



Pacific  
Carbon  
Trust

# Pacific Carbon Trust: 2010 Carbon Neutral Government Portfolio

**June 2011**

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## 2010 Carbon Neutral Government

This year, the Province of British Columbia has made history by becoming the first jurisdiction in North America to be carbon neutral. This commitment, enshrined in the Greenhouse Gas Reduction Targets Act, applies to all provincial public sector operations, including government ministries and agencies, schools, colleges, universities, health authorities and Crown corporations.

BC's public sector organizations (PSOs) first measured, then reduced, reported, and offset their emissions. Pacific Carbon Trust facilitated that final step through investments in high quality BC-based offset projects that reduce greenhouse gas emissions or sequester carbon.

To qualify as offsets, projects must meet the BC emission offsets regulation, based on an international standard (ISO 14064-2 and ISO 14064-3) that ensures the emissions reductions are real, additional to business-as-usual practices, permanent, verifiable and counted only once. Offset project plans are validated by a qualified, independent third party to ensure project methodologies are sound and planned reductions have been properly quantified. Once the project has taken place, all claims of carbon reductions or sequestration must be verified by a second, independent third-party auditor. Only once a project has successfully passed this rigorous process will Pacific Carbon Trust accept it into its portfolio of offsets.

Across industries and across the province, Pacific Carbon Trust is making significant contributions toward a low-carbon infrastructure that will keep BC competitive –and help us reduce greenhouse gas emissions for a better, cleaner future.

## Summary

To achieve carbon neutrality for the 2010 calendar year, 729,782 tonnes of emissions offsets will be retired by Pacific Carbon Trust on behalf of BC's 128 public sector organizations.

Pacific Carbon Trust balances its portfolio with three types of projects:

*Energy Efficiency* – These projects involve eliminating waste and improving productivity. Examples include flaring and venting reductions, methane capture and thermal insulation.

*Fuel Switching* – These projects involve switching from high carbon fuels to lower-carbon fuels such as biomass, transition fuel (natural gas) and electricity. Examples include burning wood waste, switching from coal to natural gas and replacing fossil fuel with electricity.

*Sequestration* – These projects involve the sequestration of carbon in the atmosphere, either through capture and storage or through establishing natural carbon sinks (forests / soils). Examples include improved forest management (IFM) and conservation initiatives.






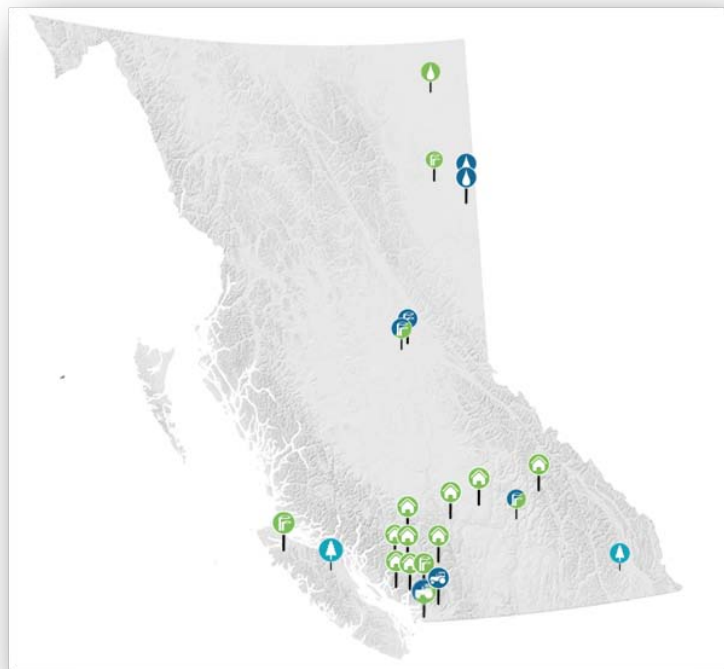
Total number of offsets to be retired for 2010:	729,782
Number of projects	22
Equivalent # of cars off the road for one year:	191,544

### Sectors

-  Agriculture
-  Buildings
-  Forestry-Land
-  Forestry-Industrial
-  Industrial
-  Oil and Gas

### Project Types

-  Energy Efficiency (EE)
-  Fuel Switching (FS)
-  Sequestration (SQ)



## 2010 portfolio of offset projects

### Greenhouse projects

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<b>Number of offsets to be retired for 2010:</b>	31,453
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<b>Equivalent # of cars off the road for one year:</b>	8,255
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**Benefits in brief:**

- Reduction in greenhouse gases
- Use of mountain pine beetle-damaged wood
- Reduced reliance on heating systems through passive heat (insulating curtains)
- A more competitive local food system




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Pacific Carbon Trust has invested in a number of greenhouse projects to reduce GHG emissions through fuel-switching and energy efficiency upgrades. Greenhouses are critical to the Fraser Valley economy, and with PCT's help, owners are able to produce local food with clean, renewable energy.

#### **Sun Select Farms, Delta**

The owners of Sun Select Delta installed a biomass boiler and insulating curtains to help heat the greenhouse and reduce their dependency on natural gas. These offset activities have significantly reduced their annual greenhouse gas (GHG) emissions relative to the natural gas baseline, their business-as-usual practice.

#### **Katatheon Farms, Langley**

Katatheon Farms have reduced their natural gas consumption and associated GHG emissions by installing a biomass boiler. This upgrade is another component of the company's rigorous sustainability initiatives, which includes using integrated pest management instead of pesticides and herbicides, and incorporating innovative water and heat conservation technology into their every day operations.

## Forestry Projects

Families in communities across the province rely on BC's forest sector. As the direct provider of 55,000 jobs across BC, our forest sector must continue to find new ways to be competitive without compromising sustainability and stewardship. Pacific Carbon Trust has purchased offsets from a range of forestry projects, both land-based and industrial, that reduce emissions and take advantage of the forest's ability to absorb and store carbon dioxide.

### Improved forest management (Timberwest, Vancouver Island)

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**Number of offsets to be retired for 2010:** 31,621

**Equivalent # of cars off the road for one year:** 8,299

**Benefits in brief:**

- Improved forest management
- First use of BC Forest Carbon Offset Protocol (FCOP) that will lay the groundwork for future projects and export to the international voluntary carbon markets
- Creation of a new export commodity for British Columbia

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Pacific Carbon Trust has purchased offsets from an Improved Forest Management project with TimberWest that will result in the conservation of select old growth stands on TimberWest's private land. This is the first forest project to use FCOP and is enabled by BC standards, creating a model for others to use and laying the groundwork for offset sales in international markets.

### Improved forest management (Darkwoods, Nelson-Creston)

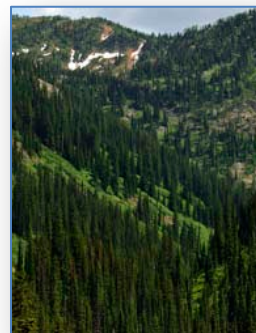
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**Number of offsets to be retired for 2010:** 403,112

**Equivalent # of cars off the road for one year:** 105,804

**Benefits in brief:**

- Improved forest management
- The first forest carbon project verified under the international Voluntary Carbon Standard (VCS)
- Demonstrates how carbon finance can be used as a mechanism to further environmental stewardship
- Ensures protection of critical habitat for grizzly bear, bull trout and an endangered herd of



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mountain caribou

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The Darkwoods property in southeastern BC supports a diversity of plants and animals, including the endangered mountain caribou. Carbon financing helped the Nature Conservancy of Canada secure funds for the long-term care of Darkwoods, ensuring that this national treasure will continue to be conserved for its ecological and carbon values.

### **Biomass fuel switch for lumber kilns (Interfor, Adams Lake)**

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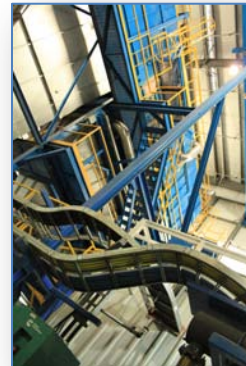
<b>Number of offsets to be retired for 2010:</b>	24,726
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<b>Equivalent # of cars off the road for one year:</b>	6,490
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**Benefits in brief:**

- Use of residual wood waste
- Eliminates regular 750km round trip to truck in natural gas
- Greater efficiency and competitiveness
- Better air quality




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International Forest Products (Interfor) relied on liquefied natural gas to fuel its Adams Lake sawmill. But using large quantities of this fossil fuel not only meant a 750km round trip to transport the fuel, but also greenhouse gas emissions at the mill. Interfor found an innovative yet practical solution, turning to wood waste from its own operations to provide fuel to the sawmill. The highly efficient energy system is used to dry lumber and provide heat for the mill during cold winter months. The project not only diverts wood waste from landfills, but also results in better air quality. This, in turn, boosts tourism and environmental values in this popular recreation destination and important salmon-spawning area.



**Clean tech (Kruger Products/Nexterra, New Westminster)**

**Number of offsets to be retired for 2010:** 15,952

**Equivalent # of cars off the road for one year:** 4,187

**Benefits in brief:**

- New clean technology
- First biomass gasification application in Canadian pulp and paper industry
- Decrease in emissions of up to 50 percent
- Improved competitiveness
- Improved air quality



Kruger Products Ltd.’s installation of the Canadian pulp and paper industry’s first biomass gasification plant has decreased the New Westminster tissue mill’s carbon emissions by as much as 50 percent annually. This new installation, developed by Vancouver’s Nexterra Systems Corp., converts local wood waste into clean-burning syngas to provide steam for the mill. Use of this renewable resource provides a competitive advantage for the BC industry and underscores the province’s potential to become a world leader in clean energy.

**Fuel switch for locally-sustained business (Neucel, Port Alice)**

**Number of offsets to be retired for 2010:** 30,986

**Equivalent # of cars off the road for one year:** 8,133

**Benefits in brief:**

- Increased competitive advantage
- Local job creation
- Use of residual wood waste
- Reduced reliance on high-carbon fuel source (oil)

Neucel produces some of the best specialty cellulose in the world – and will now do so more sustainably, thanks to this unique offset project. The mill has reduced – and intends to eliminate over time – its use of oil for fuel. Instead, it is using hog fuel, a wood waste product from lumber processing. The mill already employs the majority of Port Alice residents. These innovations will give the mill a new competitive advantage in the international market, while providing even more local job opportunities.





### **Energy efficiency and fuel switch (Canfor Pulp, Prince George)**

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<b>Number of offsets to be retired for 2010:</b>	21,891
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<b>Equivalent # of cars off the road for one year:</b>	5,746
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**Benefits in brief:**

- Increased competitive advantage
  - Reduced greenhouse gas emissions
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In Northern British Columbia, Canfor Pulp Limited Partnership has delivered over 20,000 tonnes of offsets by reducing their use of fossil fuels through a number of innovative projects. And with Canfor Pulp's ongoing commitment to sustainable operations, another 80,000 tonnes of emissions reduction offsets are expected over the next two years.

### **Utilizing wood waste (Offsetters-Canfor Lumber, Fort. St. John)**

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<b>Number of offsets to be retired for 2010:</b>	19,682
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<b>Equivalent # of cars off the road for one year:</b>	5,166
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**Benefits in brief:**

- Reduced greenhouse gas emissions
  - Economic opportunities in Fort St. John, Vanderhoof and Prince George
  - Efficiencies leading to better competitive advantage
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A new system at Canfor Lumber's Fort St. John mill distributes heat to dry lumber through a heat energy system that is fuelled by wood residues generated by the lumber manufacturing process. Developed by Offsetters, a Vancouver-based carbon management solutions provider, this project is a model for reducing BC's industrial emissions in a way that supports clean technologies and creates new economic opportunities for surrounding communities. Not only has Fort St. John benefitted economically, but so have Vanderhoof and Prince George, where many of the heat energy system components were manufactured.

## Buildings

Industrial and residential stationary combustion is responsible for 34 percent, or more than a third, of British Columbia's total greenhouse gas emissions.<sup>1</sup> This significant carbon liability can become an opportunity as the price attached to carbon is used to incent innovative energy efficiency and fuel switching projects in buildings across the province.

### Reducing Energy Consumption in Commercial Buildings (Enbala, Whistler, Vancouver, Sun Peaks, Revelstoke)

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**Number of offsets to be retired for 2010:** 2,878

**Equivalent # of cars off the road for one year:** 755

**Benefits in brief:**

- Reduced reliance on fossil fuels
- Use of made-in-BC technology




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The intelligent software used in this offset project monitors the consumption of electricity and automatically adjusts its heating output according to the thermal and electrical needs of a building. The result? More efficient energy consumption and a reduction in greenhouse gas emissions. In fact, fossil fuel use has been reduced in nine commercial buildings, resulting in facility-level emissions reductions of as much as 54 percent.

## Industrial projects

For British Columbia to meet its ambitious greenhouse gas reductions targets, it is imperative to reach out to BC's industrial base. Putting a price on carbon is an important part of changing the way businesses do business. Through investment in credible offset projects, PCT is helping to build the foundation of a low-carbon economy in BC.

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<sup>1</sup> British Columbia Greenhouse Gas Inventory Report 2008, Ministry of Environment

**State-of-the-art drilling technology (Encana, Northeastern BC)**

Number of offsets to be retired for 2010:	84,276
Equivalent # of cars off the road for one year:	22,120

**Benefits in brief:**

- First use of this technology in Canada and likely first commercial-scale program of its type in the world
- Eighty-five percent reduction in greenhouse gas emissions

Pacific Carbon Trust purchased offsets generated from a state-of-the-art technology that reduces GHG emissions by over 85 percent at an Encana drilling program in northeastern BC. The system safely and reliably recovers up to 80 percent of the natural gas produced during a typical underbalanced drilling operation. This project represents the first use of this technology and application in Canada and is believed to be the first commercial-scale program of its type in the world – helping BC become a global leader in environmentally responsible energy extraction.

**Innovative fuel-switching in the cement industry (Lafarge, Richmond)**

Number of offsets to be retired for 2010:	22,998
Equivalent # of cars off the road for one year:	6,036

**Benefits in brief:**

- Creates local jobs
- Diverts construction wood waste that would otherwise emit methane into the atmosphere
- Improves air quality in an urban environment



The Lafarge plant in Richmond reduced its dependency on coal energy, using biomass from construction wood waste to help power the facility. With approximately 2 percent of BC emissions coming from the creation of cement, this is a significant project for BC. This fuel switch project also stimulates the low-carbon economy by creating local jobs in the sorting and transporting of the wood waste.



### **Oil and gas aggregation project (Blue Source)**

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<b>Number of offsets to be retired for 2010:</b>	40,207
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<b>Equivalent # of cars off the road for one year:</b>	10,553
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**Benefits in brief:**

- Development of electricity infrastructure
  - Natural gas not burned will earn royalties, helping to pay for essential services for British Columbians
  - Reduced greenhouse gas emissions
  - Better air quality from reduced natural gas combustion
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In 2010/11, PCT supported the development of a new offset project methodology for the oil and gas sector. This BC-compliant methodology can be used for a variety of emission reduction projects: from fuel switching, to lower carbon fuels, utilisation of waste heat, reducing GHG emissions from natural gas engines, to the elimination or reduction of vented natural gas during extraction and processing. The two projects described below are the first developed under this innovative new methodology.

### **Septimus electrification project (CNRL, Northeastern BC)**

This electrification project is located at the Septimus Gas Processing Plant in northeastern BC. To be market-ready, raw natural gas must first undergo processing to remove water, hydrocarbon liquids and other impurities from the raw gas stream. Once cleaned, the gas is transported along the pipeline to homes and businesses in BC and the Pacific Northwest. Under standard practice, fossil fuel would be used to drive the compressors that move natural gas along the pipeline. This project enabled the production of a new compression system connected to the BC electricity grid, eliminating the need for fossil fuels. This is the first implementation of new electricity transmission infrastructure and electric-drive compression equipment by CNRL in BC.

### **Noel electrification project (Apache, Northeastern BC)**

This natural gas development in northeastern BC has become a model for low-carbon natural gas development. The site uses a combination of solar power with small thermal electric generators for backup to operate equipment that was previously powered through the venting of natural gas to the atmosphere. In addition, three natural gas compressor stations were fully electrified and connected to the BC Hydro grid – which is highly uncommon in northeastern BC because of the remote locations of most gas production facilities and associated high costs of building new transmission lines. This development was partially enabled because of the value attached to carbon.