

## Carbon Neutral Action Report British Columbia Hydro and Power Authority

### Executive Summary

BC Hydro is committed to playing a leadership role in achieving carbon neutrality by 2010 by accurately measuring our greenhouse gas emissions, aggressively reducing emissions from our operations and offsetting our remaining emissions from using high-quality and verifiable offsets from within B.C. Towards this end, we have developed a carbon neutral strategy, with input from all business groups.

In 2008, BC Hydro completed the following actions to reduce greenhouse gas emissions:

- Established climate change and conservation as short-term priorities in the FY2009 Service Plan
- Confirmed the scope of carbon neutral program emissions and ensured that BC Hydro has an accurate and timely GHG inventory
- Established a Conservation Leadership Team to oversee the development and implementation of a comprehensive and integrated approach to reducing both energy demand and GHG emissions
- Identified GHG reduction opportunities and conducted an economic analysis of the costs and benefits of a variety of options for reducing carbon neutral program emissions
- Expanded the use of biodiesel in the fleet and launched the first hybrid line truck
- Moved to the use of 100% recycled paper and consolidated deliveries to reduce GHG emissions
- Opened the new Fernie District Office, a building constructed to be LEED Gold compliant
- Developed a climate change communications strategy and conducted research into barriers/motivators for employee engagement in conservation actions

In December, we established reduction targets for carbon neutral program emissions for the 2009/10 to 2011/12 Service Plan (see [www.bchydro.com/about/company\\_information/reports/service\\_plan.html](http://www.bchydro.com/about/company_information/reports/service_plan.html)).

### Objectives

Two of BC Hydro's short-term priorities link carbon neutral actions to its mandate. These priorities are:

- Climate Change and Environmental Impact - to have no net incremental environmental impact by 2024 when compared with 2004.
- Energy Conservation and Efficiency – to develop and foster an energy conservation and efficiency culture in B.C. that leads to customers choosing to make a dramatic and permanent reduction in the use of electricity.

## Part 1: Actions Taken to Reduce Greenhouse Gas Emissions in 2008

### Overview

The following actions were undertaken in 2008:

- 1) Buildings: the BC Hydro Facility Improvements program was initiated and vision & principles defined to integrating energy efficiency, safety and sustainability into facilities, including
  - Achieving LEED Gold or equivalent at new facilities and major renovations
  - Climate Appropriate Design - Design each facility to take advantage of the local climate, landscape and any unique environmental factors
  - proposed energy use targets of ASHRAE 90.1 (2004) minus 75% for new construction and major renovations and existing minus 50% for refits (where feasible)
- 2) A Greening the Fleet Strategy has been established to implement reduction activities including:
  - Quarterly reports of fuel consumption and emissions
  - A Driver Training Program focused on fuel efficient driving techniques
  - Triple bottom line analysis of vehicle standards and purchasing; investing in hybrids where feasible
  - Optimizing vehicle utilization (e.g. right-sizing vehicles)
  - New green technology development and demonstration (e.g. hybrid line trucks, plug-in hybrid electric vehicles, biodiesel, hydrogen)
- 3) Paper Use: BC Hydro has switched to 100% recycled paper and consolidated deliveries to reduce emissions.
- 4) Travel: BC Hydro is promoting the use of video-conferencing to reduce travel costs and greenhouse gas emissions. Videoconferencing has been implemented in 10 BCH offices across the Province and further investments are planned.
- 5) Employee Engagement: An employee engagement strategy is being developed to encourage and support conservation actions that reduce electricity consumption and greenhouse gas emissions. Research was completed to identify barrier sand motivators (institutional and individual) to behaviour change and to develop tactics and communication needed to support change.

### 1.1 Mobile Fuel Combustion

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Replaced # of TYPE OF VEHICLE with MORE EFFICIENT VEHICLE/Hybrid	In progress	Greening the Fleet activities will be measured in the GHG inventory, a review of fleet statistics and regular disaggregated reporting to management groups.  17 hybrid light and medium duty vehicles purchased in 2008	Adopted a scheduled vehicle replacement program that removes Light & Medium Vehicles around 8 yrs and Heavy Duty Vehicles at 12 yrs, enabling the fleet to perform work with vehicles that meet the most stringent emission standards for criteria air contaminants.  Hybrid vehicles now constitute 8% of BC Hydro's light and medium duty fleet.

Provided driver training to reduce fuel use	In progress	Greening the Fleet activities will be measured in the GHG inventory, a review of fleet statistics and regular disaggregated reporting to management groups.	Eco-efficient driver training has been incorporated into vehicle safety training. An RFP to identify a service provider has been issued for combined training. Pilot training is scheduled to be delivered in May and June of 2009.
Established anti-idling behaviour change program (e.g. signs, stickers, messages)	In progress	Greening the Fleet activities will be measured in the GHG inventory, a review of fleet statistics and regular disaggregated reporting to management groups.	Research was completed to identify barriers and motivators (institutional and individual) to reducing idling and to develop tactics and communication needed to support change.
Encouraged use of public transit/active transportation	In progress		Travel Policy states that employees who are required to travel between the main Vancouver HQs (Dunsmuir, Edmonds and Central Park Place) for meetings and work functions will be reimbursed the equivalent Skytrain fare. Fare tokens can be obtained prior to travel when possible to enable policy.
Encouraged alternatives to travel in fleet vehicles – bicycles, scooters, electric carts	In progress		Upgraded bicycle room at Dunsmuir to encourage ridership.
Biodiesel Program	Complete	Greening the Fleet activities will be measured in the GHG inventory, a review of fleet statistics and regular disaggregated reporting to management groups.	The existing fleet of eight heavy duty vehicles using B5 (5 per cent Biodiesel: 95 percent Petro diesel) was expanded to more than 80 vehicles.
Demonstration of Hybrid Line Truck	Complete	Significant fuel savings and reduced GHG emissions	In November, 2008, BC Hydro put our first hybrid line truck into service. The hybrid line truck has the ability to run on diesel and electrical power from a lithium ion battery pack and is the first utility vehicle of its kind in B.C.

<p>Plug-in electric vehicle program</p>	<p>In progress</p>	<p>BC Hydro is working in partnership with the ministries of Energy, Mines and Petroleum Resources, Transportation and Infrastructure, Environment, and others, to help implement a demonstration project whereby up to 34 plug-in electric vehicles will be operated and monitored in British Columbia. Specifically, BC Hydro will gather information on performance data and energy consumption over the two-year field trial to better understand its impact on the electricity grid.</p> <p>As a large electric utility, BC Hydro is also developing guidelines for the infrastructure required for charging electric vehicles at homes, businesses and on public streets to ensure the province is prepared for the commercialization of plug-in electric vehicles. This will support carbon neutral actions across the Province and help achieve climate action goals.</p>
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**1.2. Stationary fuel combustion and electricity**

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
<p>Undertaken workstation tune-ups to help staff understand what they can do to reduce personal energy use</p>	<p>In progress</p>		<p>Part of the on-going Lead by Example program (see detailed description below)</p>
<p>Supplied power bars – to turn off power to non-essential items when not in use (e.g. phone chargers)</p>	<p>In progress</p>		<p>Part of the on-going Lead by Example program (see detailed description below)</p>
<p>Undertaken Monitor turn-off challenge</p>	<p>In progress</p>		<p>Part of the on-going Lead by Example program (see detailed description below)</p>
<p>Replaced # computers with EnergyStar models</p>	<p>In progress</p>	<p>New machines, monitors Energy Star Version 4.0 or higher.</p>	<p>Replaced a number of older models and implemented a dynamic procurement spec for new computers which incorporates energy efficiency specifications.</p>

Asked staff to close blinds daily	In progress	On-going - incorporated into Conservation Champions programme and includes e-mail reminders on hot weather days.
Encouraged staff to use stairs	In progress	Installed card readers in stairwells and simplified cross-over floor routing in office towers with signs to encourage use of stairs.  On-going - incorporated into Conservation Action and Conservation Champions Program
Turned off lights in unused rooms	In progress	Stickers are in place in all public areas (meeting rooms, washrooms) to encourage this behaviour. Also, motion sensor lights are being installed across BC Hydro offices.
Replaced Refrigerators (EnergyStar rated appliance)	In progress	When projects are undertaken to upgrade corporate office floors and field buildings under the Facility Improvements program, EnergyStar rated refrigerators are used.
Replaced other appliances (with EnergyStar rated appliance)	In progress	When projects are undertaken to upgrade corporate office floors and field buildings under the Facility Improvements program, EnergyStar rated appliances (e.g. Dishwashers) are used.
Installed multi-function devices (and removed stand-alone printers/faxes)	In progress	Policy established to disallow use of personal printers
Replaced standard bulbs with CFLs	In progress	Part of the BC Hydro Facility Improvements program (see below) and now part of regular maintenance at all locations.
Installed motion activated lights	In progress	Part of the Facility Improvements program (see detailed description below)
Undertaken lighting retrofit	In progress	Component of ongoing Facilities Management work plus part of the BC Hydro Facility Improvements program (see below)

Implemented server virtualization	In progress	Reduced servers from 400 to 40  Server virtualization work completed in FY09 yielded 807,000 kWh/yr in electricity savings.	Server virtualization in progress, will reduce servers from approximately 400 to 40
Utilized desk-top power management settings on computer	In progress		Pilot project underway with expected roll out in FY2010
Applied for LEED existing building rating	In progress	Fernie District Office is LEED Gold compliant	Studies underway to determine costs and feasibility of LEED-EB certification at existing large office facilities.
Undertaken building energy audit at LOCATION(s)	In progress		Energy audit assessments completed for Dunsmuir and Edmonds locations. Energy modelling completed during detailed design stage of new facilities under the Facility Improvements program to ensure design will meet energy target.
BC Hydro Facility Improvements program (New Field Buildings) delivered 2 new field buildings in 2008: Port Hardy, and Fernie.	In progress	These were designed / constructed in alignment with LEED Gold, but are NOT certified. New energy use target was developed after these building designed and will be applied to future projects.  Energy use target of ASHRAE 90.1 (2004) minus 75%	The BC Hydro Facility Improvements program is a multi-year initiative that will improve the condition of field and corporate facilities across BC Hydro. It's about creating healthy workplaces that promote employee satisfaction, safety, and productivity while increasing energy efficiency, sustainability, and durability.  Under this program, BC Hydro is designing and building new field buildings that will demonstrate energy leadership by meeting a minimum LEED™ Gold (certified or aligned) and are intended to achieve an energy use target of ASHRAE 90.1 (2004) minus 75% through innovative design and the use of leading and high performance conservation technologies such as heat recovery and solar hot water systems; green roofing for storm water management; and triple glazed windows.

<p>BC Hydro Facility Improvements program (Lower mainland office improvements): 2008 - two renovated floors in Dunsmuir tower, two new floors at Burnaby leased space, one Vancouver leased space.</p>	<p>In progress</p>	<p>Approximately 50% less electricity for lighting and plug loads on renovated floors</p>	<p>Lower Mainland office improvements at our Corporate and Operations towers.</p> <p>The new office interiors being delivered by this program use approx 50% less electricity for lighting and plug loads. New energy efficient lighting that monitors light levels on desktops and gradually adjusts to compensate for changes in natural daylight to maintain consistent lighting is one way the new office improvements program will reduce electricity consumption. These same lights are equipped with 'occupancy sensors' and dim before turning off when workspaces are unoccupied. HVAC energy savings due to reduced air handling expected due to CO2 monitoring and variable air speed drives used</p>
<p>BC Hydro Facility Improvements program (Building Revitalization)</p>	<p>In progress</p>	<p>Building Revitalization</p>	<p>See Tab 1.2 for F08</p>

Lead by Example	In progress	<p>LBE creates, maintains and promotes a conservation culture within BC Hydro by engaging all staff and empowering them to take initiatives to foster and implement conservation techniques and ideas throughout the organization and into the community.</p> <p>Conservation Action! is a team based approach that helps encourage sites or departments to adopt conservation habits. To date, Conservation Action! teams exist at the following sites: Central Park Place, Edmonds, Dunsmuir, Surrey Lower Mainland South, Operational Support Services and Construction Services.</p> <p>The Conservation Champions program is designed for regional BC Hydro sites and sites without Conservation Action! teams. The program offers specially made modules and toolkits that are fun, engaging, and help promote conservation in the workplace. Conservation Champions are in place at 11 BC Hydro locations.</p>
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1.3 Supplies			
Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Committed to use 100% recycled paper	Complete		95% of BC Hydro's paper use is 100% post-consumer waste fibre copy paper.
Initiated automatic double sided printing	Complete		Employees are encouraged to set printer controls to automatically double side as part of the Lead by Example program. On-going messaging and tips to reduce paper use are provided through newsletters and other e-communications.
Developed document library (online and one printed copy) for large documents	In progress		SharePoint system created to centralize shared documents / drawings for Properties staff and external consultants on facilities projects
<b>Actions on non-paper related supplies:</b>			

Encouraged re-use of furniture and equipment	Complete		<p>Furniture replaced during upgrades is required at other existing BC Hydro sites</p> <p>On-line classified ads enable employees to re-use work and personal items.</p>
Reduce emissions from paper deliveries	Complete	GHG emissions reduced	<p>BC Hydro has provided space at its Edmonds building to store larger amounts of paper resulting in a 60% reduction of paper deliveries.</p> <p>Paper is sourced from Grays Harbour Paper in Hoquiam, WA. The distance from the mill to the Lower Mainland is 251km making it the closest mill to the Lower Mainland that produces copy paper.</p> <p>Frog file, BC Hydro's paper supplier, ran its delivery vehicle on B20 from August 2007 to May 2008 and B100 from May to December, 2008.</p>

## 1.4 Employee Engagement

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Provided climate change education	In progress		<p>Numerous presentations delivered across the organization on BC Hydro's climate change strategy, carbon neutral strategy, environmental long term goal and conservation. BC Hydro's approach is to integrate climate change and conservation education and deliver messages concurrently.</p> <p>Articles on carbon neutral program in Keeping Current (internal e-newsletter) and in Plugged In (hard copy employee newsletter)</p> <p>An employee engagement strategy is being developed to encourage and support actions that reduce electricity consumption and greenhouse gas emissions. Research was completed to identify barriers and motivators (institutional and individual) to employee action and to develop tactics and communication needed to support change.</p> <p>Internal website on Lead by Example program including green tips and success stories. Other conservation information provided on the PowerSmart web site.</p>
Provided conservation education	In progress		see section on climate change education
Held contests to change behaviour/make pledges	Complete	<p>Floor challenges have shown 9-10% energy savings in Central Park Place, Dunsmuir and Surrey locations.</p> <p># of submissions to pin contest</p> <p># of employees signed up the Team Power smart</p>	<p>A variety of contests in the form of "Floor Challenges" (including our mascot, "Conservin' Mervin") have been staged around Hydro, most predominantly at our larger office sites.</p> <p>Olympic conservation pin design contest completed</p> <p>Internal challenge to sign up 2010 employees to Team PowerSmart by Feb, 2010</p>

Developed Green Teams	Complete		Conservation Action Teams and Conservation Champions are engaging BC Hydro employees in conservation behaviour.
Supported Green Teams (resources)	In progress		Support is provided in many ways - through financial resources for projects, information and posters as to programs, as well as support for floor challenges on specific topics.
Provided green tips	Complete		A green tip library has been developed and can be accessed through the Lead by Example website.
Lead by Example (LBE) Program	In progress	<p>kWh saved</p> <p>GHG emissions saved</p> <p># of participants</p> <p># of ideas generated</p>	<p>LBE creates, maintains and promotes a conservation culture within BC Hydro by engaging all staff and empowering them to take initiatives to foster and implement conservation techniques (including electricity, water, fuel, and waste) and ideas throughout the organization and the community.</p> <p>Conservation Action! is a team based approach that helps encourage employees at specific sites or departments to adopt conservation habits. To date, Conservation Action! teams exist at the following sites: Central Park Place, Edmonds, Dunsmuir, Surrey Lower Mainland South, Operational Support Services and Construction Services.</p> <p>The Conservation Champions program is designed for regional BC Hydro sites and sites without Conservation Action! teams and exist at 11 locations. The program offers specially made modules and toolkits that are fun, engaging, and help promote conservation in the workplace. Modules include cubicle tune-ups, floor challenges, and conservation lunch 'n learns.</p>
<b>1.5 Sustainability Actions (others)</b>			

<p>Took water conservation measures – low flow showers or toilets, fix leaks</p>	<p>In progress</p>	<p>Bottled water eliminated at some locations</p> <p>Water recycling systems and low water use fixtures used at new field buildings at Port Hardy and Fernie. Low water use plumbing &amp; "no touch" fixtures to become part of building standards for Facility Improvements projects.</p>
<p>Ran dishwasher only when full</p>	<p>Complete</p>	<p>Part of standard operating procedure. Signs posted on new dishwashers</p>
<p>Reduced/replaced bottled water with filtered or refrigerated water</p>	<p>In progress</p>	<p>When projects are undertaken to upgrade corporate office floors and field buildings under the Facility Improvements program, filtered water systems are used.</p>
<p>Improved recycling measures</p>	<p>In progress</p>	<p>Cafeteria suppliers are switching to paper plates, cups with a higher recycled content.</p>
<p>Supported composting</p>	<p>In progress</p>	<p>Composting provided at Edmonds and Dunsmuir Cafeteria</p>
<p>Used re-usable dishes</p>	<p>In progress</p>	<p>Re-usable dishes provided at Edmonds Conference Centre and in catering services.</p> <p>Central Park Place provided reusable dishes in lunchrooms and encouraged employees to have their own by sponsoring an Ugly Plate contest and providing jugs and cups for water in order to reduce amount of bottled water purchased.</p>
<p>Purchased green cleaning products</p>	<p>In progress</p>	<p>Green cleaning products are being used as part of new service contracts.</p>
<p>Used green (low-e paints)</p>	<p>In progress</p>	<p>Low VOC paints used in all new field buildings and part of building standards for new builds and maintenance of existing buildings.</p>

Supported sustainable procurement practices	In progress		Contracts evaluated, in part, on the basis of Triple bottom line performance.
Adopted low-carbon contracting practices	In progress		Construction / deconstruction contracts evaluated, in part, on low carbon practices.
Encourage employees to commute using public transit	In progress		BC Hydro participates in Translink's Employer Pass Program, provides free parking for carpools, has a Bike Buddy program and provides secure bike storage and shower facilities at the Edmonds and Dunsmuir locations.
Installed video conference facilities	In progress	Video-conferencing facilities installed at 10 locations across the province and installed 13 individual office-based units.  GHG emissions avoided	BC Hydro has installed videoconference facilities in 10 locations across the province - Downtown Vancouver, Burnaby (Central Park Place), Burnaby (Edmonds), Gordon M. Shrum Generating Station, Kamloops, Nanaimo, Prince George, Revelstoke, Vernon and Victoria.

## Cafeteria Sustainability Program

In progress

- Compostable Mocha Napkins in Cafeterias 100% recycled 60% post consumer content in single serve centralized dispensers.
- Compostable Napkins for catering 100% recycled 70% post consumer content.
- Wood stir sticks replacing plastic.
- Used fry oil recycling set up with West Coast Reduction.
- Sustainable Seafood used in Cafeteria Recipes.
- Local produce used when available. (seasonal)
- Fair Trade and Organic Coffees introduced with the New Roasters Program.
- Refillable dairy condiment containers used in Cafeterias.
- Composting separation in Cafeteria service areas and Kitchens.
- Trim Trax Program implemented at Edmonds monitoring organic production waste in order to increase Food Service Staff awareness, promote alternatives and ultimately reduce land fill.

## Part 2: Plans to Continue Reducing Greenhouse Gas Emissions 2009 -- 2011

### Overview

In 2008, BC Hydro developed reduction targets for carbon neutral program emissions for the 2009/10 to 2011/12 Service Plan and identified GHG reduction opportunities. Targets under the Service Plan are set on a fiscal year basis and BC Hydro's target is to stabilize carbon neutral program emissions at F2008 levels by F2012. This represents a 17% reduction over the business as usual forecast. In 2009, BC Hydro will:

- implement actions from the Edmonds and Dunsmuir energy audits in order to reduce emissions from natural gas and steam use
- continue to engage employees in energy conservation by developing and implementing an employee engagement strategy based on research conducted in 2008
- continue to expand the use of biodiesel in the vehicle fleet
- develop and pilot a defensive, eco-efficient driver training program
- develop and implement an anti-idling campaign
- continue to demonstration new technology vehicles

<b>2.1. Mobile Fuel Combustion:</b>				
<b>Action</b>	<b>Action Planned</b>	<b>Outcome/Performance Measure</b>	<b>Notes Clarifying Action Taken</b>	<b>Timeframe</b>
Replace # of TYPE OF VEHICLE with MORE EFFICIENT VEHICLE/Hybrid	In progress			
Provide driver training to reduce fuel use	In progress	GHG emissions reduced  # of people trained	Develop and deliver of defensive eco-efficient driver training across B.C. for all business groups within BC Hydro.  Pilot program to develop and evaluate training programs  Delivery across BC Hydro to all business groups	May/June, 2009  April, 2010 to March, 2013
Establish anti-idling behaviour change program (e.g. signs, stickers, messages)	In progress	GHG emissions reduced		March, 2010
Encourage car pooling in fleet vehicles	In progress			March, 2010
Encourage use of public transit/active transportation	In progress		Fee for showers removed for cyclists and runners at Surges facilities (gym) at Edmonds and Dunsmuir locations.  Promote Bike to Work Week (May 11-15, 2009).	May, 2009
Biodiesel Program	In progress	% of fleet using B5 on average	Planned expansion into the Southern Interior by Spring 2009	
<b>2.2 Stationary Fuel Combustion (including electricity)</b>				
<b>Action</b>	<b>Action Taken</b>	<b>Outcome/Performance Measure</b>	<b>Notes Clarifying Action Taken</b>	
Undertake workstation tune-ups to help staff understand what they can do to reduce personal energy use	In progress		A computerized program to help support staff engage in tune-ups, and provide other conservation information, is being developed and will be rolled out across the organization.	September, 2009
Supply power bars – to turn off power to non-essential items when not in use (e.g. phone chargers)	Planned		Switchable power bars expected to be part of building standards.	
Undertaken Monitor turn-off challenge	In progress		Part of Lead by Example program (see detailed description below)	
Replace # computers with Energy Star models	In progress		Continuation of 2008 program	
Ask staff to close blinds daily	In progress		Part of Lead by Example program (see detailed description below)	
Encourage staff to use stairs	In progress		Door card readers installed; signs to advise of cross-over floor routing posted.	
Turn off lights in unused rooms	In progress		Signs posted.	

Replace Refrigerators (Energy Star rated appliance)	In progress		When projects are undertaken to upgrade corporate office floors and field buildings under the Facility Improvements program, Energy Star rated refrigerators are used.
Replace other appliances (with Energy Star rated appliance)	In progress		Energy Star microwaves and/or stoves will be installed, once available.
Install multi-function devices (and remove stand-alone printers/faxes)	In progress		Multi-function printer-fax-copier-scanner are now standard equipment for any changes or upgrades.
Replace standard bulbs with CFLs	In progress		Wherever possible, CFL or other high-efficiency lighting is installed as either replacement at existing fixtures or as an upgrade to existing or new facilities. This will save up to 75% of the electricity of an equivalent incandescent bulb.
Install motion activated lights	In progress		Motion activated lights are being installed in all office upgrades and for new buildings. This will reduce electricity use.
Undertake lighting retrofit	In progress		Lighting retrofits are being undertaken as part of facility maintenance of old light systems, as part of our Facility Improvements projects, and for new buildings. Typically, electricity reductions are from 30-60%.
Implement server virtualization	In progress	Server virtualization project for 2009 anticipated to reduce 312 servers down to 29 servers.  kWh saved	Server virtualization in progress, project for 2009 anticipated to reduce 312 servers down to 29 servers.
Utilize desk-top power management settings on computer	In progress		Energy saver settings for a new computer setup are default setting for new or moved computer setup.
Apply for LEED existing building rating	Planned		A environmental/energy rating system, such as LEED EB or similar, is being considered when major renovations are required for existing buildings.

Undertake building energy audit at LOCATION(s)	In progress	Energy modelling completed during detailed design stage of new facilities under the Facility Improvements program to ensure design will meet energy target. Opportunity assessments for high energy use buildings will take place which will identify building that are a high priority for performing energy retrofits.
Initiate or complete a building energy retrofit	In progress	Energy retrofits to be performed in buildings flagged during Opportunity Assessments.
Lead by Example	In progress	<p>LBE creates, maintains and promotes a conservation culture within BC Hydro by engaging all staff and empowering them to take initiatives to foster and implement conservation techniques and ideas throughout the organization and into the community.</p> <p>Conservation Action! is a team based approach that helps encourage sites or departments to adopt conservation habits. To date, Conservation Action! teams exist at the following sites: Central Park Place, Edmonds, Dunsmuir, Surrey Lower Mainland South, Operational Support Services and Construction Services.</p> <p>The Conservation Champions program is designed for regional BC Hydro sites and sites without Conservation Action! teams. The program offers specially made modules and toolkits that are fun, engaging, and help promote conservation in the workplace.</p>
BC Hydro Facility Improvements program	Planned	Over the next three years, the Facility Improvements program will continue upgrading existing buildings (50+), building new ones (6+), and refurbishing lower mainland workspaces.

a) New roofs for field buildings at 12 locations	Planned	Estimated heating/cooling savings of up to 10%.	Roofs to be LEED and Energy Star compliant. Better insulation and leak sealing will result in space heating savings. Connections for future roof-top renewables (e.g. solar panels, green roof) to be roughed in.	F2010
b) Window repair or replacement	Planned	Estimated space heating savings of up to 4-15%	Window repair/replacement to be done at 7-15 locations as determined by building audit reports currently underway. Insulated, energy efficient windows to be used, double- or triple-pane windows for some locations.	F2010
c) New overhead doors	Planned	Estimated space heating savings of approximately 2-8%	New overhead doors to be installed at 7-15 locations as determined by building audit reports currently underway. Insulated, energy efficient doors to be used.	F2010
d) New DDC building control system	Planned	Better building automation and control will result in space heating (gas), chilling and lighting (electricity) savings of 7.5% or more per site	The new building automation system is under consideration at Dunsmuir.	F2010
e) New hot water heaters	Planned	Overall heating savings of 2.5% or more per site.	Highly insulated, energy-efficient water heaters to be installed at 15 locations with electronic controls and settings. Some locations will have instantaneous (tankless) systems.	F2010
f) New HVAC units	Planned	Expected gas and electricity savings of approx 12% overall.	Lower efficiency end-of-life units being replaced by high efficiency new systems at 15 locations. New units have about double the efficiency (SEER rating 13-16) than units they replace (SEER rating: 6-8).	F2010
g) Planned floor transformations throughout Edmonds and Dunsmuir offices.	In progress	Estimated electricity savings of approx. 30-50% on each floor.	HVAC energy savings due to reduced air handling expected due to CO2 monitoring and variable air speed drives used to control exhaust ventilation.	F2010
h) Two new field buildings (Port Alberni, Horne Payne) and Chetwynd major renovation (business case in progress) to be completed in 2010. Business cases for Horne Payne and Chetwynd are not yet completed or approved.	In progress	Energy use target ASHRAE 90.1 minus 75% target  LEED gold certified or equivalent	New facilities expected to use less than half the energy of the facilities they replace, on a sq ft basis, meet the energy use target ASHRAE 90.1 minus 75% target, and be LEED Gold certified or equivalent.	F2010

## 2.3 Supplies

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Develop document library (online and one printed copy) for large documents	In progress		SharePoint system created to centralize shared documents / drawings for Properties staff and external consultants on facilities projects
<b>Actions on non-paper related supplies:</b>			
Purchase cradle to cradle goods	In progress		

## 2.4 Employee Engagement

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Provide climate change education	In progress	Climate Change Seminar Series  Internal climate change web site to be established  External climate change web pages to be updated and streamlined	Monthly lunch 'n learn seminar series established starting in Feb. 2009  Internal website created in January, 2009  An employee engagement strategy is being developed to encourage and support actions that reduce electricity consumption and greenhouse gas emissions. Research was completed to identify barriers and motivators (institutional and individual) to employee action and to develop tactics and communication needed to support change.
Provide conservation education	In progress	Increased awareness and recognition of conservation leaders among employees  Number of nominations received	Employee Conservation Leadership Awards established, first awards ceremony to be held on April 21, 2009  Jan to April, 2009
Hold contests to change behaviour/make pledge	In progress	As of March 24, 2009, 1,346 BC Hydro employees have joined Team Power Smart	PowerSmart kiosk installed in CPP, Edmonds, Dunsmuir to trigger employee contests. Employees encouraged to join the Team PowerSmart Challenge: to reduce personal energy use by 10%.
Develop Green Teams	In progress		Conservation Action Teams and Conservation Champions are engaging BC Hydro employees in conservation behaviour.

Support Green Teams (resources)	In progress	Support is provided in many ways - through financial resources for projects, information and posters as to programs, as well as physical and executive support for floor challenges on specific topics.
Provide green tips	In progress	A green tip library has been developed and can be accessed through the Lead by Example website.

## 2.5 Sustainability Actions (others)

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Take water conservation measures – low flow showers or toilets, fix leaks	In progress	Expected water savings of up to 40%.	Low flow plumbing fixtures and " touch free" designs expected to become part of building standards.
Run dishwasher only when full	In progress		Standard procedure. Signage up to remind staff.
Reduce/replace bottled water with filtered or refrigerated water	In progress		When projects are undertaken to upgrade corporate office floors and field buildings under the Facility Improvements program, filtered water systems are used.
Improve recycling measures	In progress		Enhanced recycling in place at many facilities. List is growing.
Support composting	In progress		Composting has been implemented at Edmonds and Dunsmuir.
Use re-usable dishes	In progress		Most facilities with kitchens have reusable dishes. New and renovated facilities are provided a set of reusable dishes.
Purchase green cleaning products	Planned		Requirement to use green products expected to become part of building standards for operation & maintenance.
Use green (low-e paints)	In progress		Low VOC paints to be used for all facilities improvements and new buildings. Specifications for use expected to become be part of building standards.

Support sustainable procurement practices	In progress	Contracts evaluated, in part, on the basis of sustainability performance.  Environmental and Social Responsibility Requirements added to Contracts
Adopt low-carbon contracting practices	In progress	Construction / deconstruction contracts evaluated, in part, on low carbon practices.
<b>ADDITIONAL ACTIONS TAKEN OR PLANNED</b>		
Encouraging video-conferencing	Planned	Installation of new video-conferencing facilities at 17 sites F2010  Deployment of web-based conferencing  Training on how to use video and web-based conferencing (e.g. Live Meeting)