurement and service introduction of two new 24 – passenger buses to the fleet which will replace not only a single older bus, but will also supplant the services of older 15 passenger vans for more economical and comfortable transportation for students to sporting events and field study trips.

Further, for the maintenance fleets, two small four-cylinder engine vans will replace the functions of two larger trades vans, with one older van being retired, and the other significantly reduced in travel as a result.

VIU hopes to move into an implementation phase for the Geo-Exchange Project planned for the Nanaimo Campus, using a subterranean coal mine as a source of heating and cooling energy. Ideally, this project will also be supplemented with solar water heating for domestic hot water, and together, the two renewable energy systems will significantly reduce the GhG emissions of the Nanaimo Campus.



24-passenger bus



So VIU will continue with focus on Behaviour Changes and on rigorous operational management to conserve energy and reduce greenhouse gas emissions. Vehicle maintenance will continue to be a primary objective in controlling consumption of the VIU fleet. And the VIU faculty members and instructors are strongly involved in sustainable education and actions embedded in their curriculum.

This Summary Report has been reviewed by:

Ric Kelm, Executive Director Infrastructure and Ancillary Systems

JUNE 6, 2012.

Date

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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 12/31/11)	Performance to Date (as of 12/31/11)		Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Mobile Fuel Combustion (Fleet and other mobile equipment)							
Vehicle fuel efficiency							
Replace vehicles with more fuel-efficient models	Ongoing/In Progress	2	% of vehicles are fuel- efficient models	No changes	Dispose of dump truck and flat deck, replace with new more efficient flat deck.	2012	No End Date (Continuous)
Replace larger vehicles with smaller models according to fleet "right-sizing" principles	Ongoing/In Progress	0	% of vehicles down-sized since start year indicated	No changes	Replace old mail delivery van with smaller, more fuel efficient model. Replace lift truck with smaller van.	2012	No End Date (Continuous)
Perform regular fleet maintenance specifically to improve fuel-efficiency	Ongoing/In Progress	30	% of vehicles are subject to regular maintenance for fuel efficiency	Vehicle fleet managed by Facilities Services is cycled through maintenance every six months. Vehicles managed by HEO are cycled through maintenance, on demand.	Continued regular maintenance.	Started before 1995	No End Date (Continuous)
Stationary Fuel Combustion, Electricity and Fugitive Emissions (Buildings)							
Planning/management							
Reduce office space (square meters) per employee	Ongoing/In Progress	12.1	is the current average rentable square meters per employee	Projects completed in 2011 include the New Cowichan Campus as well as the Deep Bay Marine Field Research Station, in which office space sizes were minimized for cost control and for reduction of GhG emissions purposes.	Development planning for new facilities in accordance with the Campus Master Plan will always challenge the existing office standard sizes, and will always seek new and innovative methods of delivering work space for VIU employees.	2009	No End Date (Continuous)
Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)	Ongoing/In Progress	24	% of buildings have a real time metering system installed	Projects completed in 2011 include the New Cowichan Campus as well as the Deep Bay Marine Field Research Station, in which real time metering was installed to meet LEED parameters, and to facilitate energy monitoring for continuous analysis.	As funds become available for Mechanical Optimization of the existing inventory, and for other developments, real time metering is planned as a standard feature in the buildings.	2009	No End Date (Continuous)
Owned buildings							
Establish energy performance baseline for owned buildings	Ongoing/In Progress	78	% of owned buildings have an established energy performance baseline	Cowichan Campus and Deep Bay Marine Research Station completed in 2011, and each was completed with Energy Models that are being used as performance baselines.	2012: Baseline comparative models will be developed for trades buildings on the Nanaimo Campus to facilitate better understanding of performance and to promote conservation behaviours on Campus. 2012 - 2014: New developments will be planned and compared to standard building models, in order to take best advantage of conservation and alternative energy opportunities.	2010	No End Date (Continuous)
Achieve LEED NC Gold certification at a minimum for new construction or major renovations	Ongoing/In Progress	0	% of owned buildings are certified LEED NC Gold or LEED NC Platinum	Submissions have been made to CaGBC for LEED Gold certification of Cowichan Campus, and for LEED Platinum certification of Deep Bay Marine Field Research Station. Certification for each is anticipated to be completed in 2012.	2012: Completion of LEED certification for Cowichan and Deep Bay. 2012 - 2014: Any new developments by VIU will be designed to LEED Gold standard as a minimum.	2009	No End Date (Continuous)
Incorporate integrated design process into new construction or during renovations of owned buildings	Ongoing/In Progress	6	% of buildings built or renovated since start year indicated used the integrated design process	Cowichan and Deep Bay facilities have been designed through the integrated design process, and on the Nanaimo Campus, the Gathering Place and the International Centre for Sturgeon Studies have been designed through the Integrated Design Process and in accordance with the Campus Master Plan.	All renovations to existing inventory and any new construction, will use the Integrated Design Process.	2009	No End Date (Continuous)

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Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)		Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Incorporate a refrigerant management strategy into regular building management/maintenance to reduce fugitive emissions	In Development			The need for development of a full management plan for ozone depleting substances was identified in 2011. Records exist of refrigeration systems inspections and maintenance, but need to be formalized into an ODS Management System to meet Regulation.	Development and implementation of a compliant ODS Management System, including records that will be used to log fugitive emissions for GhG accounting.	2011	No End Date (Continuous)
Perform energy retrofits on existing, owned buildings	Ongoing/In Progress	21	% of owned buildings have undergone energy retrofits since start year indicated	No energy retrofits completed in 2011.	2012 - 2014: As funding becomes available, VIU plans to complete the Outdoor Lighting Improvements recommended, and the Mechanical Optimization Phase II project in buildings on the Nanaimo Campus, as recommended in the two 2010 Audits.	2010	No End Date (Continuous)
Retrofitting owned buildings							
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress	21	% of retrofits since start year indicated had heating, cooling, and ventilation systems upgrades	No energy retrofits completed in 2011.	2012 - 2014: As funding becomes available, VIU plans to complete the Mechanical Optimization Phase II project in buildings on the Nanaimo Campus, as recommended in the 2010 Audit.	2010	No End Date (Continuous)
Upgrade lighting systems during retrofits	Ongoing/In Progress	63	% of retrofits since start year indicated had lighting systems upgrades	Welding Shop of Nanaimo Campus had HID lighting system replaced with fluorescent system.	2012 - 2014: As funding becomes available, VIU plans to complete the identified interior and exterior lighting improvements identified on the Nanaimo Campus, as recommended in the 2007 and 2010 Audits.	2009	No End Date (Continuous)
Upgrade/adjust control systems during retrofits	Ongoing/In Progress	21	% of retrofits since start year indicated had control system upgrades or adjustments	No energy retrofits completed in 2011.	2012 - 2014: As funding becomes available, VIU plans to complete the Mechanical Optimization Phase II project in buildings on the Nanaimo Campus, as recommended in the 2010 Audit.	2010	No End Date (Continuous)
Improve building insulation (including windows) during retrofits	In Development	2	% of retrofits since start year indicated had insulation improvements	No energy retrofits completed in 2011.	2012 - 2014: As funding becomes available, VIU plans to implement the glazing recommendations included in the 2010 Audit.	2010	No End Date (Continuous)
Install an on-site renewable energy demonstration project	In Development	0	% of retrofits since start year indicated had on-site renewable energy components	While no retrofit projects that included renewable energy components were completed in 2011, both the Cowichan Campus and the Deep Bay Marine Field Research Station were completed with geo-exchange systems in 2011. Cowichan also features solar water pre-heating.	2012 - 2014: Development of an RFP for a renewable district energy system, most likely based on geo-exchange heating and cooling, but with probable solar water heating supplements.	2009	No End Date (Continuous)
IT power management							
Install power management software which shuts down computers outside of regular business hours	Ongoing/In Progress	10	% of computers shut down automatically outside of regular business hours	Licences purchased for first of two batches of power management software intended for computers on the Nanaimo Campus.	Implementation of 2200 licenses on the Nanaimo Campus (Phase I complete by April 14, Phase II by October 31 2012).	2011	2012
Implement server virtualization	Ongoing/In Progress	25	% of servers have been virtualized since start year indicated	1 new virtual server replaced 4 discrete servers	Generally, upgrading to virtual servers where the concept makes sense.	2010	No End Date (Continuous)
Apply auto-sleep settings on computer monitors and CPUs	Ongoing/In Progress	100	% of computers have auto-sleep settings applied	This is a standard for computer installations throughout the organization, and will continue to be so for the foreseeable future.	This is a standard for computer installations throughout the organization, and will continue to be so for the foreseeable future.	2000	No End Date (Continuous)
Apply auto-sleep settings on printers, copiers, fax machines, and/or multi-function devices	Ongoing/In Progress	100	% of devices have auto-sleep settings applied	This is a standard for printer installations throughout the organization, and will continue to be so for the foreseeable future.	This is a standard for printer installations throughout the organization, and will continue to be so for the foreseeable future.	2000	No End Date (Continuous)

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Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)		Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Replace computers with ENERGY STAR models during regular computer upgrades	Ongoing/In Progress	60	% of computers are ENERGY STAR rated	Evergreen process replaced a group of 200 computers with energy star certified units.	Evergreen process will continue.	2010	No End Date (Continuous)
Appliances and electronic devices							
Replace refrigerators with ENERGY STAR models or source ENERGY STAR models for future purchases	Ongoing/In Progress	20	% of fridges are ENERGY STAR rated	4 refrigerators purchased in 2011, all Energy Star certified.	Continued insistence on Energy Star certified appliances, where applicable.	2009	No End Date (Continuous)
Replace other appliances or electronic devices with ENERGY STAR models or source ENERGY STAR models for future purchases	Ongoing/In Progress			Energy Star does not apply to all appliances, but where possible, Energy Star certification is the standard. Where Energy Star does not apply, an equivalent certification is sought for best performance.	Energy Star or equivalent certification.	2009	No End Date (Continuous)
Replace desk lamp incandescent bulbs with compact fluorescent (CFL) bulbs or source more efficient desk lamps for future purchases	Ongoing/In Progress			Task lighting using CFL lamps is the standard at VIU.	Task lighting using CFL lamps is the standard at VIU.	2008	No End Date (Continuous)
Behaviour change program							
Help staff reduce personal energy use through "workstation tune-ups"	Ongoing/In Progress	10	% of current staff have completed a workstation tune-up	Workstation tune ups were completed on the Cowichan Campus as a function of the initial occupancy of the new building.	Behaviour Change and Conservation Awareness campaigns focus on individuals taking the opportunities to reduce consumption by turning unused appliances off.	2011	No End Date (Continuous)
Ask staff to unplug electrical equipment or switch off power bars when not in use	Ongoing/In Progress			Workplace Conservation Awareness campaigns encourage occupants to turn off unnecessary lighting and unused electrical equipment.	Continued Workplace Conservation Awareness activities.	2009	No End Date (Continuous)
Ask staff to close blinds at end of work day to reduce heating/cooling demands	Ongoing/In Progress			Workplace Conservation Awareness campaigns encourage occupants to close windows and doors, and to close blinds to reduce solar gain.	Continued Workplace Conservation Awareness activities.	2009	No End Date (Continuous)
Encourage staff to use air dry setting on dishwashers	Ongoing/In Progress			Standard practice for Food Services and for Culinary Arts.	Standard practice for Food Services and for Culinary Arts.	2007	No End Date (Continuous)
Provide tips to staff on saving energy in the office while working outside of regular business hours	Ongoing/In Progress			Workplace Conservation Awareness campaigns encourage occupants to turn off unnecessary lighting and unused electrical equipment.	Continued Workplace Conservation Awareness activities.	2009	No End Date (Continuous)
Provide reminders for turning off lights (e.g., signs, stickers, messages)	Ongoing/In Progress			Workplace Conservation Awareness campaigns encourage occupants to turn off unnecessary lighting and unused electrical equipment.	Continued Workplace Conservation Awareness activities.	2009	No End Date (Continuous)
Promote hot water conservation	Ongoing/In Progress			Evaluated replacement of burned out hot water tanks with instant water heaters, but found that the premium was not justifiable. Turned off stand-by tanks where not needed for daily hot water demand.	Will continue to seek opportunities to use instant water heaters where warranted by demand, and will continue to reduce set points where sanitation temperatures are not required.	2009	No End Date (Continuous)
Other Stationary Fuel Combustion, Electricity, and Fugitive Emissions Actions							
Set standard temperature set points for offices, and other standards for classrooms, and a third standard for shops.	Ongoing/In Progress			Standards established: 22.0 degrees for offices, 21.5 degrees for classrooms, and 18 degrees (max heating set point) for shops.	Continued maintenance of standard set points.	2011	No End Date (Continuous)
"Challenge" the set points, and try lower heating levels and higher cooling set points, where occupants will tolerate the conditions.	Ongoing/In Progress			Temperature set points adjusted for the Ugly Sweater Campaign were found to be accepted by many occupants, although too cold for others.	Trial of lower set points where productivity of occupants is not affected.	2011	No End Date (Continuous)

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Monitor the Direct Digital Controls (DDC) for excessive use of manual settings, and restore to automatic settings wherever possible.	Ongoing/In Progress			Significantly higher rigor in monitoring the DDC equipment with better adherence to standards.	Continued maintenance of DDC systems.	2010	No End Date (Continuous)
Continuous re-commissioning of DDC conservation strategies.	Ongoing/In Progress			Significantly higher rigor in monitoring the DDC equipment with better adherence to standards.	Evaluation of automated re-commissioning of the DDC system, integrated with Energy Management Information System.	2011	No End Date (Continuous)
Fast response to problems with Heating Ventilating and Air Conditioning (HVAC) systems, for reduced conditions of discomfort, and faster restoration to conserving performance.	Ongoing/In Progress			Significantly higher rigor in monitoring the HVAC equipment performance, with swift, cost effective correction of performance problems.	Continued maintenance of HVAC systems.	2011	No End Date (Continuous)
Seek out additional opportunities for electricity conservation, and plan for implementation as funding comes available.	Ongoing/In Progress			Welding Shop of Nanaimo Campus had HID lighting system replaced with fluorescent system.	Improved lighting in Gym training room and play court. Prepare tender-ready packages for outdoor lighting improvements.	2009	No End Date (Continuous)
Supplies (Paper)							
Paper Type							
Purchase 30% post-consumer recycled paper	Ongoing/In Progress			Continued to purchase 30% post-consumer fibre paper.	Continue to purchase 30% post-consumer fibre paper.	2009	No End Date (Continuous)
Printer/document settings							
Switch networked printers and photocopiers to automatic double-sided	Ongoing/In Progress	60	% of network printers or photocopiers are set to automatic double-sided	As the New Cowichan Campus moved to completion, IT Department set up the networked printers at that facility for automatic double-sided printing.	As new equipment is purchased for use in VIU facilities, double-sided printing will be the default setting.	2010	No End Date (Continuous)
Electronic media in place of paper							
Use electronic document library for filing common documents	Ongoing/In Progress			Electronic document library set up for VIU organization and for individual departments. Facilities Services & Campus Development has set up a new electronic filing system for projects documents.	VIU will continue to seek new document sets for electronic filing.	2009	No End Date (Continuous)
Post materials online that were previously printed	Ongoing/In Progress			Reduced dependence on paper filing system for Facilities Services projects documents.	VIU will continue to seek new document sets for electronic filing.	2009	No End Date (Continuous)
Other Paper Supplies Actions							
VIU Library provides increasing access to electronic books and text books.	Ongoing/In Progress			Contracted with more publishers and aggregators for access to additional titles. Benefits do not include reduced storage of books, rather, access to e-titles reduces the amount of travel to and from the Library for interested students and faculty.	Continued access to electronic books and publications.	2010	No End Date (Continuous)
Some faculty make use of recycled paper for printed materials and minor testing.	Ongoing/In Progress			An example is a member of the Engineering faculty who has re-used almost 80,000 sheets of previously used paper in his classes since the late 1980's.	Looking for a new source of previously used paper to continue on this process.	Started before 1995	No End Date (Continuous)

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Actions to Reduce Provincial Emissions and Improve Sustainability

The actions listed below contribute to a reduction in greenhouse gas emissions from sources that fall outside of the reporting requirements defined in the carbon neutral government regulation of the *Greenhouse Gas Reduction Targets Act*. Public sector organizations can optionally use this section to report on actions that will help British Columbia meet its provincial greenhouse gas reduction targets, engage the public, and improve environmental sustainability across all aspects of their organization.

Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)	Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Business Travel						
Virtual meeting technology						
Install web-conferencing software (e.g., Live Meeting, Elluminate, etc.)	In Development	1 % of computers have web-conferencing software installed	Trials with Elluminate ended August 2011.	Procure licences for "Blackboard Learn," for use only by Academics within the organization.	2010	No End Date (Continuous)
Behaviour change program						
Train staff in web-conferencing	In Development	1 % of staff are trained web-conferencing	Training sessions were offered in the use of Elluminate in 2011.	Training will be offered to faculty in the use of "Blackboard."	2010	No End Date (Continuous)
Encourage staff to consider virtual attendance/presentation at events where possible	Ongoing/In Progress		The Energy Manager's Quarterly Reports to BC Hydro were almost all presented via Living Meeting, hosted by BC Hydro. The Technology User Group of VIU continually promotes the use of technology to reduce travel.	Continued development of virtual classroom and of web and video conferencing opportunities.	2010	No End Date (Continuous)
Encourage carpooling to meetings	Ongoing/In Progress		Carpooling to meetings is considered by most VIU employees at each opportunity.	Carpooling to meetings is considered by most VIU employees at each opportunity.	2007	No End Date (Continuous)
Encourage alternative travel to meetings (e.g., bicycles, public transit, walking)	Ongoing/In Progress		The Energy Manager makes use of public transit to attend meetings and workshops where travel is deemed necessary.	Influence others in VIU to do the same.	2009	No End Date (Continuous)
Education, Awareness, and Engagement						
Team-building						
Create Green, Sustainability, Energy Conservation, or Climate Action Teams with executive endorsement	Ongoing/In Progress		Sustainability Advisory Committee to the Executive Director of Infrastructure and Ancillary Services was developed and populated in 2011. "VIU Change Agents" operated for the first time through the academic seasons.	Re-development of Green Teams.	2010	No End Date (Continuous)
Provide resources and/or dedicated staff to support teams	Ongoing/In Progress		2 positions (Energy Manager plus Admin Assistant) are dedicated to support of the Green Team, plus one Work-Op student (200 hours per semester) is hired from time to time.	Continue to fill the Work-Op student position on a semester by semester basis.	2010	No End Date (Continuous)
Providing behaviour change education/training to teams (e.g., community-based social marketing)	Ongoing/In Progress		Energy Manager and Admin Assistant each attended various workshop on behaviour change and development of green teams.	Re-development of Green Teams.	2010	No End Date (Continuous)
Staff Professional Development						
Support green professional development (e.g., workshops, conferences, training)	Ongoing/In Progress		VIU supports the Energy Manager and the Admin Assistant attendance at appropriate workshops and conferences.	Continued attendance at workshops and conferences.	2008	No End Date (Continuous)
Staff awareness/education						
Provide education to staff about the science of climate change	In Development		The Energy Manager and Admin Assistant have attended conferences about the Science of Climate Change.	Seek opportunities to bring the message to faculty and staff of the organization. Encourage faculty and staff to take advantage of learning opportunities.	2008	No End Date (Continuous)

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Provide education to staff about the conservation of water, energy, and raw materials	Ongoing/In Progress		The Energy Manager and the Admin Assistant have delivered speeches to small groups of people in the organization, to inform folks about how our conservations efforts are progressing, and to encourage them to contribute through actions of their own.	Seeking increased opportunities to address audiences within the organization and within the community.	2009	No End Date (Continuous)
Provide green tips on staff website or in newsletters	Ongoing/In Progress		In each "Conversation on Conservation" the Energy Manager offers tips to people for their personal conservation actions, for use at work and at home. The Admin Assistant has created pamphlets containing sustainability information and tips, that are used at all public presentations and events.	Seek opportunities to bring the message to faculty and staff of the organization. Encourage faculty and staff to take advantage of learning opportunities.	2009	No End Date (Continuous)
Provide sustainability education during new staff orientation	Ongoing/In Progress		The Admin Assistant provided information at the New Staff Orientation event in late August of 2011, on sustainability and conservation.	Continued attendance at orientation events.	2010	No End Date (Continuous)
Client/public awareness/education						
Provide education to clients/public about the science of climate change	Ongoing/In Progress		The Science of Climate Change has been offered to the general public in Nanaimo, along with faculty, staff, and students of the university, on an annual basis.	Continued delivery of the Science of Climate Change workshops, in concert with the Awareness of Climate Change through Education and Research (VIU student group) organization.	2009	No End Date (Continuous)
Provide education to clients/public about the conservation of water, energy, and raw materials	Ongoing/In Progress		The Energy Manager and the Admin Assistant have delivered speeches to small groups of people in the organization, to inform folks about how our conservations efforts are progressing, and to encourage them to contribute through actions of their own.	Seeking increased opportunities to address audiences within the organization and within the community.	2009	No End Date (Continuous)
Provide green tips on client/public website or in newsletters	Ongoing/In Progress		Green tips were set up on the new Energy Dashboard for the Cowichan Campus in 2011, which is a pilot project for the VIU organization.	An energy dashboard is planned for the new Deep Bay Marine Field Research facility, similar to the Cowichan dashboard, and green tips are planned for the information boards in use on the Nanaimo Campus as well.	2011	No End Date (Continuous)
Other Education, Awareness, and Engagement Actions						
The Energy Manager at VIU is a member of a group of Energy Managers, which group planned and developed a workshop / conference focussing on heating season maintenance for trades people working to maintain publicly-funded facilities.	Ongoing/In Progress		Fortis BC opted to fully develop and fund the planned educational workshop, and hosted the first one in Nanaimo in February of 2012 (originally slated for Fall 2011).	The workshop format will be offered by Fortis at major regional centres within the Province over the remainder of 2012. The Energy Managers Consortium will plan and develop an additional training / educational workshop focussing on cooling season maintenance and electricity conservation.	2011	No End Date (Continuous)
Other Sustainability Actions						
Water conservation						
Introduce a stormwater management landscape strategy (e.g., vegetated roofs, permeable paving, rain gardens, bioswales)	In Development		A green roof was completed on the new "Gathering Place" building and the new Cowichan Campus building in 2011, which are being monitored by a University professor for growth rates, carbon sequestration, water management information, and plant health. Further, the Cowichan Campus and the Deep Bay Marine Field Research Station make use of bioswales to control storm water, and to facilitate storage of storm water for on site irrigation use.	Other green roof opportunites have been assessed with intentions to extend the technology to other candidate roofs as funding becomes available.	2010	No End Date (Continuous)
Waste reduction/diversion						

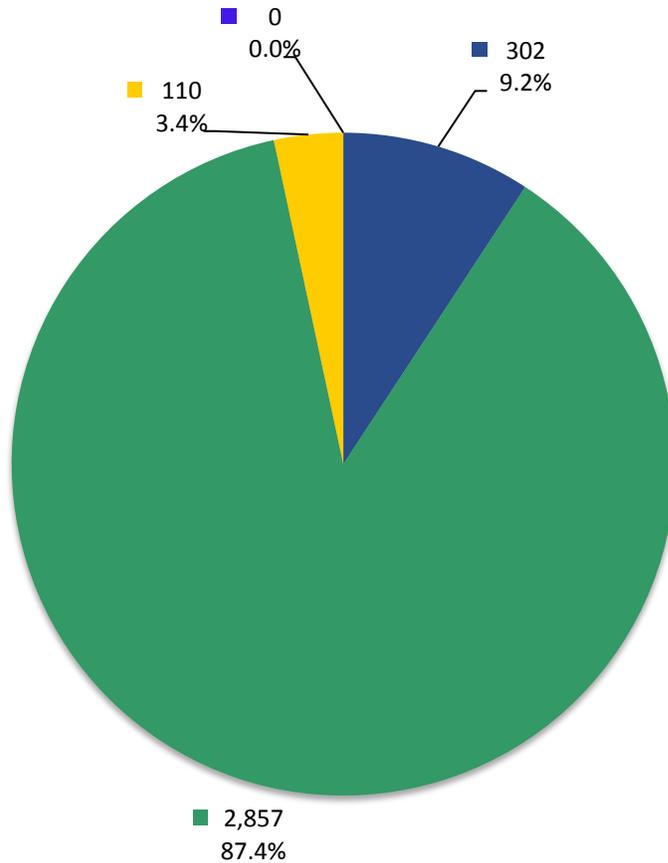
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Put in place an operations policy to facilitate the reduction and diversion of building occupant waste from landfills or incineration facilities	Ongoing/In Progress		A desk-side composting system was implemented in one key building during 2011 (an extension of an initiative started in other buildings in 2010), with the intention of diverting the compostable portion of VIU waste from the landfill.	Further desk-side composting system implementations.	2010	No End Date (Continuous)
Implement a hazardous waste reduction and disposal strategy	Ongoing/In Progress		Disposal of hazardous waste in accordance with applicable law and regulations.	Disposal of hazardous waste in accordance with applicable law and regulations.	2009	No End Date (Continuous)
Procurement (non-paper supplies)						
Establish green standards for goods that are replaced infrequently and/or may require capital funds to purchase (e.g., office furniture, carpeting, etc.)	Ongoing/In Progress		The Construction Guidelines developed many years ago, include standards for equipment and systems that can be considered to be green. Completion work for the Cowichan and Deep Bay Campuses met these standards for furnishings and finishes.	Continuation on any new development or minor project.	2007	No End Date (Continuous)
Implement sustainable purchasing program for cleaning products, disposable paper products and trash bags	Ongoing/In Progress		Continued use of green cleaning products.	Continued use of green cleaning products.	2007	No End Date (Continuous)
Building construction, renovation, and leasing						
Establish a policy to reuse materials where possible and divert construction and demolition debris from landfills and incineration facilities	Ongoing/In Progress		Included in Construction Guidelines.	Included in Construction Guidelines.	2007	No End Date (Continuous)
Indoor air quality						
Incorporate low volatile organic compounds (VOCs) standards into procurement policy for products such as paints, carpets, and furniture	Ongoing/In Progress		Included in Construction Guidelines.	Included in Construction Guidelines.	2007	No End Date (Continuous)
Commuting to and from home						
Encourage commuting by foot, bicycle, carpool or public transit	Ongoing/In Progress		New bicycle shelter constructed at Nanaimo Campus, Car Pooling and Electric Vehicle stalls at Cowichan Campus.	Included in Construction Guidelines.	2010	No End Date (Continuous)
Provide shower or locker facilities for staff/students who commute by foot or by bicycle	Ongoing/In Progress		Showers available at the new Cowichan Campus.	Included in Construction Guidelines.	2010	No End Date (Continuous)
Modify parking fees or parking availability for staff/students	Ongoing/In Progress		Transportation Demand Management studies completed for Nanaimo and Cowichan Campuses.	Implement TDM studies recommendations over several years.	2010	No End Date (Continuous)
Other Sustainability Actions						
Examples of sustainability in the classrooms:	Ongoing/In Progress		see below.	see below	2009	No End Date (Continuous)
1. Teaching sustainability in English class, including alternative energy, building, and food production models.	Ongoing/In Progress		as stated	as stated	2009	No End Date (Continuous)
2. Research for a book on the impacts of climate change on food security.	Ongoing/In Progress		as stated	as stated	2009	No End Date (Continuous)
3. Seeking a publisher for a book already written on environmental issues with sustainable solutions, plus the socio-political implications of increasing environmental stresses on the planet within a theological context.	Ongoing/In Progress		as stated	as stated	2009	No End Date (Continuous)

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Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)		Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
4. Active in local communities on topics of food security, and sustainable farming techniques.	Ongoing/In Progress			as stated	as stated	2009	No End Date (Continuous)
5. The ACER (Awareness of Climate Change through Education and Research) student group conducts outreach to high school classes in the Province, encouraging students to understand the science of climate change, and encouraging students to consider a science education in post-secondary education.	Ongoing/In Progress			as stated	as stated	2009	No End Date (Continuous)
6. "SOLUTIONS: A Sustainability Network" student group promotes sustainability throughout the organization, and was the driver behind a ban the bottled water campaign at VIU. SOLUTIONS operates a local community garden, promotes local food growth and consumption, and campaigns on many other aspects of a sustainable life style for students.	Ongoing/In Progress			as stated	as stated	2009	No End Date (Continuous)
7. An English professor has re-designed his composition classes. Students explore the challenges involved in moving to a post-hydrocarbon society, giving presentations and writing research essays on questions such as: sustainable non-hydrocarbon energy sources; low energy technologies; new urbanism and walkable communities; post-hydrocarbon aesthetics; the slow food movement.	Ongoing/In Progress			as stated	as stated	2009	No End Date (Continuous)
8. The Conservation Biology Students were required to do "Conservation Outreach" projects in the Central Island Area.	Ongoing/In Progress			Dealt with biodiversity / conservation issues affecting the mid-Island, volunteered for conservation organizations to do such tasks as surveying Canada Geese, beach cleanup and inventories, and Ivy Pull (controlling invasive species).	as stated	2010	No End Date (Continuous)
9. Geography Department's "Geography Degree Graduate Outcomes" list, one item of which is to "Promote social, economic, and environmental sustainability at the local, regional, and global scales."	Ongoing/In Progress			Encouraging students to consider sustainability in their activities, whether as a student, an employee, or a citizen.	as stated	2009	No End Date (Continuous)

**Vancouver Island University
Greenhouse Gas Emissions by Source
for the 2011 Calendar Year (tCO₂e*)**



Total Emissions: 3,268

- Mobile Fuel Combustion (Fleet and other mobile equipment)
- Stationary Fuel Combustion (Building Heating and Generators) and Electricity
- Supplies (Paper)
- Fugitive

Offsets Applied to Become Carbon Neutral in 2011 (Generated May 18, 2012 11:30 AM)

Total offsets required: **3,239**. Total offset investment: **\$80,975**. Emissions which do not require offsets: **30** **

*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.