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## Island Health

### *2012 Carbon Neutral Action Report*

#### Executive Summary

In 2007 the British Columbia government passed the Greenhouse Gas Reduction Targets Act (GHGRTA) to create a "Green Economy", to encourage sustainability and provide leadership. This legislation meant that Island Health had to become carbon neutral by 2010 and started a cascade of initiatives within Island Health moving the organization towards environmental sustainability. Island Health has taken the extra step of adopting the target of reducing greenhouse gas emissions 33% below 2007 levels by 2020 and has a strategic plan to achieve this while being economically mindful. A key component will be changing some or all of the gas fired boiler plants to low carbon emitting thermal energy plants. This could include using biomass for some of the fuel or connecting to a district energy system that produces clean thermal energy.

Climate change has been noted by the World Health Organization as a major health concern and Green or sustainable development a major benefit to human health (ref: Rio+20 United Nations Conference on Sustainable Development). Island Health has also found that being Green saves the organization money, is important to staff and local communities, and helps to ensure Vancouver Island remains a healthy and beautiful place to live.

Providing leadership is also important. Island Health reaches out to communities, the provincial government and other health authorities through several different venues. This past Fall BC Hydro recognized this leadership and awarded Island Health their highest award of 2012 Power Smart Leader. This award is given to organizations that "consistently meet or exceed their own rigorous energy-saving targets and institute a culture of energy and environmental sustainability within their organizations". Island Health's Executive and staff are committed to continue working on meeting our greenhouse gas targets and providing encouragement and leadership to other organizations.



Joe Murphy  
Vice President, Operations and Support Services

## Overview

Island Health provides health care to residents on Vancouver Island, the islands of the Georgia Strait, and the mainland communities north of Powell River and south of Rivers Inlet. We are a diverse region serving a diverse population. Providing health care over this wide geographic area requires many buildings dispersed across the region. Facilities are the largest source of greenhouse gas emissions for the health authority. Some *quick facts* about Island Health:

### ISLAND HEALTH QUICK FACTS...

*FACILITIES = 235 Buildings*

*BUILDING AREA = 520,416 m<sup>2</sup>*

*BUILDING AREA LEED GOLD = 50,971 m<sup>2</sup>*

*INCREASE IN AREA SINCE 2007 = 8.4%*

*GHG EMISSIONS (2007) = 37,295 tCO<sub>2</sub>e*

*GHG EMISSIONS (2012) = 34,417 tCO<sub>2</sub>e*

*GHG REDUCTION = 2,878 tCO<sub>2</sub>e*

*REDUCTION AS A PERCENTAGE = 7.7%*

## Commitment

The Executive and the Board of Directors of Island Health (the Board) are fully supportive of energy conservation, carbon emissions reduction and sustainability. The *Greenhouse Gas Reduction Targets Act* (Bill 44) states greenhouse gas emissions should be 33% below 2007 levels by 2020. As of 2012 Island Health's emission levels remain below 2007 levels and the commitment remains to achieve a 33% reduction by 2020. In partnership with BC Hydro, Island Health is also committed to reduce electrical consumption by at least 2 Giga Watt hours (GWH) each year.

These commitments have resulted in Island Health:

- Achieving carbon neutrality by reducing carbon emissions and purchasing offsets
- Constructing new buildings such as the RJH Patient Care Centre, NRGH Emergency Addition and Oceanside Health Care Centre to LEED® Gold
- Committing to all new construction being LEED® Gold as well as being enrolled in the BC Hydro New Construction Program
- Implementing aggressive energy conservation measures throughout the organization and earning the top designation from BC Hydro as a Power Smart Leader
- Pursuing alternative energy sources to lower green house gas emissions and operating costs
- Engaging and supporting staff in behavioral change activities
- Working with community, local government and provincial government to reduce our environmental footprint through recycling programs, transportation partnering and supporting district energy opportunities

## Greenhouse Gas Emissions

Internal data collection processes are in place to identify all sources of carbon emission as defined by Bill 44. A methodology document is produced each year outlining the reporting and self-certification process. Island Health has reported on carbon emissions using the BC Government's SmartTool program starting in 2007 with full reporting completed for 2009, 2010, 2011 and 2012. This year is our second year of self-certification. Our total emissions from all sources are as follows:

Emission Source	tCO <sub>2</sub> e 2009	tCO <sub>2</sub> e 2010	tCO <sub>2</sub> e 2011	tCO <sub>2</sub> e 2012	2012 Offsets Purchased May 15, 2013
Fleet	1,042	922	902	880	
Office Paper	852	831	747	717	
Buildings Owned & Leased	33,892	31,245	33,670	32,820	
Total Emissions, Calendar Year	35,786	32,998	35,319	34,417	
Carbon Neutral or Offset Exempt Emissions	0	61	59	52	
<b>Total Emissions for Offsets Reported May 1, 2013 in SmartTool</b>	35,786	32,937	35,260	<b>34,365</b>	<b>\$859,125</b>

Due to usage of BioDiesel 52 tCO<sub>2</sub>e were offset exempt. Buildings are the primary source of emissions responsible for greenhouse gases accounting for 95.4% of total emissions. Island Health has determined its consumption of fugitive gas (i.e. leaks from pressurized equipment) is less than 1% of the overall emissions and is disproportionately onerous to collect data. For this reason these gasses have been deemed out of scope. Please see Appendix A for the Emissions Report from SmartTool.

### Adjustments to Greenhouse Gas Emissions and Offsets Reporting from Previous Years

Following the public release of Island Health's 2011 Carbon Neutral Action Report, adjustments were made due to the end of calendar year billing. This resulted in a net increase with offsetable emissions changing from 34,946 tCO<sub>2</sub>e to 35,260 tCO<sub>2</sub>e for 2011. Based on the past two years, reporting changes due to billing adjustments increased the reported load by approximately 1%. The following table shows the changes:

Year	GHG Emissions tCO <sub>2</sub> e	Description
2012	34,365	(05/06/13 SmartTool)
2011	250	35,260(05/06/13 ST) – 35,010 (total paid 05/2012 Island Health)
2010	-64	32,937(05/06/13 ST) – 33,001 (total paid as of 05/2012 Island Health)
<b>Total</b>	<b>34,551</b>	<b>Island Health to pay May 15, 2013</b>

### Offset Purchases from Pacific Carbon Trust (PCT)

Island Health purchased offsets for tCO<sub>2</sub>e from Pacific Carbon Trust in order to be Carbon Neutral. Pacific Carbon Trust uses those offset payments to incent greenhouse gas reduction projects within British Columbia. At \$25 per ton this investment provides a cost effective means of reducing British

Columbia’s greenhouse gas emissions. For more information about Pacific Carbon Trust and offset projects please visit their website <http://www.pacificcarbontrust.com/>.

On May 15, 2012 Island Health will purchase \$859,125 worth of greenhouse gas offsets from Pacific Carbon Trust to achieve carbon neutrality for 2012. There will also be a payment of \$4,650 for previous year adjustments.

### Greenhouse Gas Emissions Targets

Bill 44 sets targets for Public Sector Organizations (PSOs) to reduce carbon emissions by 33% as of 2020. To date, as per the chart below, Island Health has reduced emissions below 2007 levels (estimated based on invoices). The challenge for Island Health is the growing demand for space, equipment and electronics.

#### GHG Emissions: Actual vs Target

Year	Total GHG Emissions Requiring Offset tCO <sub>2</sub> e	Target tCO <sub>2</sub> e	
2007	37,295 <sup>1</sup>	37,295	Baseline
2008	37,696 <sup>1</sup>		
2009	35,786 <sup>2</sup>		
2010	32,937 <sup>2</sup>		
2011	35,260 <sup>2</sup>		
2012	34,365 <sup>2</sup>		7.8% reduction
2020		24,988	33% reduction
2050		7,459	80% reduction

<sup>1</sup> estimated based on invoices prior to use of SmartTool

<sup>2</sup> based on data from SmartTool May 01,2013

### Operational Changes in 2012

The following table tracks the net new space added to Island Health’s building inventory since 2007.

Net New Space Added Since 2007 as of December 2012	Year	Area square metres
Decommissioned – Bay Pavilion RJH Campus	2007	-2,232
Nanaimo Regional General Hospital Perinatal Department	2008	2,189
Victoria General Hospital Emergency Department	2009	1,660
Port Hardy Hospital Multilevel Care Beds	2009	499
Royal Jubilee Energy Centre	2009	218
Nanaimo Regional General Hospital Renal Department	2010	1,109
Cowichan District Hospital Pharmacy	2010	152
Cowichan District Hospital Island Medical Program	2011	219
Royal Jubilee Patient Care Centre	2011	41,139
Decommissioned – South, East and Centre Block RJH Campus	2012	-9,130
Nanaimo Regional General Hospital Emergency Department	2012	6,179

Cowichan Lodge Psychogeriatric & Tertiary Care Facility	2012	603
Saanich Peninsula Hospital Operating Rooms	2012	827
	<b>TOTAL NET NEW</b>	<b>43,432</b>

While building space has been increasing, Island Health has reduced the size of its fleet by 16 vehicles, as well as reduced its paper consumption through device consolidation, double sided printing and going paperless for many processes. It should be noted that going paperless does mean a greater reliance on computers, laptops and tablets. The number of devices purchased each year is increasing.

### Emission Reduction Activities

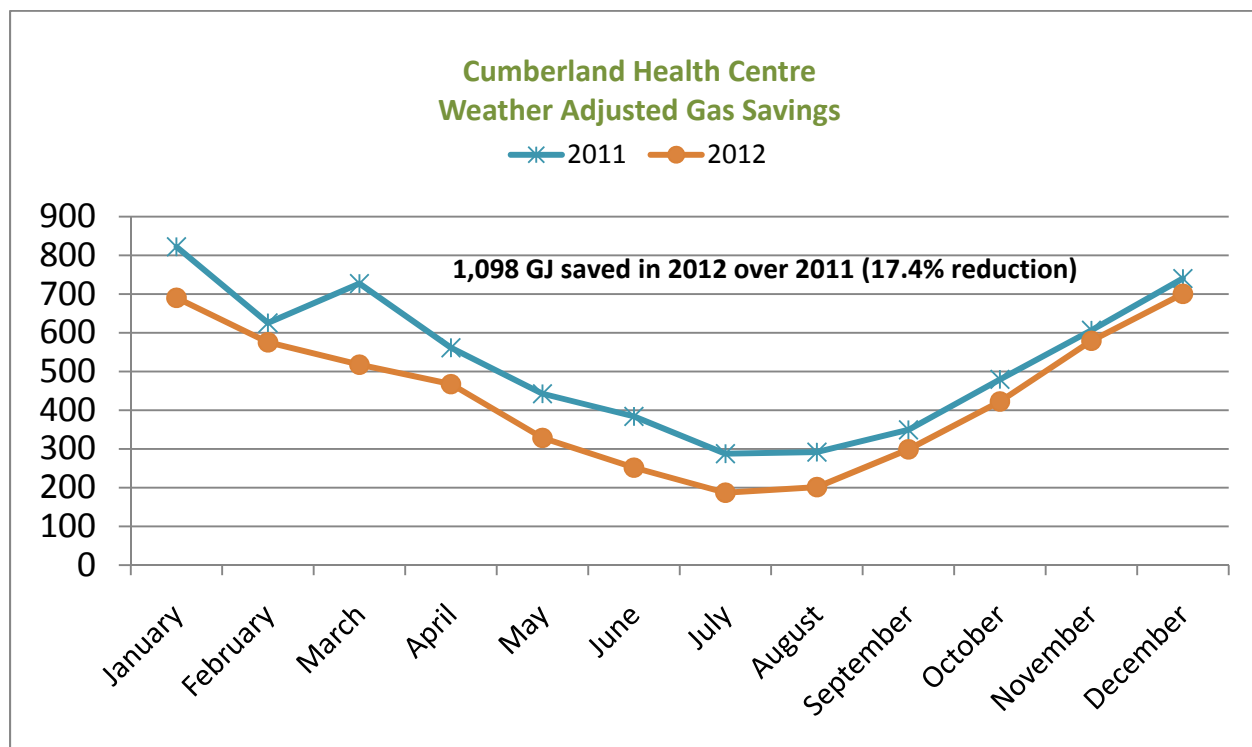
In 2012 Island Health completed all of the PSECA projects as well as participated in many BC Hydro programs that reduce greenhouse gas emissions. These programs include the Continuous Optimization Program at 12 sites, a Behavior Change Program at 5 sites as well as numerous custom agreements resulting from energy audits. Island Health produces a Strategic Energy Management Plan (SEMP) for all of the owned buildings. Following the SEMP has helped Island Health to continue to reduce energy consumption as well as greenhouse gas emissions. Strategic equipment replacement has also resulted in significant heat recovery opportunities such as at Nanaimo Regional General Hospital where a heat recovery chiller was installed to replace an aged chiller. The heat recovery chiller is being used to preheat incoming air and supply water for the domestic hot water systems. This project is showing significant greenhouse gas reductions.

### Public Sector Energy Conservation Agreement Results (PSECA)

Island Health received over \$2,000,000 in PSECA funding. The funding provided was used on some very complex projects within fully operational hospitals. The projects ranged from installing solar collectors, retrofitting ventilation and control systems, and replacing boilers. The following table shows the costs for the various initiatives, the resulting natural gas savings, and the greenhouse gas reduction.

Site Code	Sum of Projected Total Costs [\$]	Sum of Natural Gas Savings [\$/yr]	Sum of GHG Savings [tCO <sub>2</sub> /yr]
Aberdeen Hospital Solar	\$129,600	\$3,038	9
Victoria General Hospital Solar	\$341,750	\$8,124	25
Saanich Peninsula Hospital Solar	\$169,000	\$4,241	13
Nanaimo Regional General Hospital Bundle of Measures	\$556,129	\$58,409	184
Victoria General Hospital Bundle of Measures	\$749,506	\$66,403	196
Cumberland Health Centre	\$424,100	\$47,150	147
	<b>\$2,370,085</b>	<b>\$187,365</b>	<b>574</b>

Replacing aged inefficient boilers with new high efficiency or condensing boilers has provided some significant reductions to emissions. The chart below shows the weather adjusted savings at the Cumberland Health Centre where the boilers were replaced and domestic hot water was decoupled. The savings achieved to date show a 17% reduction in natural gas consumption (see graph below). Similar savings are also being achieved at Ladysmith Health Centre and Victoria General Hospital. Bundled measures at VGH should also provide significant savings. The measures completed included improved controls and installing heat recovery with chillers and stack economizers.



### In Scope Emissions Reductions Activities 5 Year Plan

Major construction projects are constructed to LEED® Gold standards as well as being enrolled in the BC Hydro New Construction Program. This can provide energy efficient buildings but if provincial targets are going to be met then all replacement construction must have emissions targets that are, at minimum, 33% below the 2007 emission levels for the building they are replacing. Net new space would have to be constructed with net zero emissions. This has yet to be achieved at Island Health. Replacing some or all of the natural gas boilers at our largest facilities with low carbon energy systems or connecting to a district energy system with low carbon emissions will ensure that targets are met. Low carbon energy systems can include biomass boilers or heat recovery chillers.

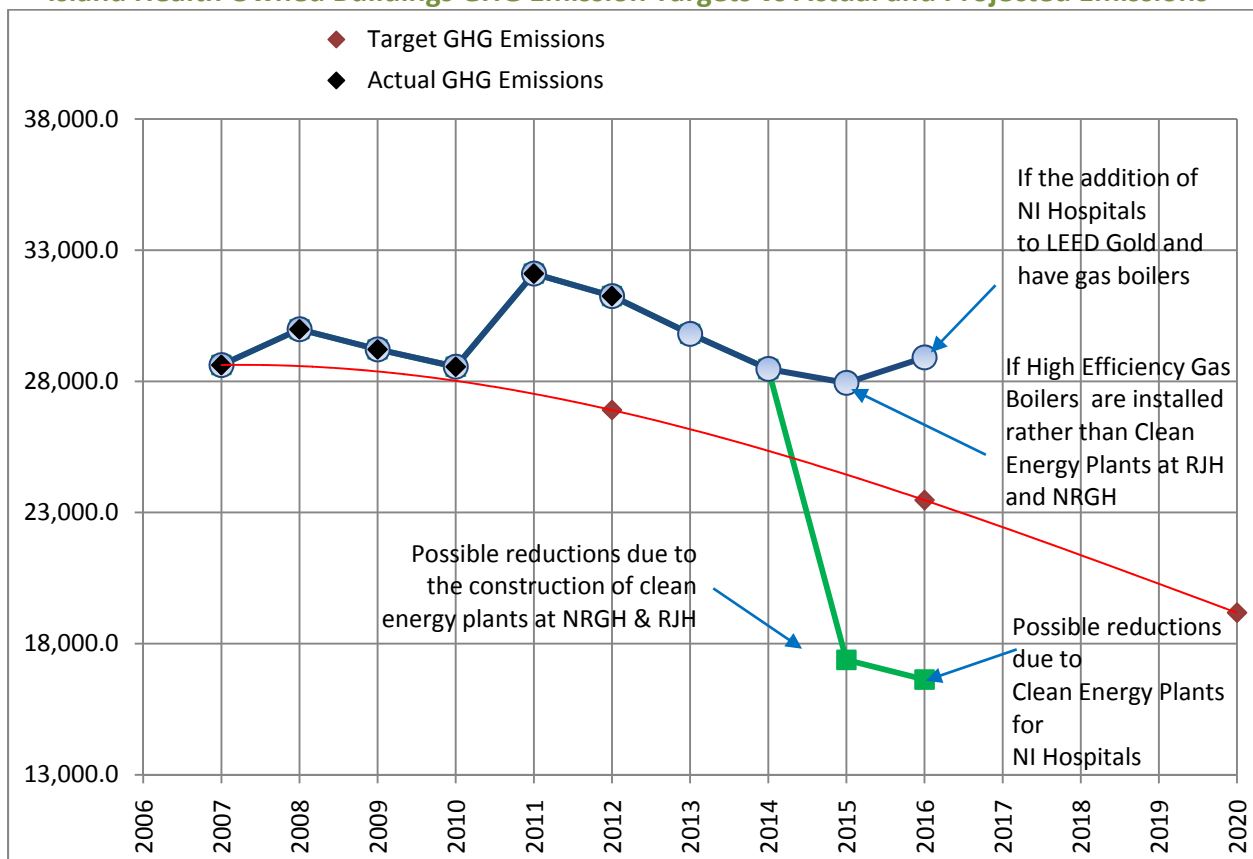
The following table lists projects from our Strategic Energy Management Plan and the expected greenhouse gas emission targets. Also, unless noted as HA funded, all projects will qualify for incentives from BC Hydro or FortisBC.

Year Project Complete	Program Funding	Project Description	GHG Savings [tCO <sub>2</sub> /yr]	
	BOILER	Cowichan Lodge Boiler and DHW upgrade	64	
	CON-OPS	Phase I Continuous Optimization at West Coast General	14	
	CUSTOM (BC Hydro)		Gorge Road Hospital Lighting (interior and exterior)	4
			RJH EMP Stairwell Lighting	2
			Saanich Peninsula Hospital Lighting	7
			WCGH Lighting Upgrade (as per Energy Study)	1
			WCGH Mechanical Upgrades (rebalance air, heat recovery, VFDs, as per Energy Study)	236
			CDH Dishwasher	2
	NEW BUILD	New Construction at Oceanside	5	
	PSPX		Memorial Pavilion, Begbie & TRLL Lighting & Controls	2.3
			Richmond Pavilion Lighting Upgrade	1
			BC Hydro Energy Efficient Purchasing Goal	9
	HA FUNDED	NRGH Chiller & DHW Systems Upgrade	563	
	FORTISBC	Cowichan Lodge Boiler and DHW upgrade	64	
WCAP	Green Team 5% of site gas, 5% of site electrical	467		
<b>2013/14</b>	<b>Total</b>		<b>1,442</b>	
		Phase II Continuous Optimization at Cowichan Lodge	1	
		Phase II Continuous Optimization at Cumberland Health	17	
		Phase II Continuous Optimization at Dufferin Place	19	
		Phase II Continuous Optimization at Glengarry Hospital	16	
		Phase II Continuous Optimization at Gorge Road Hospital	35	
		Phase II Continuous Optimization at Lady Minto Hospital	13	
		Phase II Continuous Optimization at Port Hardy Hospital	8	
		Phase II Continuous Optimization at Yuculta Lodge	15	
		Phase I Continuous Optimization Validation	244	
	BC Hydro	Cumberland Laundry Mechanical Systems Upgrade	149	
	FortisBC	RJH Steam Boiler Condensing Economizer (studied in the Phase 1 report)	424	
	PSPX	BC Hydro PSPX Energy Efficiency Purchasing Goal	13	
	HA FUNDED		Energy Upgrades at Smaller Sites (estimated)	55
		VGH Energy Upgrades (estimated)	93	
		NRGH Energy Upgrades (estimated)	181	
<b>2014/15</b>	<b>TOTAL</b>		<b>1,283</b>	
	CON-OPS	Phase III Continuous Optimization at Royal Jubilee Hospital	154	
		Phase III Continuous Optimization at Victoria General Hospital	154	
		Phase III Continuous Optimization at Nanaimo Regional Hospital	154	

	PSPX	BC Hydro PSPX Energy Efficiency Purchasing Goal	13
	ISLAND HEALTH FUNDED	Energy Upgrades at Smaller sites (Estimated)	55
		Low-Carbon Energy Plant at RJH	7,526
		Low-Carbon Energy Plant at NRGH	3,034
<b>2015/16</b>	<b>TOTAL</b>		<b>11,090</b>
		Phase I Con-ops Validation & Third Claim	
	NEW CONSTRUCTI ON	New Campbell River Hospital	934
		New Comox Valley Hospital	(196)
	PSPX	PSPX Goal	13
<b>2016/17</b>			<b>751</b>

A graphical representation of this plan is shown below. The red line represents Island Health's target emission to meet Bill 44, the blue line represents business as usual case (which includes energy conservation), and the green line represents the impact of low carbon energy plants at RJH and NRGH as well as at the new North Island Hospitals:

#### Island Health Owned Buildings GHG Emission Targets vs Actual and Projected Emissions





## Initiative to Reduce Provincial Emissions and Improve Sustainability

Municipal Governments on Vancouver Island are working on strategies to reduce their carbon emissions and Island Health has contributed to their Official Community Plans and Carbon Reduction Strategies. The Capital Regional District of Victoria is looking at several Island Health sites to see if there is potential to extract heat from sewage transfer stations or large domestic water supply lines near the facilities. The City of Port Alberni is in the planning stages to provide district energy supplied hot water to the hospital.

On a provincial level the Director of the Energy Efficiency and Conservation Department is the Chair for the Provincial Environmental Technical Team (PETT) and works with other Provincial Sector Organizations on the Carbon Neutral Action Committee. Both groups are working to bring about environmental changes to the province's public buildings and operations. This includes working with the Pacific Carbon Trust to identify potential offset projects within health care. In addition, PETT is working with Pacific Carbon Trust to identify out-of-scope offset projects within health care.

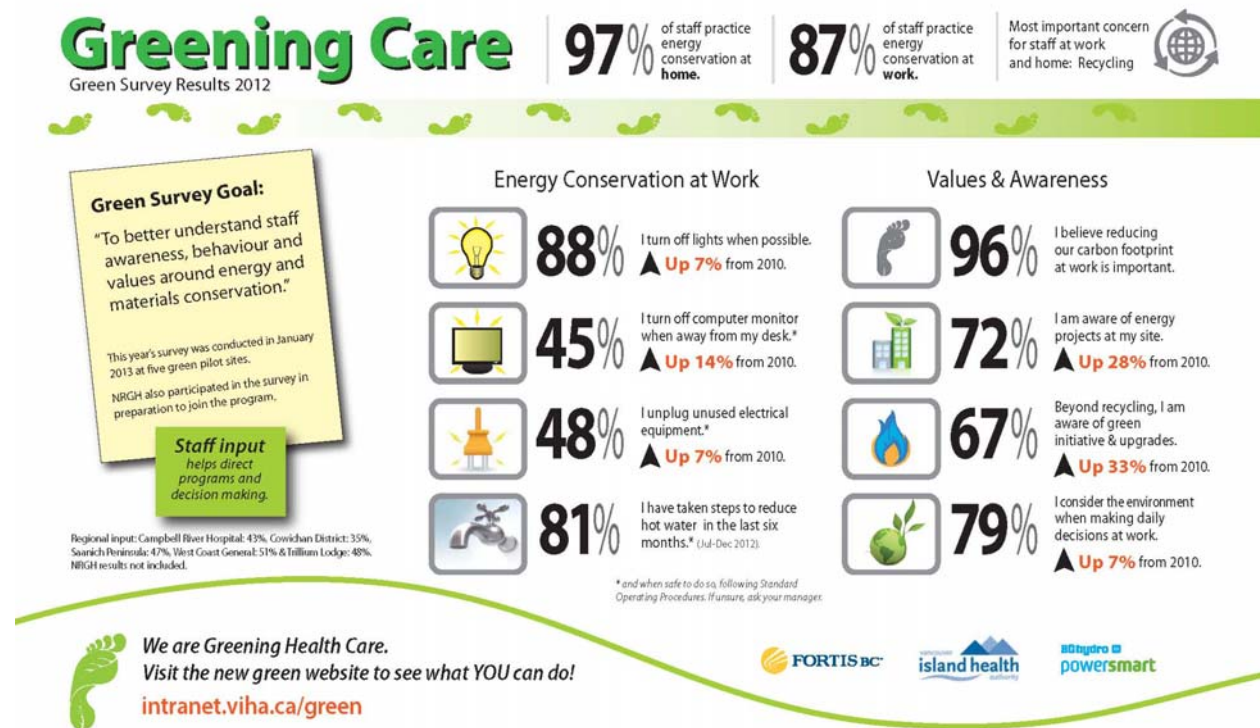
District Energy – District Energy Systems (DES) have been integral in Northern European communities lowering their greenhouse gas emissions and building energy densities. Neighborhoods supplied by a local energy plant allow heat recovery, plant efficiency and use of local or alternate energy to be maximized. Island Health is in discussions with the following communities regarding potential projects:

Site	Location	System
RJH	Royal Jubilee Hospital - Victoria	Completed feasibility study – base plant biomass expanded out to district energy system was cost effective.
QAC	Queen Alexandra Centre for Children- Victoria	Sewage Heat Recovery – heat and technology available.
SPH	Saanich Peninsula Hospital - Saanich	Water Heat Recovery – heat and technology available.
OBL	Oak Bay Lodge – Oak Bay	Sewage Heat Recovery – heat and technology available.
VGH	Victoria General Hospital	Heat supplied from water mains – heat and technology available.
LCHC	Ladysmith Community Health Centre	Hot water supplied to school, LCHC, and long term care facility.
NRGH	Nanaimo Regional General Hospital	Completed feasibility study – base plant biomass expanded out to campus and possibly DES was cost effective.
WCG	West Coast General – Port Alberni	Municipal run district energy system.
NIH CV	North Island Hospital Comox Valley	Municipality is interested in a district energy system being installed.
NIH CR	North Island Hospital Campbell River	Municipality is interested in a district energy system being installed.

Some of the barriers to District Energy Systems going forward from idea to implementation include the need for capital, who will own and operate the system, and existing building stock being district energy system ready.

## Greening Care in 2012 – Info Graphic Results from a Staff Survey...

There is a great deal of potential energy and carbon reduction savings available by engaging the employees that work at Island Health in reduction strategies. There are five sites that have participated in Green Team activities and are working with the Green Team leads on developing programs. The following graphic highlights the results of our second year survey. One site, Trillium Lodge in Parksville, has been monitored and has consistently produced a 10% reduction since the Green Team's inception. They are showing us what is possible.



# Vancouver Island Health Authority (VIHA) - 2012 Carbon Neutral Action Report

## Actions Towards Carbon Neutrality

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

Action	Status	Steps Taken	Steps Planned	Start Year	End Year
<b>Mobile Fuel Combustion (Fleet and other)</b>					
<b>Behaviour change program</b>					
Introduce anti-idling policy and/or raise anti-idling awareness for fleet drivers (e.g., signs, stickers, messages)	In Development	Installed anti idling signs provided by the Provincial Government at various sites.	Continue to encourage and develop some metrics.	2012	No End Date (Continuous)
Encourage carpooling in fleet vehicles	Ongoing/In Progress	Encourage staff to car pool. When staff call to book a car they are asked if it is for a meeting and if other attendees could car pool with them.	Continue to promote car pooling and developing some metrics.	2008	No End Date (Continuous)
Promote alternatives to fleet vehicle travel where possible (e.g., bicycles, public transit, walking)	Ongoing/In Progress	Increased number of shuttles available to staff for attending meetings and also during peak commute periods. Increased number of vehicles and runs for peak times.	Continue to promote shuttle.	2009	No End Date (Continuous)
<b>Vehicle fuel efficiency</b>					
Replace vehicles with more fuel-efficient models	Ongoing/In Progress	Started in 2010. Replaced 6 vehicles and retired 16 vehicles. Fleet has decreased down to 175 vehicles.	Continue with replacement as funding permits. No current plans for fuel switching.	2010	No End Date (Continuous)
Replace larger vehicles with smaller models according to fleet "right-sizing" principles	Ongoing/In Progress	Include compact size car as a part of the renewal process, replacing Neons and Chryslers with Echo and Corolla or comparable fuel efficient car.	Continue to downsize and include fuel efficiency as a major consideration when purchasing. Alternate fuels not considered at this time.	2010	No End Date (Continuous)
Perform regular fleet maintenance to improve fuel-efficiency	Ongoing/In Progress	Trucks serviced twice per year as per federal regulation. Cars serviced at a minimum twice per year or as required depending on mileage.	Continue to service vehicles.	2009	No End Date (Continuous)
<b>Stationary Fuel Combustion, Electricity</b>					
<b>Behaviour change program</b>					
Help staff reduce personal energy use through "workstation tune-ups"	Ongoing/In Progress	<p>Turn It Off Campaign included turn off monitors and other workstation actions such as using a powerbar for phantom loads and turning off at end of day.</p> <p>Annual Green survey included this question: "I turn my computer monitor off when I am away from my desk.* *...and when safe to do so, following Standard Operating Procedures. If unsure, ask your manager." Staff report 45% participation, up 14% from 2010 baseline.</p> <p>Green Tips on new Green VIHA web site.</p> <p>Developed/modified a "Tool Kit" for individual "champion" employees to do self-directed energy conservation actions.</p>	<p>Continue with Green Teams at existing five pilot sites, with one focused campaign on electricity.</p> <p>Seek VIHA's IMIT department approval for messaging regarding workstation actions in the Tool Kit.</p> <p>Pilot the champion pilot program at one additional new site and provide Tool Kits.</p>	2008	No End Date (Continuous)
Ask staff to unplug electrical equipment or switch off power bars when not in use	Ongoing/In Progress	<p>Completed Electrical Campaign including unplugging electrical equipment. Included event with PowerPoint Quiz presentation and trade show booth display with large 2'x3' reusable laminated "Unplug" poster.</p> <p>Included plug load question on annual Green survey held Oct/Nov: "I unplug unused electrical equipment.* *and when safe to do so, following Standard Operating Procedures. If unsure, as your manager."</p>	<p>Continue with Green Teams and add one more site.</p> <p>Plan to have an electricity conservation campaign.</p> <p>Results from 2012 Green survey showed staff reporting 48% participation for plug loads - up 7% from the 2010 baseline.</p> <p>The survey results were turned into an attractive "info-graphic" and published on VIHA's electronic staff newsletter.</p>	2008	No End Date (Continuous)

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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	Steps Taken	Steps Planned	Start Year	End Year
		Green Tip "Unplug when not in Use and Save" - week of Sep 5, 2012 Green Tips on new Green VIHA web site.	We plan to include this question in the 2013 Green survey.		
Ask staff to unplug electrical equipment or switch off power bars when not in use	Ongoing/In Progress	(Same reply as "Unplug Electrical" section above.)  Completed Electrical Campaign including unplugging electrical equipment.	(Same reply as "Unplug Electrical" section above.)  Continue with Green Teams and add one more site.	2008	No End Date (Continuous)
Ask staff to close blinds at end of work day to reduce heating/cooling demands	In Development	Continue with Green Team and add 1 more site.  Green Tips on new Green VIHA web site. Published 2 Green Tips (with image) around blinds on two different topics:  - Close Blinds / Keep Heat Out - "Cool Off Efficiently - Use your Blinds to Block out Heat" Published twice once on July 10, 2012, and for a week in the electronic newsletter the week of July 11, 2012.  - Close Blinds / Keep Heat in - "Heat Your Workplace Efficiently" - published for a week starting Oct 10, 2012.	Continue with Green Teams and add 1 more site.  Continue promoting effective use of blinds with Green Tips.	2008	No End Date (Continuous)
Encourage staff to use air dry setting on dishwashers	Ongoing/In Progress	Held "Reduce Hot Water" Campaign at five green team sites - Quiz show questions and displays included dishwasher efficiency and dry setting.  The Capital Regional District Outreach Team, attended with a table display and brochures at the Saanich Green Team event. FortisBC Outreach Team attend as well and had banners about dishwasher efficiency.	Continue with Green Teams and add 1 more site.  Publish a "Dishwasher Dry Setting" Green Tip (must get Communications and Infection Prevention and Control approval in advance)	2008	No End Date (Continuous)
Provide tips to staff on saving energy in the office while working outside of regular business hours	Ongoing/In Progress	Electrical Campaign at 5 sites. Staff are encouraged to turn off lights, computer monitors and equipment after business hours.* *if it is safe to do so.  Green Tips on new Green VIHA web site.	Continue with existing Green Teams and add 1 more site.	2008	No End Date (Continuous)
Provide reminders for turning off lights (e.g., signs, stickers, messages)	Ongoing/In Progress	Completed Electrical Campaign including Turn Off Lights messaging. Included event with PowerPoint Quiz presentation and trade show booth display with posters.  Included lights question on annual Green survey held Oct/Nov: "I turn off lights when possible." Has 88% reported participation, up 7% from 2010 baseline.  Green Tip - "Turn Off Lights Not Being Used" published Oct 17, 2012. Green Tip - "Consider Task Lighting" published Oct 30, 2012.	Continue with existing Green Teams and add one more site (provide Tool Kits for champions).  Hold annual electricity campaign / event.  Designed, printed and delivered new happy face style of "Turn It Off" stickers.	2008	No End Date (Continuous)

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
		Green Tips on new Green VIHA web site.			
Promote hot water conservation	Ongoing/In Progress	<p>Designed and delivered a "Reduce Hot Water" Campaign at five green team sites - Quiz show questions and displays included dishwasher efficiency and dry setting.</p> <p>The Capital Regional District outreach team attended with table display and brochures at the Saanich Green Team event. FortisBC outreach team attended as well and had banners about dishwasher efficiency.</p> <p>Annual Green survey includes this question: "I have taken steps to reduce hot water in the last six months" (Jul-Dec 2012) with an 88% reported participation rate. We also asked staff if they would like to attend another water campaign in the future and had positive response.</p> <p>Green Tip "Run Washer Only When Fully Loaded" published Sep 19, 2012.</p> <p>Green Tip "Kettle - Use Only water you need" published Nov 13, 2012.</p>	<p>Continue collaborating with Public Sector Organizations.</p> <p>2012 Green Survey published in electronic weekly staff newsletter as well as on new Green VIHA web site.</p> <p>2012 survey posters posted on Green bulletin boards at each Green Team site.</p> <p>Green Tips on new Green VIHA web site.</p>	2009	No End Date (Continuous)
<b>IT power management</b>					
Install power management software which shuts down computers outside of regular business hours	In Development	VIHA has planned to implement this action this year. Desktop Services was centralized into HSSBC. Software not provided with new installs.	Requires Ministry to intervene and change contract to add software.	2009	No End Date (Continuous)
Implement server virtualization	Ongoing/In Progress	There are 261 virtual servers and 310 physical servers. Demand for physical servers is high.	Continue with virtualization program.	2009	No End Date (Continuous)
Apply auto-sleep settings on computer monitors and CPUs	Ongoing/In Progress	90% of machines have a variant of a power saving mode suited to the area of use. Desktops in non critical patient care areas go into sleep mode.	Continue with program.	2009	No End Date (Continuous)
Remove stand-alone printers, copiers, and/or fax machines and install multi-function devices as part of a print management strategy	Ongoing/In Progress	Project to reduce print devices from 2700 units to 1650 units is 75% complete.	Multi-function devices installation progress to date is 40% - 65%. Multi-function devices deployed will be 90% complete by June 2013.	2009	No End Date (Continuous)
Apply auto-sleep settings on printers, fax machines, and/or multi-function devices	Ongoing/In Progress	All network printers have Auto-sleep.	All consolidated devices will provide savings. Econo mode and auto power saving mode is default setting on all print devices.	2009	No End Date (Continuous)
Replace computers with ENERGY STAR models during regular computer upgrades	Ongoing/In Progress	All equipment available as Energy Star is purchased.	Continue with program.	2009	No End Date (Continuous)
<b>Owned buildings</b>					
Establish energy performance baseline for owned buildings	Ongoing/In Progress	Energy baselines are completed at the majority of the owned buildings. Some small sites have not been included.	Implement water monitoring and baseline for owned buildings.	2010	No End Date (Continuous)
Register for performance labelling/certification for operations and maintenance of owned buildings (e.g., LEED EB:O&M)	Ongoing/In Progress	RJH Patient Care Centre ( PCC) awarded LEED Gold designation. The NRGH ER, constructed to LEED Gold standards, opened October 2012 and is also enrolled in the BC Hydro New Construction Program. Oceanside Health Centre constructed to LEEDS NC Gold Standard is enrolled in the BC Hydro New Construction Program.	Design North Island Hospitals to LEED Gold standard and enroll in the BC Hydro New Construction Program	2008	No End Date (Continuous)
Register for performance labelling/certification for commercial interiors of owned buildings (e.g., LEED CI)	Not Yet Evaluated				No End Date (Continuous)

## Vancouver Island Health Authority (VIHA) - 2012 Carbon Neutral Action Report

### Actions Towards Carbon Neutrality

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

Action	Status	Steps Taken	Steps Planned	Start Year	End Year
Achieve LEED NC Gold certification at a minimum for new construction or major renovations	Ongoing/In Progress	RJH Patient Care Centre awarded LEED GOLD NC 2012.	Will be applying for NRGH ED LEED GOLD NC certification.  Will also be applying for Oceanside Health Centre for LEED GOLD NC	2012	No End Date (Continuous)
Perform energy retrofits on existing, owned buildings	Ongoing/In Progress	Boiler and water heater replacements, controls upgrades, heat recovery, lighting upgrades, recommissioning and continuous optimization and high-efficiency motors, coil cleaning, solar thermal, kitchen appliance replacements, insulation repairs and new more efficient heat pumps.	Continue with past initiatives where applicable as well as heat recovery chillers and low carbon energy plants.	2009	No End Date (Continuous)
Incorporate a refrigerant management strategy into regular building management/maintenance to reduce fugitive emissions	Ongoing/In Progress	Continued to use service contractors.	Continue to require this from service contractors.	2009	No End Date (Continuous)
<b>Planning/management</b>					
Reduce office space (square meters) per employee	Ongoing/In Progress	Space Planning follows Ministry of Health Guidelines and makes every effort to optimize space.	Continue to follow Ministry of Health Guidelines.	2008	No End Date (Continuous)
Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)	Ongoing/In Progress	Installed pulse metering all owned sites except the very smallest sites. Trained FMO staff to use Pulse. Continue to use it for reports.	Develop reports, dashboards and train staff.	2009	No End Date (Continuous)
<b>Retrofit details for owned buildings</b>					
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress	Retrofits are reviewed and where feasible energy efficient options are included.	Review all projects for potential retrofits, and rebates, estimate projects with retrofit included.	2008	No End Date (Continuous)
Upgrade lighting systems during retrofits	Ongoing/In Progress	Ongoing lighting retrofits through out owned buildings.	Continue upgrading lighting to achieve optimal efficiency.	2009	No End Date (Continuous)
Upgrade/adjust control systems during retrofits	Ongoing/In Progress	Continue upgrading controls through building renovations, retro commissioning and BC Hydro programs.	Continue with control upgrades.	2009	No End Date (Continuous)
Improve building insulation (including windows) during retrofits	Ongoing/In Progress	When areas are renovated sufficiently that insulation is affected the insulation and or windows are improved. Trillium Lodge and Cumberland Lodge being done with a Capital Request for NRGH.	Upgrade systems as budgets and projects allow.	2009	No End Date (Continuous)
<b>Supplies (Paper)</b>					
<b>Behaviour change program</b>					
Train staff to use collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	Ongoing/In Progress	Training available through Human Resources.  OSC - on demand editing and document share available for all workstations.	Continue with program.	2010	No End Date (Continuous)
Encourage staff to hold paperless meetings or presentations (i.e., no handouts)	Ongoing/In Progress	Encourage staff to send electronic notes for meetings instead of providing printed copies. Increased use of electronic files, laptops and projectors has reduced paper at meetings.  Story in "Currents" staff newsletter "Documents Online to save Paper" July 6, 2012 Green Tip "Choose Paper Recycled Content" May 22, 2012 "Use a Laptop & Save Energy" Aug 01, 2012 Green Tip "Think Before You Print" Sep 26, 2012  Green Tips on new Green VIHA web site.	Continue with program. Continue with Green Tips.	2009	No End Date (Continuous)



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<b>Electronic media in place of paper</b>					
Install collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	Ongoing/In Progress	1243 Microsoft OCS users at this time. The service is free of charge. Approximately 700 people use the service at any given time.	Continue with the program.	2010	No End Date (Continuous)
Use electronic document library for filing common documents	Ongoing/In Progress	Shared drives are used throughout the organization. Electronic distribution of work binders. Sharepoint and intranet.  Wireless access at each VIHA site allows staff to operate well portably and can access their drives and home drive as well, decreasing the need to have printed copies.	Continue with the program.	2009	No End Date (Continuous)
Switch to an electronic payroll notification system in place of paper pay stubs	In Development	Reviewing two options.  Staff get a paper pay stub plus funds are electronically deposited in to staff bank accounts.	Select option and implement program.	2010	No End Date (Continuous)
<b>Other Paper Supplies Actions</b>					
Increase use of electronic files, laptops and projectors has reduced the paper at meetings.	Ongoing/In Progress	Increase the use of electronic files, laptops and projectors to reduce the amount of paper handouts, etc, at meetings and presentations.	Continue with program.	2009	No End Date (Continuous)
<b>Paper Type</b>					
Purchase 30% post-consumer recycled paper	Ongoing/In Progress	Recycled paper is the most economical option.	Recycled content will be purchased on a cost basis unless a sustainable purchasing policy is adopted.	2011	No End Date (Continuous)
Purchase 100% post-consumer recycled paper	In Development	Talked to Printing Services about the desirability and possibility of having post consumer content.	Will discuss the possibility of making 100% recycled content the norm with decision makers.  Continue with trials and review of cost effective paper products.	2012	No End Date (Continuous)
<b>Printer/document settings</b>					
Switch networked printers and photocopiers to automatic double-sided	Ongoing/In Progress	Double sided printing is now the default on all business printers as set by IMIT. Personal devices still need to be manually changed.	Default to double sided printing on all business printers.	2011	No End Date (Continuous)

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### Actions to Reduce Provincial Emissions and Improve Sustainability

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
<b>Business Travel</b>					
<b>Behaviour change program</b>					
Train staff in web-conferencing	Ongoing/In Progress	Live support available on demand within each video conferencing room.	Continue with program.	2009	No End Date (Continuous)
Encourage staff to consider virtual attendance/presentation at events where possible	Ongoing/In Progress	Audio and / or video conferencing is used for regional meetings.	Continue with program. Develop some metrics.	2009	No End Date (Continuous)
Encourage carpooling to meetings	Ongoing/In Progress	Car pooling is encouraged as is VIHA's ride share shuttle between VGH and RJH.	Continue with program. Develop some metrics.	2008	No End Date (Continuous)
Encourage alternative travel to meetings (e.g., bicycles, public transit, walking)	Ongoing/In Progress	Public transit travel costs are reimbursed for VIHA business.	Continue with program. Develop some metrics.	2008	No End Date (Continuous)
<b>Other Business Travel Actions</b>					
Provide training online	Ongoing/In Progress	New employees are able to take the new orientation training online. This will reduce travel to and from large meeting areas.	Continue with online program.	2012	No End Date (Continuous)
<b>Policy and budgeting</b>					
Create a low-carbon travel policy or travel reduction goal	Not Yet Evaluated				No End Date (Continuous)
<b>Virtual meeting technology</b>					
Install web-conferencing software (e.g., Live Meeting, Elluminate, etc.)	In Development	Software is being made available.	Continue with program - staff training on use of software is necessary to increase use. No plans at this time to promote the software.	2009	No End Date (Continuous)
Make desktop web-cameras available to staff	Not Yet Evaluated				No End Date (Continuous)
Install video-conferencing units in meeting rooms or provide mobile video-conferencing units	Ongoing/In Progress	Video conferencing already in place in dedicated video conferencing rooms.	Continue with program and support for users.	2009	No End Date (Continuous)
<b>Education, Awareness, and Engagement</b>					
<b>Awards/Recognition</b>					
Establish a sustainability/green awards or recognition program	Ongoing/In Progress	<p>Hosted five "Celebrations" at the end of the year and presented framed Certificates of Recogniton to the Site Administrator and Green Team, and Certificates of Appreciation to the Manager of Facilities, Maintenance and Operations. Representatives from the utilities, the local town council and VIHA Executive attended final Celebration.</p> <p>"Good News" story on the Green intranet site with photos of the two Celebration of Excellence events held for two head electricians to recognize their leadership and the massive energy savings.</p> <p>Some Green Team sites have a "Caught Green Handed" program to reward staff for green actions.</p>	Will continue to use a combination of VIHA-sponsored Celebration of Excellence awards as well as our Green Celebrations and intranet web site to recognize and reward employees.	2011	No End Date (Continuous)
<b>Staff Professional Development</b>					
Support green professional development (e.g., workshops, conferences, training)	Ongoing/In Progress	<p>Energy Team members:</p> <ul style="list-style-type: none"> <li>- attended BC Hydro sponsored and FortisBC sponsored training</li> <li>- presented at FortisBC and Douglas College</li> <li>- attended NRCAN Spot the Savings Seminars</li> </ul>	<p>BC Hydro and Fortis BC training</p> <p>BC Hydro Forum</p> <p>CHES</p> <p>CCHL Conference to receive 2013 Energy Efficiency &amp; Environment Award</p>	2009	No End Date (Continuous)



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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
		<ul style="list-style-type: none"> <li>- attended CHES conference</li> <li>- attended APEG seminar on energy efficiency in building envelopes</li> <li>- webinars on Carbon Neutral reporting and offsets</li> </ul>	Celebrate being Carbon Neutral Fostering Sustainable Behaviour Workshop		
<b>Staff awareness/education</b>					
Provide education to staff about the science of climate change	In Development	New Green intranet site has page on climate change with links to government sites.  Every Green campaign event presentation includes a "Why are we doing this" slide with climate change and carbon offsets as key reason.  BC Hydro's keynote speaker spoke on climate change at 2012 Forum.  Energy Team member received Permaculture Design Certificate and training.	Attend Climate Change Symposium at Vancouver Island University. Capital Design and Construction project managers attend webinar on "Preparing Health Care Facilities in Canada for Climate Change", hosted by the Coalition for Green Health Care.	2012	No End Date (Continuous)
Provide education to staff about the conservation of water, energy, and raw materials	Ongoing/In Progress	Now have third and fourth solar installations located at Aberdeen Hospital and Saanich Peninsula Hospital operational and working on getting functioning dashboards.  See "Behaviour Change Training" for energy conservation campaigns.	Plans to make the dashboard for solar energy available on public and internal web sites.  Researching the possibility of solar thermal and solar PV for remote sites to reduce the demand, emissions and cost of propane.  Researching biofuel to see if it would be accessible and viable.  Research and design a behaviour change pilot based on reducing unnecessary use of laundry and therefore reducing natural gas, electricity, water, detergents, transportation and less wear on linens and equipment -and less carbon emissions.	2011	No End Date (Continuous)
Provide green tips on staff website or in newsletters	Ongoing/In Progress	Published four articles in the "Currents" newsletter.  Published 27 Green Tips on intranet.  Redesigned internal Green web site with over 20 pages of content.  Posted "Greening Our Practice" video on intranet and external web site.  New electronic "eWeekly" introduced by VIHA and open to Green tidbits and stories.	Continue with Green Tips and Green stories in the "Currents" and "eWeekly" and update and promote events on the Green intranet web site as per Communications Plan.	2011	No End Date (Continuous)
Provide sustainability education during new staff orientation	Ongoing/In Progress	Energy efficiency and sustainability slides are now included in New Employee Orientation presentation.  Energy team presented coaching to Housekeeping at Green team sites to encourage and empower them to turn off lights and other	Provide Green tips and other information on other Green Initiatives.  Look into the possibility of sharing Green lab/recycling tool-kits developed by Lower Mainland Health Authorities.	2010	No End Date (Continuous)

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
		<p>equipment and save other resources, when safe to do so.</p> <p>Continue to feature Green video on external and intranet site.</p>			
<b>Team-building</b>					
Create Green, Sustainability, Energy Conservation, or Climate Action Teams with executive endorsement	Ongoing/In Progress	<p>Five pilot sites have active Green Teams.</p> <p>Green Communication Lead established. Discussions began with VIHA's Communication Department in an effort to encourage our access and to attempt to pre-book space to publish Green stories in the newsletter and include a Green Tip on the intranet home page.</p> <p>Created 2012/13 Communication Plan and asked VIHA's Communications Department to hold space and dates for Green stories four times per year.</p>	<p>Continue rollout of program to existing five sites.</p> <p>Roll out Communications Plan.</p>	2009	2009
Provide resources and/or dedicated staff to support teams	Ongoing/In Progress	<p>Energy Team at VIHA gets final member making a group of seven.</p> <p>Energy Team members support the site Green Teams with monthly meetings, energy walk throughs, posters and stickers, Green intranet site, and three or four events per year.</p> <p>Energy Team members reply to blog comments generated from Green Tips.</p> <p>Energy Team collaborated with Douglas College to create and host a seminar specifically aimed at our FM&amp;O staff and focused on energy efficiency and conservation.</p>	<p>Continue rollout of program.</p> <p>Research possibility joining "Green Care" program on the Mainland that is hosting a Green web site with a target audience of all Health Authorities' employees across the province.</p>	2010	No End Date (Continuous)
Providing behaviour change education/training to teams (e.g., community-based social marketing)	Ongoing/In Progress	<p>Conducted annual Green survey and created info-graphic and reported back to staff. Posted story on Green intranet and submitted to newsletter.</p> <p>Employee awareness and behaviour change consisting of Turn-It-Off campaign and Reduce Hot Water campaign with quiz show and prizes.</p> <p>Created posters, graphics for trade show booth, email blasts and prompts.</p> <p>Conducted monthly electricity energy walk about audits.</p> <p>Celebrated success at year end (see Green Award section)</p>	<p>Rollout of program.</p> <p>Hold Green recruitment event.</p> <p>Develop "long lasting" posters with beautiful image and energy conservation message.</p> <p>Develop and pilot campaign kits based on individual participation and introduce at one large hospital on a department by department basis.</p>	2010	No End Date (Continuous)

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
<b>Other Sustainability Actions</b>					
<b>Adaptation to Climate Change</b>					
Assessed whether extreme weather events and/or long term changes in climate will affect the organization's business areas	Not Yet Evaluated				No End Date (Continuous)
Integrated considerations of extreme weather events and/or long term changes in climate into the organization's decision making.	Not Yet Evaluated				No End Date (Continuous)
<b>Building construction, renovation</b>					
Establish a policy to reuse materials where possible and divert construction and demolition debris from landfills and incineration facilities	Ongoing/In Progress	LEED Gold construction for new buildings incorporates this. Sites recycle materials when service is available.	Continue with the program.	2009	No End Date (Continuous)
Incorporate lifecycle costing into new construction or renovations	Not Yet Evaluated				No End Date (Continuous)
<b>Commuting to and from home</b>					
Introduce telework/work from home policy	Not Yet Evaluated				No End Date (Continuous)
Offer staff a compressed work week	Ongoing/In Progress	Alternate Work Week policy in place.	Develop some metrics as to what GHG savings are.	2008	No End Date (Continuous)
Encourage commuting by foot, bicycle, carpool or public transit	Ongoing/In Progress	Transit increased Propass subsidies rate to \$15.00 per pay period. Staff participates in Bike to Work Week program promoted in Green Video.	Continue to review and promote.	2008	No End Date (Continuous)
Provide shower or locker facilities for staff/students who commute by foot or by bicycle	Ongoing/In Progress	New space provided as new areas are developed such as the new ED at NRGH.	New space will be provided as areas are developed.	2009	No End Date (Continuous)
Provide secure bicycle storage	Ongoing/In Progress	Installed reclaimed bike storage lockers at smaller sites.	Planning in process to increase secure bike storage at NRGH.	2008	No End Date (Continuous)
<b>Other Sustainability Actions</b>					
Implement electronic systems to reduce the use of paper by Human Resources	Ongoing/In Progress	Human Resources has changed the hiring system to electronic as well as performance evaluations.	Convert Gallup Polling of staff to electronic. The last time the survey was run it was delivered via paper and email; it was approximately an 80/20 % split respectively. For 2013 the survey will be fully electronic.	2011	2014
Purchase equipment that uses less energy or resources	Ongoing/In Progress	Purchased new print machine that uses less power, less toner and has automatic shut off. Machine produces more, herefore fewer machines are required.	Purchase energy efficient equipment.	2008	No End Date (Continuous)
<b>Procurement (non-paper supplies)</b>					
Incorporate minimum recycled content standards into procurement policy for consumable, non-paper supplies (e.g., writing instruments, binders, toner cartridges, etc.)	In Development	A sustainable procurement policy was developed by HSSBC but was not approved.	Requires Ministry intervention for a policy to be implemented.	2009	No End Date (Continuous)
Establish green standards for goods that are replaced infrequently and/or may require capital funds to purchase (e.g., office furniture, carpeting, etc.)	In Development	A sustainable procurement policy was developed by HSSBC but was not approved. Purchasers with VIHA look for opportunities that could reduce energy consumption.	Requires Ministry intervention for a policy to be implemented.	2009	No End Date (Continuous)
Implement sustainable purchasing program for cleaning products, disposable paper products and trash bags	Not Yet Evaluated				No End Date (Continuous)
<b>Waste reduction/diversion</b>					
Put in place an operations policy to facilitate the reduction and diversion of building occupant waste from landfills or incineration facilities	Ongoing/In Progress	Recycling available at majority of sites dependant on municipal programs. Most sites with operating facilities also have (outside agency) recycling of used equipment or refurbishing and reuse of operating tools.	Capital Regional District has new kitchen and yard compost program - will this come to institutions too? Research recycling plastics in labs. Research recycling or repurposing gel packs that labs get with cold	2008	No End Date (Continuous)

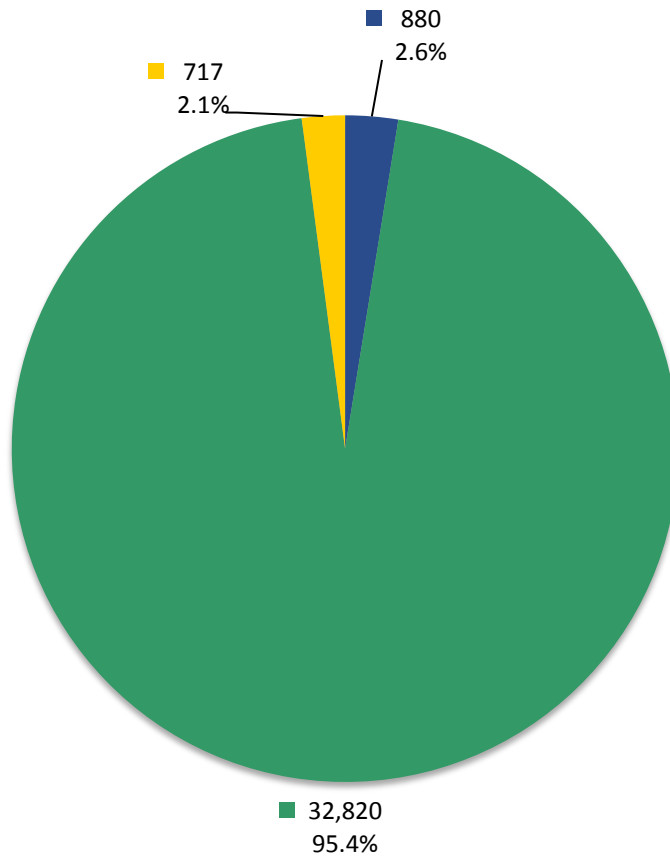
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		<p>Battery recycling now at most sites. Commercial compost pick up from kitchens where services are available.</p> <p>"Recycling Checklist" poster designed and posted at Green Team sites.</p> <p>Old furniture and linen that is at end of life is donated to charity.</p> <p>Emergency back up generator's oil is now polished instead of burning and replacing.</p>	<p>drugs.</p> <p>Add additional recycling streams.</p>		
Implement a hazardous waste reduction and disposal strategy	Ongoing/In Progress	<p>Hazardous waste disposal system in place.</p> <p>Florescent bulbs used to be crushed on site and the remains sent for disposal. New provincial program now has intact bulbs being sent to recycling centers.</p>	Continue with disposal system.	2008	No End Date (Continuous)
<b>Water conservation</b>					
Establish a water conservation strategy which includes a plan or policy for replacing water fixtures with efficient models	Ongoing/In Progress	<p>For new construction and replacements installing hands free and low flow toilets.</p> <p>Where appropriate auto shut off faucets are used.</p> <p>Conducted a Reduce Hot Water behaviour change campaign at five sites.</p>	<p>Continue with replacement program.</p> <p>New construction to consider elements such as Green roofs and water catchment for irrigation under LEED design.</p> <p>Research and design a Less Laundry behaviour change campaign to pilot in a few Long Term Care sites.</p>	2009	No End Date (Continuous)
Put in place a potable water management strategy to reduce potable water demand of building-level uses such as cooling tower equipment, toilet fixtures, etc. and landscape features	In Development	<p>Piloted a Green Team behaviour change campaign to reduce water.</p> <p>Flow through cooling equipment at large site (VGH) replumbed to feed other equipment instead of going down the drain saving a large amount of water per year.</p>	<p>Design and pilot Less Laundry campaign targeting Long Term Care.</p> <p>Send staff to training for irrigation management.</p>	2011	2014
Introduce a stormwater management landscape strategy (e.g., vegetated roofs, permeable paving, rain gardens, bioswales)	Ongoing/In Progress	Nanaimo's new ER addition included swales to handle parking lot run off.	<p>The two new North Island Hospitals are being built to LEED standards and will likely include permeable surfaces. A pond is being considered for Oceanside.</p> <p>Energy Team member with LEED/Green building experience provides support.</p>	2009	No End Date (Continuous)

**Vancouver Island Health Authority  
Greenhouse Gas Emissions by Source  
for the 2012 Calendar Year (tCO<sub>2</sub>e\*)**



**Total Emissions: 34,417**

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

**Offsets Applied to Become Carbon Neutral in 2012 (Generated May 27, 2013 11:18 AM)**

Total offsets required: **34,365**. Total offset investment: **\$859,125**. Emissions which do not require offsets: **52** \*\*

\*Tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e) 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.