

# *Carbon Neutral* GOVERNMENT

*Year in Review 2014*



Ministry of  
Environment





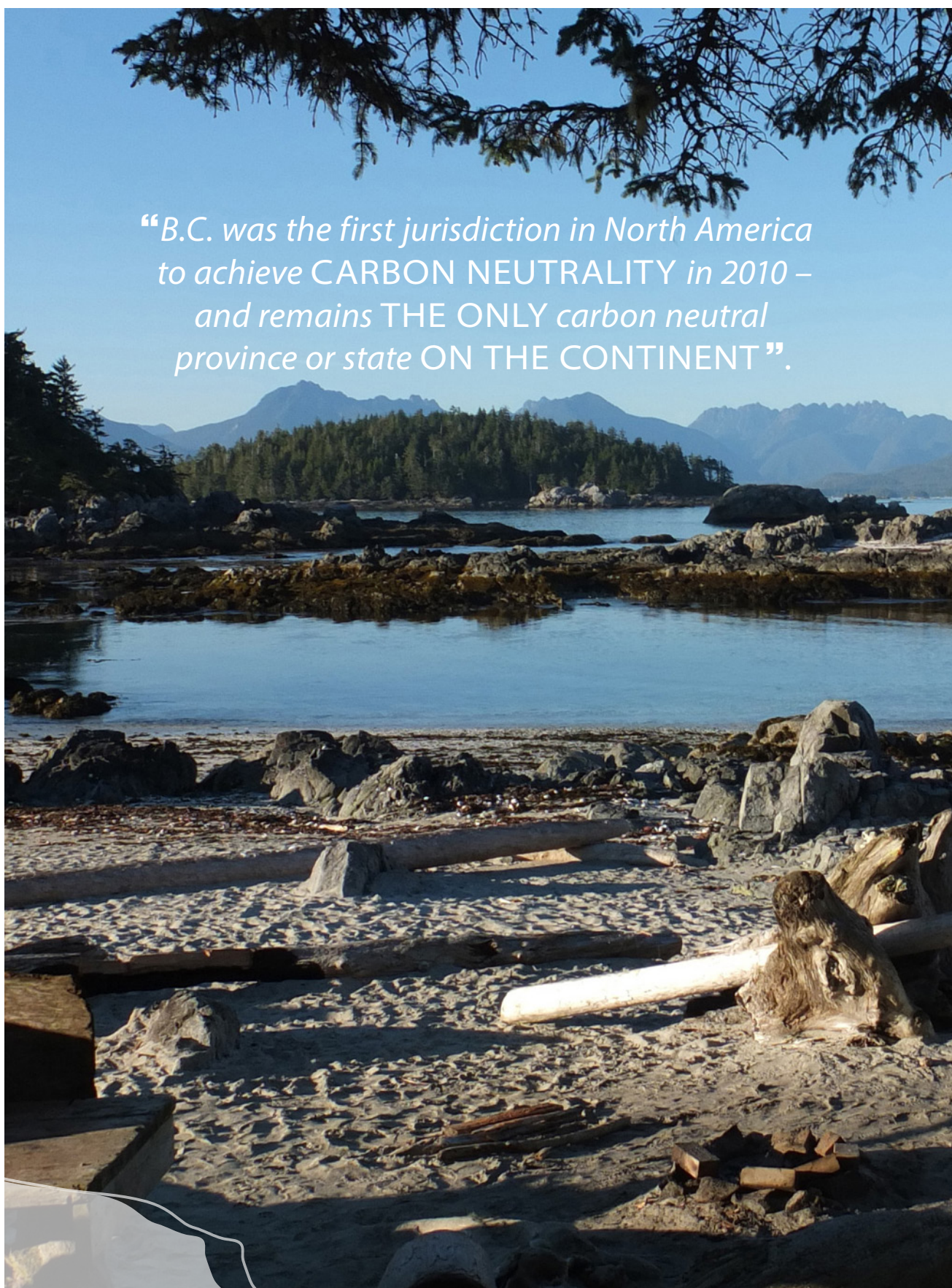
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*“B.C. was the first jurisdiction in North America  
to achieve CARBON NEUTRALITY in 2010 –  
and remains THE ONLY carbon neutral  
province or state ON THE CONTINENT”.*



## Message from the Minister

**THIS YEAR MARKS BRITISH COLUMBIA'S FIFTH CONSECUTIVE YEAR** of achieving carbon neutrality across its provincial public sector.

I am extremely proud of this unprecedented accomplishment, which further demonstrates British Columbia as a global climate leader.

Carbon Neutral Government is fundamentally about leadership. B.C. was the first jurisdiction in North America to achieve carbon neutrality in 2010 – and remains the only carbon neutral province, territory or state on the continent.

A Carbon Neutral Government saves energy costs for the provincial public sector, encourages projects that see reduced greenhouse gas emissions and helps drive the creation of a low-carbon economy.

In this report, we highlight success stories from various organizations throughout the provincial public sector that are working hard to shrink their carbon footprint, cut energy costs and streamline services for future generations.

I hope these stories help inspire everyone to join us in becoming carbon neutral.



A stylized, handwritten signature in black ink that reads "Mary Polak".

*The Honourable Mary Polak*  
MINISTER OF ENVIRONMENT



## British Columbia's Public Sector *by the Numbers*

### 2014 EMISSIONS AT A GLANCE: *B.C.'s Public Sector*

- ▶ **TOTAL GHG EMISSIONS:**  
**767,583** Tonnes CO<sub>2</sub>e
- ▶ **EMISSIONS THAT DO NOT REQUIRE OFFSETS:**  
**108,445** Tonnes CO<sub>2</sub>e\*
- ▶ **TOTAL OFFSETS PURCHASED FOR 2014 EMISSIONS:**  
**659,138** Tonnes CO<sub>2</sub>e\*\*
- ▶ **OFFSET INVESTMENT:**  
**\$16,478,250**
- ▶ **TOTAL CARBON NEUTRAL CAPITAL FUNDING DISTRIBUTED:**  
**\$14,500,000**
- ▶ **ESTIMATED TOTAL ENERGY COST:**  
**\$430,000,000**

**CARBON NEUTRAL GOVERNMENT IS PART OF A COMPREHENSIVE APPROACH** to transition British Columbia to a more energy efficient and resilient province.

Climate change is a problem that requires action from businesses, industry, individuals, communities, and governments alike, and carbon neutral government is about government taking responsibility for our own emissions. While B.C.'s public sector emits only a small portion of the province's total emissions, achieving carbon neutrality in B.C.'s schools, hospitals, post-secondary institutions, Crown corporations and government offices builds environmental awareness, demonstrates climate leadership, promotes conservation and energy efficiency, and supports the growth of B.C.'s

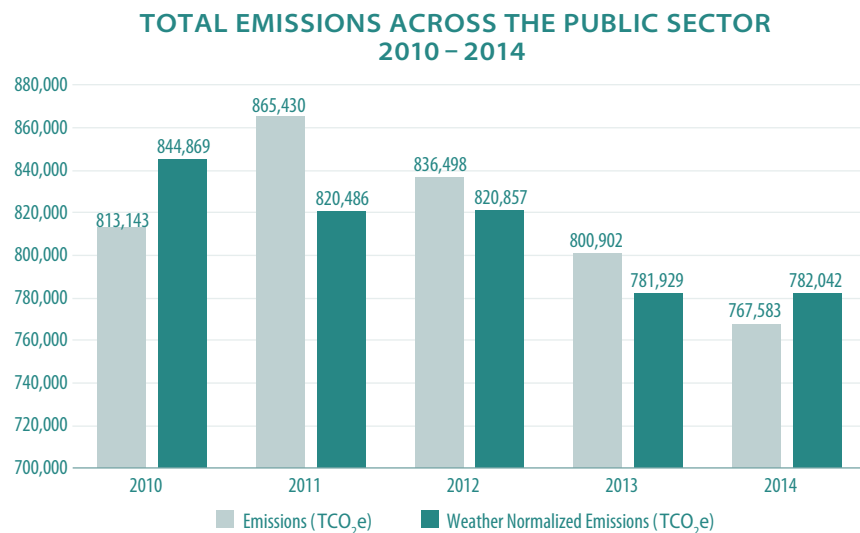
green technologies. This year, energy costs for the B.C. public sector were estimated at \$430,000,000. Reducing these costs helps to balance the budget or frees up funds for public services like education and health care.

In 2014, B.C.'s public sector has seen a reduction in emissions of approximately 46,000 tonnes CO<sub>2</sub>e compared to 2010 emissions. Once the emissions are normalized for weather conditions, B.C.'s total public sector emissions have decreased by approximately 63,000 tonnes CO<sub>2</sub>e since 2010, which is equivalent to taking approximately 13,000 cars off the road. About half of this decrease can be attributed to an increase in cleaner hydroelectric generation and a decrease in reliance on higher emission thermal power generation compared to prior years.

\* As per the Carbon Neutral Government Regulation, some of the reported emissions in the total do not require the purchase of offsets in order to reach carbon neutrality. This includes emissions from mobile or stationary combustion of biomass as well as emissions from bus fleets (e.g., school buses and BC Transit buses).

\*\* Please note that due to routine adjustments to prior year emissions, an additional 2,953 tonnes CO<sub>2</sub>e of emissions were offset to ensure that all public sector organization (PSO) emissions were accounted for. A total of 662,091 tonnes CO<sub>2</sub>e of offsets were purchased this year.

## British Columbia's Public Sector *by the Numbers (continued)*



**GREENHOUSE GAS (GHG) EMISSIONS** in this report are measured in tonnes of CO<sub>2</sub>e (carbon dioxide equivalent). Six gases are in scope for emissions reporting in B.C.: carbon dioxide (CO<sub>2</sub>); methane (CH<sub>4</sub>); nitrous oxide (N<sub>2</sub>O); hydrofluorocarbons (HFCs); sulphur hexafluoride (SF<sub>6</sub>); and perfluorocarbons (PFCs). Each gas varies in its ability to trap heat

in the atmosphere, or “global warming potential” (GWP), therefore they are reported on an aggregate level as tonnes of CO<sub>2</sub>e. For example, CH<sub>4</sub>, now has a GWP of 25, indicating that its radiative forcing is 25 times that of CO<sub>2</sub>. In other words, releasing one tonne of CH<sub>4</sub> is equivalent to releasing 25 tonnes of CO<sub>2</sub>, which can also be reported as 25 tonnes CO<sub>2</sub>e.

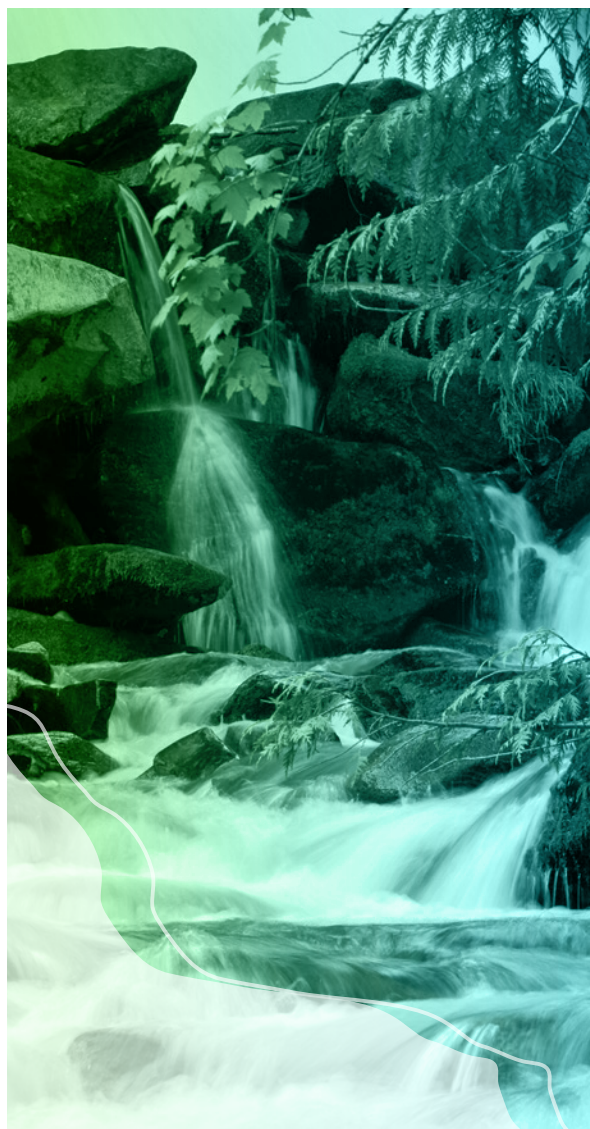
### WHAT IS WEATHER NORMALIZATION?

Buildings make up approximately 77% of B.C.'s provincial public sector emissions, and these emissions change from year to year, often due to differences in heating and cooling requirements that result from variability in outside temperature. To enable year-to-year comparison, and show overall building performance and efficiency improvements, emissions are adjusted for heating and cooling requirements by “normalizing” emissions. To do this, we take the average temperature profile for a 30-year period (the “normal”) and calculate the number of days that require buildings to use energy to heat or cool – temperatures above or below 15 C. We then compare that to the current year to see if there was more or less energy required than normal.



## Reducing Public Sector Emissions

*"Since its inception, the Carbon Neutral Capital Program has distributed \$39 million to finance energy projects that will continue to reduce emissions and save money into the future".*



**ACTIONS LEADING TO REDUCTIONS IN GHG EMISSIONS** come in many forms and sizes. B.C.'s public sector organizations are developing innovative projects – from new buildings with state-of-the-art green technologies to lighting upgrades and behavioural changes that save money and change the way people think about energy use.

### THE CARBON NEUTRAL CAPITAL PROGRAM

The Carbon Neutral Capital Program was developed in April of 2012 to help school districts throughout B.C. reduce their carbon footprint and save money. Last year, the program was expanded to include additional funding for health authorities and post-secondary institutions, and a total of \$14.5 million was distributed to the public health, education, and post-secondary sectors. Since its inception, the Carbon Neutral Capital Program has distributed \$39 million to finance energy projects that will

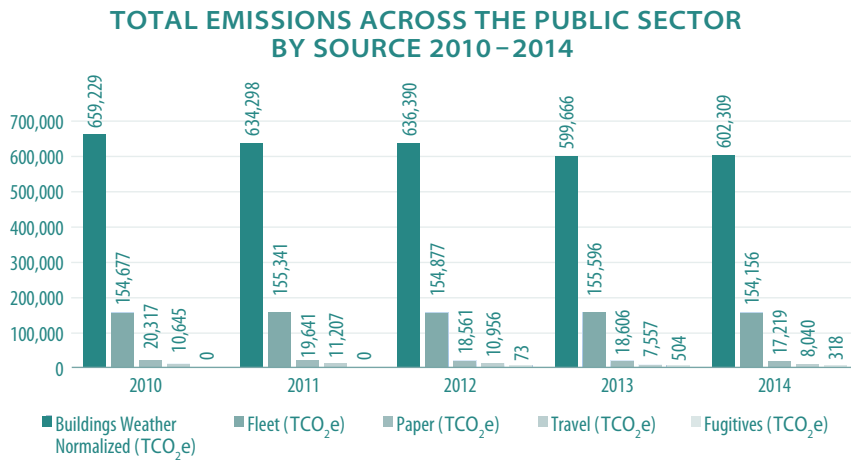
continue to reduce emissions and save money into the future.

**B.C.'S PUBLIC SECTOR** is also working with external partners to decrease emissions and improve energy efficiency. One example of this is the Continuous Optimization Program that is jointly funded and managed by BC Hydro and FortisBC. The Continuous Optimization Program offers incentives, tools and support to help participants get their buildings in good working order – and to keep them that way. B.C.'s public sector organizations have participated in the program as FortisBC and BC Hydro customers since the program began in 2009. Across the public sector, 389 projects have been implemented, with a savings of 43.5 gigawatt hours (GWh) in electricity (435 tonnes CO<sub>2</sub>e), and 348,101 gigajoules (GJ) in natural gas (17,318 tonnes CO<sub>2</sub>e) for a total reduction of 17,753 tonnes of CO<sub>2</sub>e from the program.\*



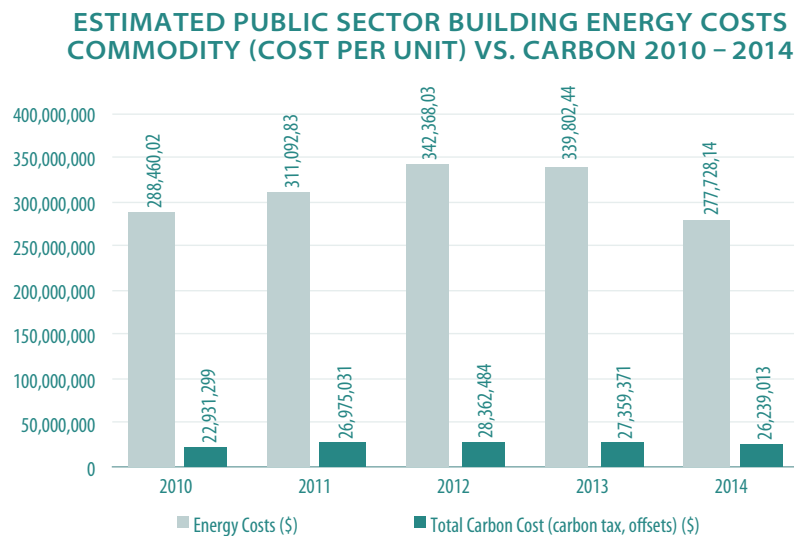


## Reducing Public Sector Emissions (continued)



**THIS GRAPH ILLUSTRATES** that, compared to energy costs, carbon tax and offsets represent a small fraction of their direct energy bill.

This is why the Carbon Neutral Government commitment focuses on reducing emissions and the amount the public sector spends on energy cost. ▼



*In 2014, six B.C. public sector organizations were recognized by Canada's 100 Greenest Employers, including: BC Hydro, BC Public Service, Insurance Corporation of BC, Provincial Health Services Authority, University of British Columbia and University of Northern British Columbia.*

\* The estimates for emissions reductions are based on the 2014 emission factors for electricity at 10 tCO<sub>2</sub>e/GWh. This provides a conservative estimate because the emissions factors for previous years of the program were as high as 25 tCO<sub>2</sub>e/GWh.

## School Districts

### 2014 EMISSIONS AT A GLANCE:

*B.C.'s School Districts*

- ▶ TOTAL GHG EMISSIONS:  
**174,955** Tonnes CO<sub>2</sub>e
- ▶ EMISSIONS THAT DO  
NOT REQUIRE OFFSETS:  
**19,461** Tonnes CO<sub>2</sub>e
- ▶ TOTAL OFFSETS  
PURCHASED:  
**155,494**  
Tonnes CO<sub>2</sub>e
- ▶ OFFSET INVESTMENT:  
**\$3,887,350**
- ▶ CARBON NEUTRAL  
CAPITAL PROGRAM  
FUNDING RECEIVED:  
**\$5,000,000**
- ▶ ESTIMATED TOTAL  
ENERGY COST:  
**\$85,000,000**

### SUCCESS STORY:

- ▶ *School District 48, Seas to Sky/Howe Sound  
Signal Hill Elementary Energy Conservation Leaders*



An enthusiastic Grade 4/5 class at Signal Hill Elementary School in Pemberton approached their Board of Trustees for a funding contribution towards an outdoor playground and classroom project at their school. The Board challenged the students to take on an initiative to reduce energy consumption at Signal Hill, the resulting savings from which would be contributed by the Board to the outdoor classroom. The students met with Facilities staff, toured the school (including the mechanical and electrical rooms), collected information about how the school systems operate, and discussed opportunities for saving energy. The Facilities staff showed the students how to read utility meters and heating, ventilation and air conditioning (HVAC) operating schedules.

*"Thank you and congratulations to the Grade 4/5 class at signal hill elementary for being energy conservation leaders and making a difference in your school and community"*

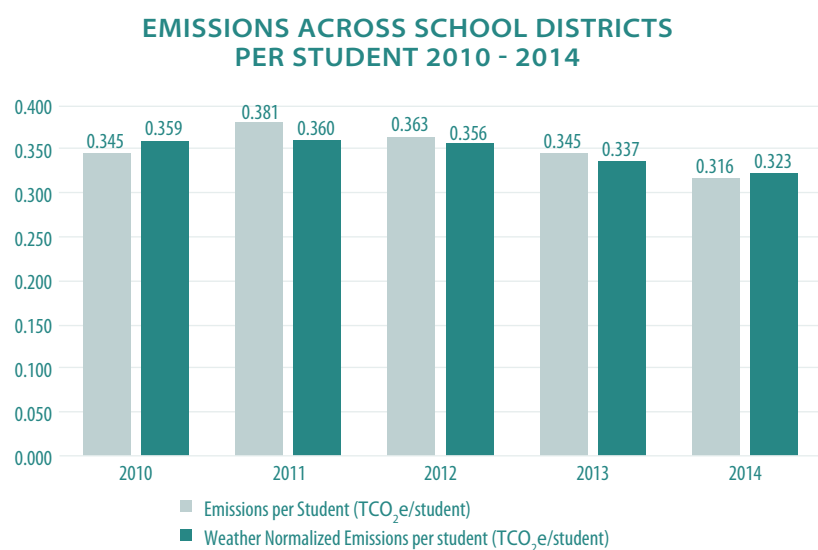
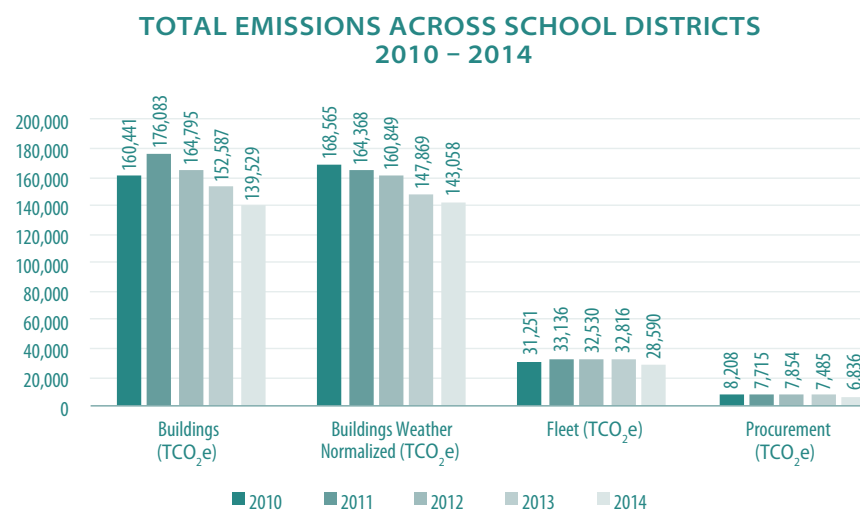
– JEFF BROWNE, ASSISTANT DIRECTOR OF FACILITIES FOR SD 48

The Grade 4/5 class have now engaged the entire local school community in energy savings activities and have implemented a number of initiatives including: Sweater Day; Hour with No Power; and Lights Out When Not Required. Students have



## School Districts (continued)

worked with custodians to ensure that lights are switched off as early as possible and with Facilities staff to tighten HVAC operating schedules and to reduce energy used for lighting by de-lamping areas that had surplus lighting. [Learn more about the Signal Hill Elementary Energy Conservation Leaders.](#)



### CLIMATE ACTION IN B.C.'S SCHOOLS

Across B.C., schools are leading by example, demonstrating a commitment to climate action and our students' environmental future. Through the Carbon Neutral Capital Program, for every dollar spent by school districts on carbon offsets, an equivalent investment is returned to the districts over time. These investments lead to lower emissions, which in turn help reduce the number of carbon offsets required to achieve carbon neutrality. School district projects funded from the program since 2012 includes 48 boiler replacement projects, as well as lighting, solar instalments, electric vehicles, windows, other energy efficiency upgrades, and energy studies. All school districts in B.C. have received funding from the program. These projects are projected to provide an annual savings of \$873,583 in energy costs, and 3,030 tonnes of CO<sub>2</sub>e. [Learn more about the 2014-15 Carbon Neutral Capital Program for schools.](#)

## Health Authorities

### 2014 EMISSIONS AT A GLANCE: *B.C.'s Health Authorities*

- ▶ TOTAL GHG EMISSIONS:  
**227,568** Tonnes CO<sub>2</sub>e
- ▶ EMISSIONS THAT DO  
NOT REQUIRE OFFSETS  
**627** Tonnes CO<sub>2</sub>e
- ▶ TOTAL OFFSETS  
PURCHASED:  
**226,941**  
Tonnes CO<sub>2</sub>e
- ▶ OFFSET INVESTMENT:  
**\$5,673,525**
- ▶ CARBON NEUTRAL  
CAPITAL PROGRAM  
FUNDING RECEIVED:  
**\$5,700,000**
- ▶ ESTIMATED TOTAL  
ENERGY COST:  
**\$120,000,000**



### SUCCESS STORY:

- ▶ *Fraser Health Authority's Critical Care Tower at Surrey Memorial Hospital*



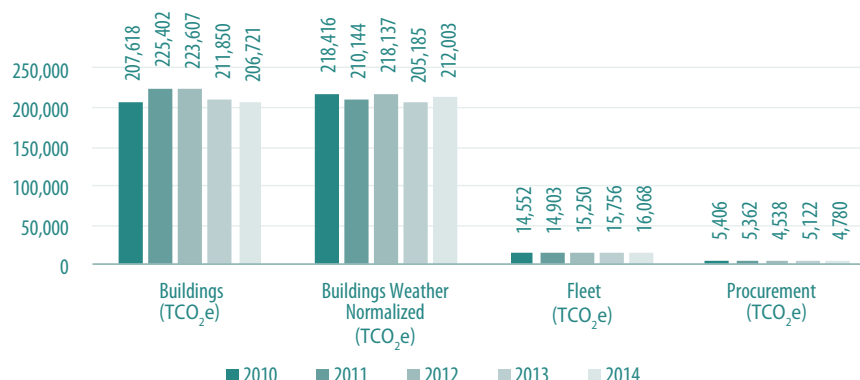
In 2014, Fraser Health partnered with Integrated Team Solutions (ITS) to deliver a state-of-the-art Critical Care Tower at Surrey Memorial Hospital. Recently LEED Gold certified, the eight storey (59,000 square metres) tower has key features of energy efficiency and sustainable design such as air-to-water heat pumps; effective use of daylighting and central lighting controls; use of wood and natural materials; and electric vehicle charging stations. The tower is predicted to save nearly 4 GWh equivalent of energy compared to a standard baseline building. Total consumption is estimated at 20 GWh equivalent, and space heating is achieved by heat recovery and air-to-water heat pumps with steam used only for peak conditions. This results in a 73:23 ratio of electrical to natural gas energy being used, which makes this new tower a low carbon energy building with estimated annual emission of less than 1,100 t CO<sub>2</sub>e.

*"BC Hydro was pleased to partner with Fraser Health and ITS for this innovative project within the BC Hydro New Construction program. Fraser Health continues to deliver on its energy reduction targets and commitment to reducing its carbon footprint in the public sector."* – JEFF WHITSON,  
SENIOR KEY ACCOUNT MANAGER, BC HYDRO

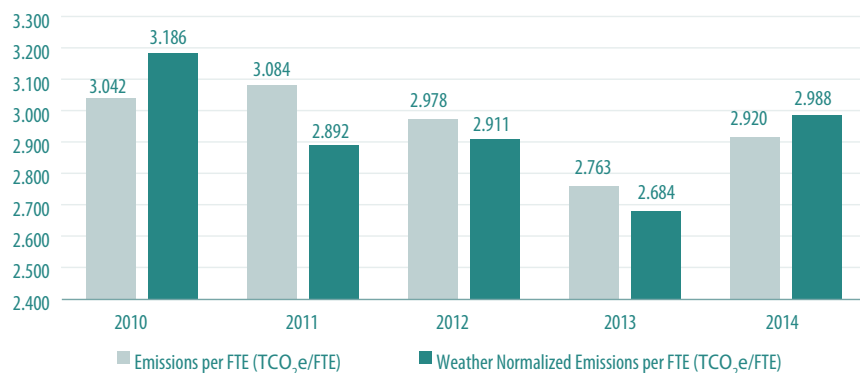


## Health Authorities (continued)

**TOTAL EMISSIONS ACROSS HEALTH AUTHORITIES  
2010 – 2014**



**EMISSIONS ACROSS HEALTH AUTHORITIES PER FULL TIME  
EQUIVALENT EMPLOYEE (FTE) 2010 – 2014**



### CLIMATE CHANGE ADAPTATION IN THE HEALTH SECTOR

Island Health has launched a pilot project, working closely with Engineers Canada, to conduct a climate change vulnerability assessment of one of its larger hospitals. Using climate data predictions provided by the Pacific Climate Impacts Consortium at the University

of Victoria, the assessment will reveal if there is any increased risk that changes in weather might impair or disable hospital operations. The results of this pilot project will inform future operations and design decisions so that resiliency to climate impacts can be improved.

### CLIMATE ACTION IN B.C.'S HEALTH SECTOR

Creating an optimal healthcare environment is an important part of the healing process. B.C.'s requirement that all new public sector buildings meet Leadership in Energy and Environmental Design (LEED) Gold or equivalent standards is leading to better facilities with a lower carbon footprint. This results in improved daylight conditions, better indoor air quality, and an overall improved healing and working environment for patients and staff.

Through the Carbon Neutral Capital Program, in 2014-15, the first fiscal year of the expanded program, B.C.'s six health authorities shared \$5.7 million in provincial capital funding to support energy savings and greenhouse gas reduction projects. Twenty-three energy-efficiency projects were approved in 2014-15, including boiler and HVAC system replacements, lighting upgrades and heat recovery system installations. The total value of these 23 projects – which includes contributions from FortisBC, regional hospital districts, and health authority funding – is estimated at \$7.2 million. The projects are expected to reduce annual emissions by more than 3,600 tonnes CO<sub>2</sub>e and save the health authorities more than \$950,000 in annual energy costs. [Learn more about the 2014-15 Carbon Neutral Capital Program for Health Authorities.](#)

## Crown Corporations

### 2014 EMISSIONS AT A GLANCE: B.C.'s Crown Corporations

- ▶ TOTAL GHG EMISSIONS:  
**146,852** Tonnes CO<sub>2</sub>e
- ▶ EMISSIONS THAT DO  
NOT REQUIRE OFFSETS:  
**63,498** Tonnes CO<sub>2</sub>e
- ▶ TOTAL OFFSETS  
PURCHASED:  
**83,354**  
Tonnes CO<sub>2</sub>e
- ▶ OFFSET INVESTMENT:  
**\$2,083,850**
- ▶ ESTIMATED TOTAL  
ENERGY COST:  
**\$95,000,000**

### SUCCESS STORY:

- ▶ *BC Transit Natural Gas Buses in  
Nanaimo Regional Transit System*



In March 2014, BC Transit introduced compressed natural gas (CNG) buses in its fleet beginning with the Nanaimo Regional Transit system. With support from FortisBC's Natural Gas for Transportation Incentive Program and the Regional District of Nanaimo, 25 CNG buses were put into regular service in Nanaimo. Compared to diesel, the primary benefits of CNG buses are lower and more stable fuel prices. Additional benefits include quieter engines and simplified emission systems.

*"The CNG project helps the Regional District of Nanaimo and BC Transit to deliver on its shared commitment to sustainable and affordable public transportation solutions"*

– MANUEL ACHADINHA, BC TRANSIT PRESIDENT AND CEO

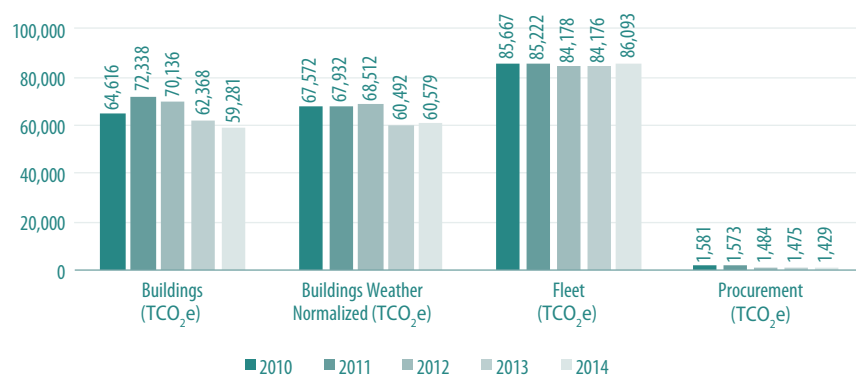


BC Transit will implement a CNG bus fleet and fuelling infrastructure in the Kamloops Transit System in 2015 and will continue to seek opportunities to deploy additional CNG buses in communities throughout the province as BC Transit prepares to replace half of its fleet (about 500 buses) over the next five years. Using cleaner energy natural gas buses in BC Transit's fleet helps to reduce greenhouse gas emissions and other pollutants while providing effective, efficient, and affordable mobility for citizens across B.C.

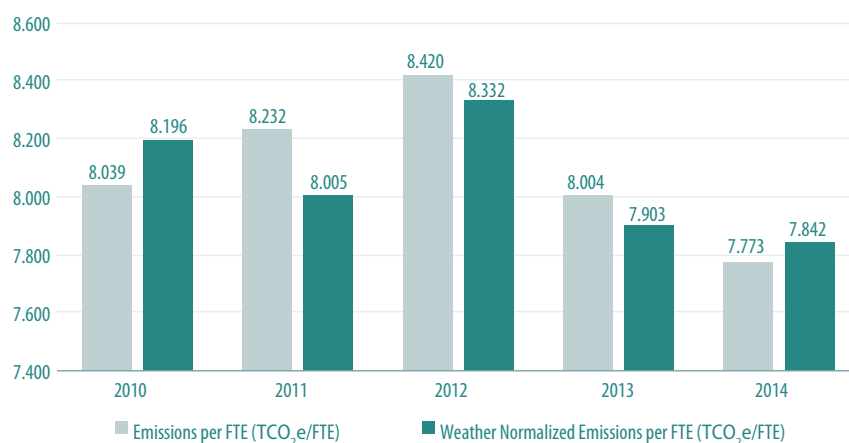


## Crown Corporations (continued)

**TOTAL EMISSIONS ACROSS CROWN CORPORATIONS  
2010 – 2014**



**EMISSIONS ACROSS CROWN CORPORATIONS  
PER FTE 2010 – 2014**



### CLIMATE ACTION IN B.C.'S CROWN CORPORATIONS

Many of B.C.'s Crown corporations and agencies such as the Insurance Corporation of British Columbia and the Royal BC Museum interact with the public on a daily basis and, as such, have a role to play as ambassadors of our province and its values. By taking action to reduce their emissions, B.C.'s Crown corporations are showcasing our leadership as a province and reducing the emissions associated with the services British Columbians access.

### A NUMBER OF B.C.'S CROWN CORPORATIONS

have been recognized for their work in sustainability. BC Housing was awarded the Government Leadership Award by the Canada Green Building Council for their extensive adoption of LEED certification. BC Hydro is a three-time winner of the Canadian Electricity Association's *Sustainable Electricity Awards* (2010, 2013 and 2014), and received the 2012 Most Bike Friendly Business Award from HUB, a recognized cycling organization in Metro Vancouver.

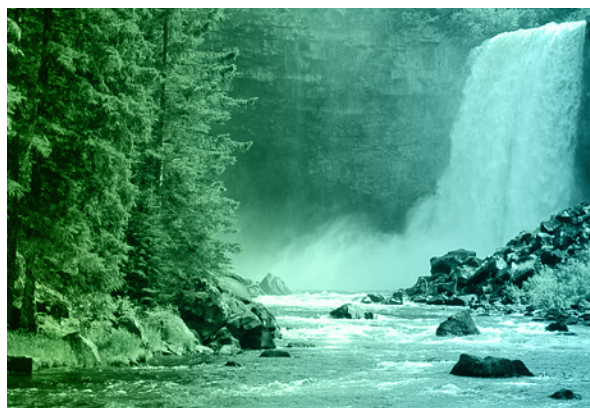


## Universities and Colleges

### 2014 EMISSIONS AT A GLANCE:

*B.C.'s Universities and Colleges*

- ▶ TOTAL GHG EMISSIONS:  
**150,488** Tonnes CO<sub>2</sub>e
- ▶ EMISSIONS THAT DO  
NOT REQUIRE OFFSETS:  
**24,105** Tonnes CO<sub>2</sub>e
- ▶ TOTAL OFFSETS  
PURCHASED:  
**126,383** Tonnes CO<sub>2</sub>e
- ▶ OFFSET INVESTMENT:  
**\$3,159,575**
- ▶ CARBON NEUTRAL  
CAPITAL PROGRAM  
FUNDING RECEIVED:  
**\$3,800,000**
- ▶ ESTIMATED TOTAL  
ENERGY COST:  
**\$85,000,000**



### SUCCESS STORY:

#### ▶ Capilano University Energy Conservation Measures



Capilano University is embedding sustainability and energy conservation into their campus community using curriculum, engagement and daily facilities operations as a platform for students, faculty and employees to bring sustainability to the forefront of student life. A \$780,000 campus wide replacement of the aging digital controls systems in the Birch, Cedar, Willow (Studio Arts), Fir, Library and Cedar buildings has recently been completed. Implementation of energy conservation measures in lighting and HVAC operation and controls has reduced energy consumption by 559,000 kWh + 1,690 GJ (44,603 m<sup>3</sup>), resulting in reductions of approximately 282 tonnes CO<sub>2</sub>e.

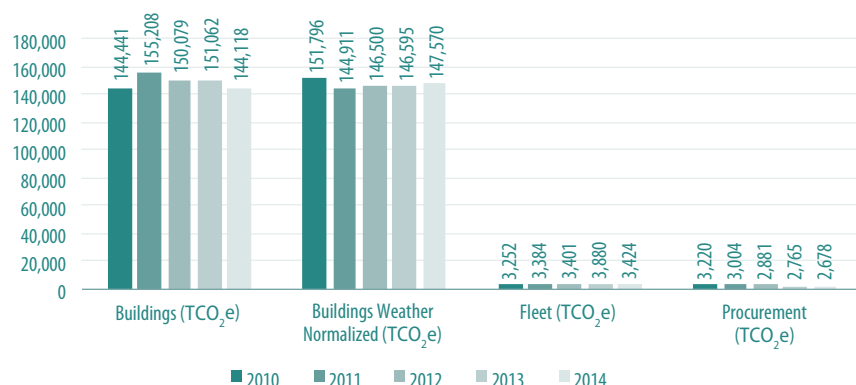
*"I am really proud of our campus community – we are on track to meet and beat our energy consumption reduction and GHG reduction targets by December 2015! We will achieve this because of the passion, dedication, commitment and participation by our campus community. Together we are making a difference!" – SUSAN DOIG, MBA, SMP  
– Director, Facilities and BC Hydro Funded Energy Manager.*

By December 31, 2014, Capilano University had reduced its Building Energy Performance Index from 419 ekWh/M<sup>2</sup> to 278 ekWh/M<sup>2</sup>; (a 33.6% reduction). This represents a total reduction of 141 ekWh/M<sup>2</sup> over its 2007 baseline and surpassing its key reduction target (natural gas and electricity combined) of 33% by December 31, 2015.

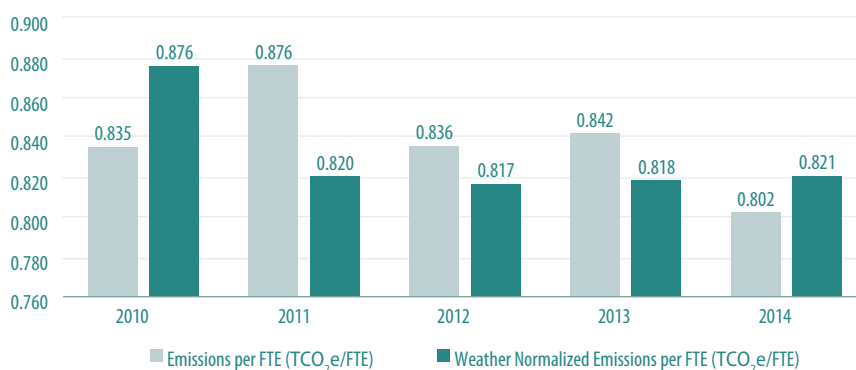


## Universities and Colleges (continued)

**TOTAL EMISSIONS ACROSS UNIVERSITIES AND COLLEGES  
2010 - 2014**



**EMISSIONS ACROSS UNIVERSITIES AND COLLEGES  
PER STUDENT 2010 - 2014**

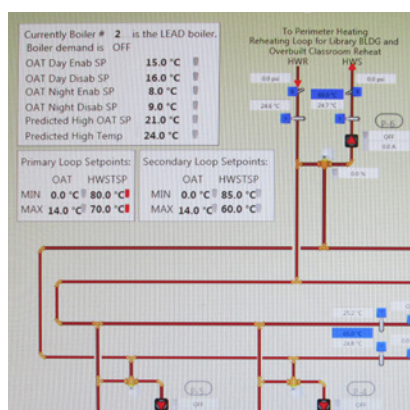


### CLIMATE ACTION IN B.C.'S UNIVERSITIES AND COLLEGES

B.C.'s public post-secondary institutions are on the cutting edge of climate action in Canada. The Pacific Institute for Climate Solutions is a climate research network created by the government of B.C. through a \$90 million endowment, and lead by the University of Victoria in collaboration with Simon Fraser University, the University of British Columbia and the University of Northern British Columbia. These facilities don't simply look at what others can do to reduce emissions, they are incubators for new approaches to emissions reductions.

In 2014-15, the first fiscal year of the expanded Carbon Neutral Capital Program, \$3.8 million in provincial capital funding was distributed to post-secondary institutions to support energy savings and greenhouse gas reduction projects. These projects included replacing boilers with high-efficiency systems, a biomass facility, heating and ventilation system and lighting upgrades, as well as a geothermal system. It is projected that the 2014-15 post-secondary institutions capital projects will reduce greenhouse gas emissions of 1,284 tonnes CO<sub>2</sub>e. Savings in energy costs of the approved post-secondary capital projects is estimated to be \$433,033 per year.

[Learn more about the 2014-15 Carbon Neutral Capital Program for Post-Secondary Institutions.](#)



## Core Government

### 2014 EMISSIONS AT A GLANCE:

*B.C.'s Core Government*

- ▶ TOTAL GHG EMISSIONS:  
**67,720** Tonnes CO<sub>2</sub>e
- ▶ EMISSIONS THAT DO  
NOT REQUIRE OFFSETS:  
**754** Tonnes CO<sub>2</sub>e
- ▶ TOTAL OFFSETS  
PURCHASED:  
**66,965**  
Tonnes CO<sub>2</sub>e
- ▶ OFFSET INVESTMENT:  
**\$1,674,125**
- ▶ ESTIMATED TOTAL  
ENERGY COST:  
**\$45,000,000**

### SUCCESS STORY:

▶ *Ministry of Transportation*



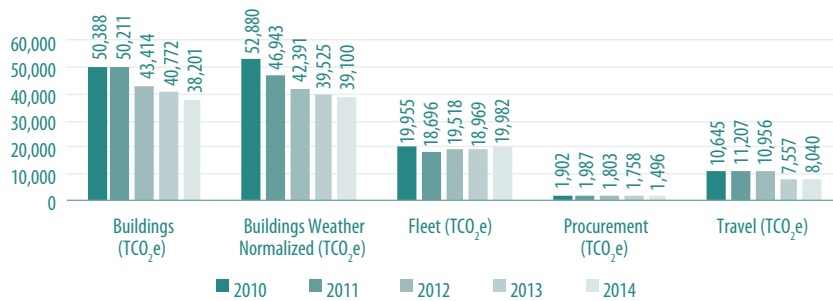
Several ministries have sizable vehicle fleets that are used for ministry operations. All fleets are now managed under the “right-sizing” principle in which older vehicles nearing the end of their service life are replaced with the smallest and most fuel-efficient vehicle that will do the required job. In 2014, the Ministry of Transportation and Infrastructure replaced twenty large half and three-quarter tonne trucks with smaller, more fuel efficient Toyota Tacoma pick-up trucks. Replacing vehicles with smaller and more fuel-efficient models will impact average emissions from the vehicles as well as cost of fuel.



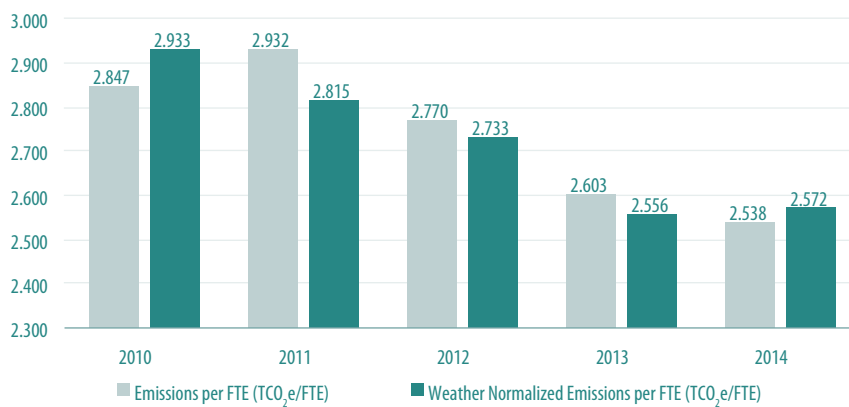


## Core Government *(continued)*

**TOTAL EMISSIONS ACROSS CORE GOVERNMENT  
2010 – 2014**

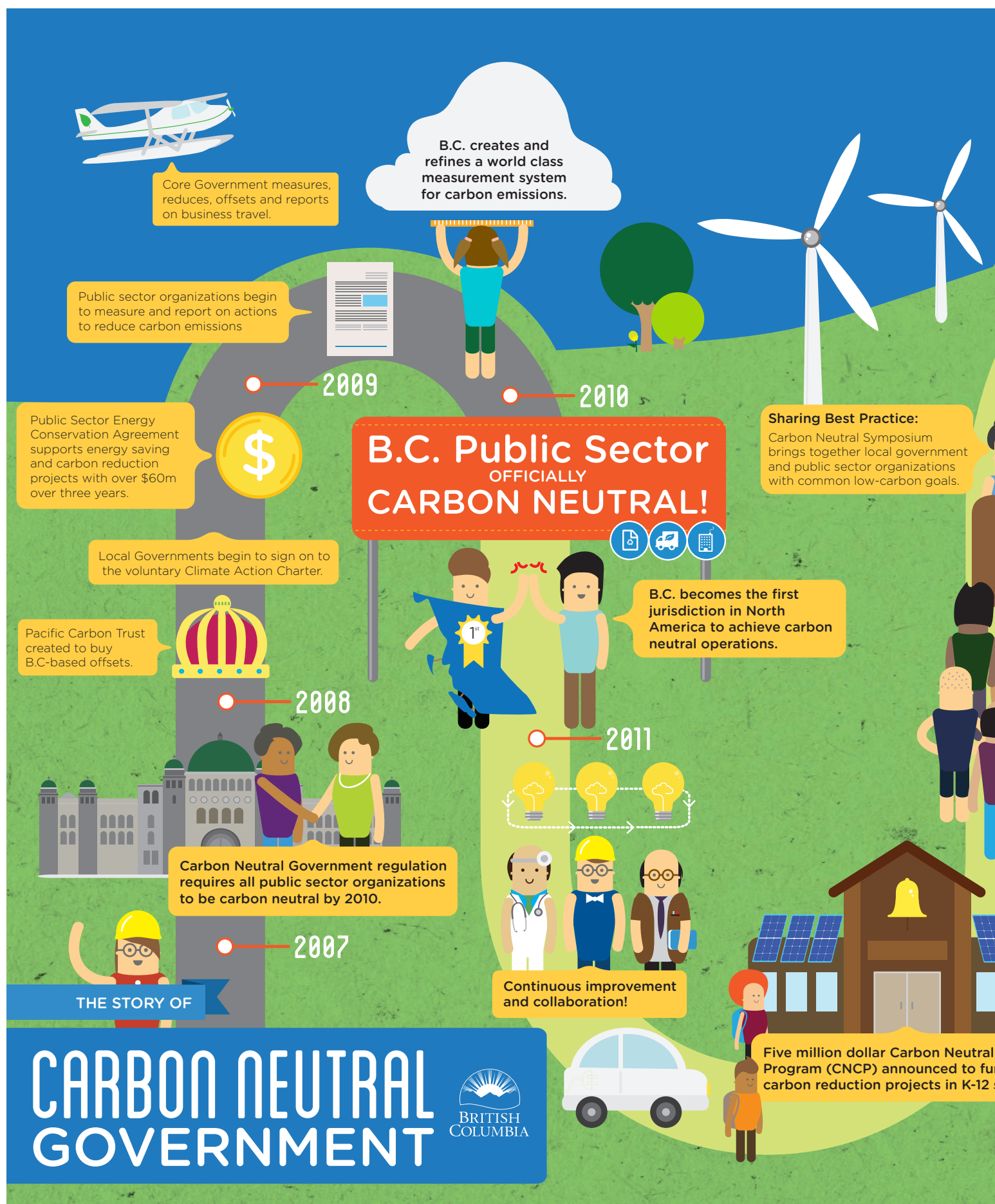


**ESTIMATED EMISSIONS ACROSS CORE GOVERNMENT  
PER FTE 2010 – 2014**

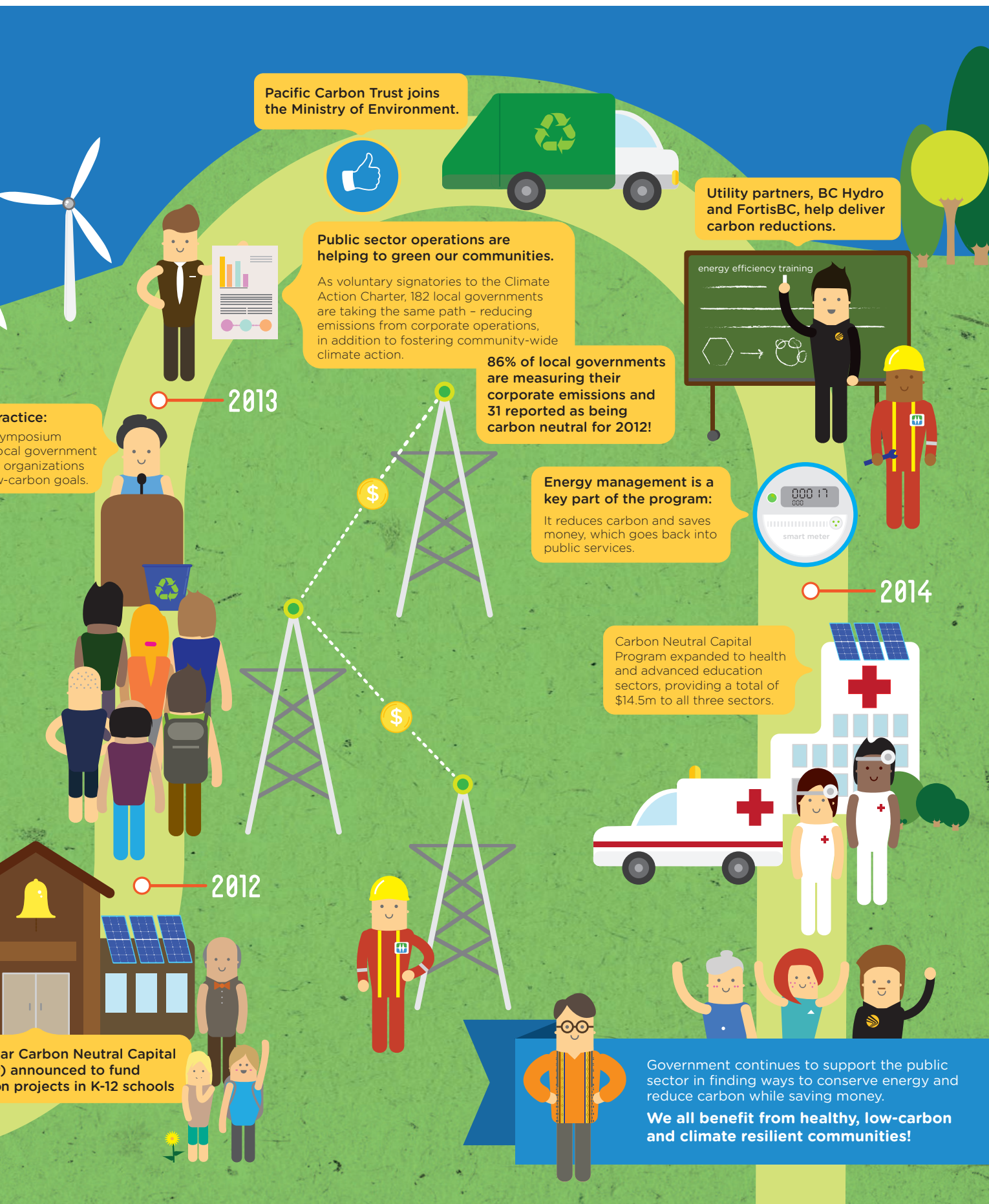


### CLIMATE ACTION IN B.C.'S CORE GOVERNMENT

Core government in B.C. is made up of ministries and agencies that collectively have more than 26,000 staff. Initiatives taking place within core government to reduce emissions and conserve energy include increased use of video conferencing to reduce travel, paperless office initiatives and various “green” behavioural campaigns such as the annual “hibernation challenge” and participation in Bike to Work Week. Shared Services BC administers most government buildings and is dedicated to reducing energy consumption in its existing buildings, as well as in the construction of new buildings that are certified at the LEED Gold level. Core government has a sustainable procurement and green purchasing guide that encourages ministries to make environmentally responsible procurement choices, increasing the government’s conservation of resources and developing a demand for environmentally responsible products and services.









## What is Carbon Neutrality?

*"...hospitals, schools, colleges and universities, Crown corporations, ministries and agencies have been carbon neutral in their operations since 2010..."*

**CARBON NEUTRALITY** is one of many strategies for encouraging emissions reductions and taking leadership on climate action. It makes particular sense for government leadership, wherein a governmental entity takes full responsibility for its emissions. To become carbon neutral, an organization measures its carbon emissions, takes actions to reduce those emissions as much as possible, purchases offsets for any remaining emissions that cannot

be eliminated and reports on their total greenhouse gas emissions as required by the *Greenhouse Gas Reduction Targets Act*.

In the British Columbia context, all hospitals, schools, colleges and universities, Crown corporations, ministries and agencies have been carbon neutral in their operations since 2010 for their paper, fleet and building emissions. Ministries and agencies are also carbon neutral for their business travel.



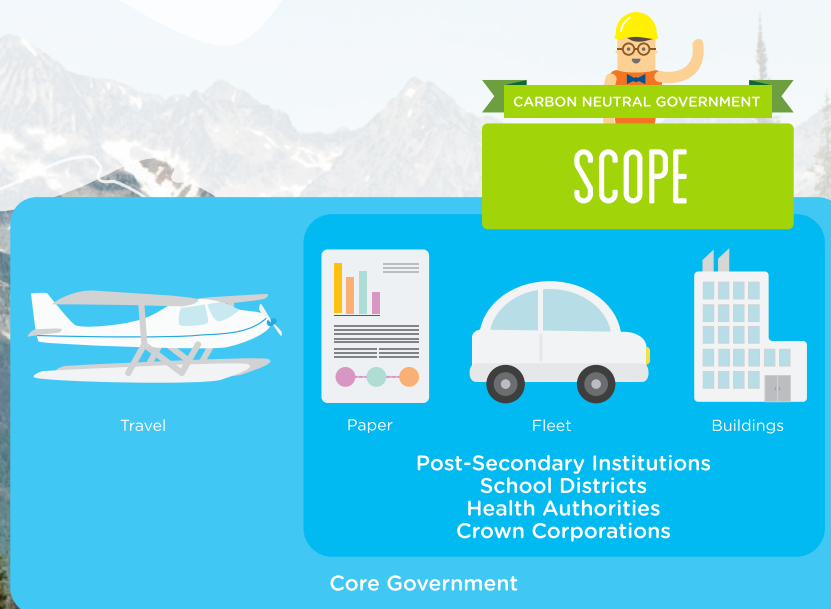


## Carbon Offsets

**B.C.'S INVESTMENT IN CARBON OFFSETS** supports innovative projects that drive emission reductions and create economic opportunities across the province. These projects have spurred investments in fuel switching, energy efficiency and forestry sequestration. The investments made in sequestration projects have contributed to conservation efforts in ancient B.C. rainforests that are resulting in social, economic and ecological benefits while removing more harmful greenhouse gases from the atmosphere.

The portfolio of offsets projects span economic sectors and regions of the province. It has been estimated that since 2007, B.C.'s investment in carbon offsets has leveraged over \$300 million of private sector investment. For the 2014 carbon neutral year, a total of 662,091 tonnes CO<sub>2</sub>e of offsets will be retired on behalf of B.C.'s 130 provincial public sector organizations. These offsets were sourced from 14 different projects across the province. For more information about the projects, please see the [2014 Emissions Offsets Portfolio](#).

*"...since 2007, B.C.'s investment in carbon offsets has leveraged over \$300 million of private sector investment."*



## Verification

**VERIFICATION** is an independent, third-party process that looks at the quality of the emissions data entered into the software program developed by the Government of British Columbia as a tool to measure and report GHG emissions by an organization, as well as the processes used to collect, compile and confirm the accuracy of that data. If the data is found to be incorrect by more than 5%, it is considered a material error and the organization receives a “qualified” report.

**SINCE VERIFICATION** began in the 2011 reporting year, 26 organizations have had their emissions data verified. Of these, two have received qualified reports. An additional five organizations will be verified for the 2014 reporting year.

### TO ENSURE THE INTEGRITY OF THE DATA WE USE FOR OUR GHG EMISSIONS ESTIMATE,

public sector organizations annually self-certify that their emissions data are complete and accurate, and a selection of public sector organizations are randomly selected for an independent review of their data collection and input practices. In 2014, nine public sector organizations had their 2013 emissions verified by Deloitte & Touche LLP:

- ▶ Interior Health Authority
- ▶ Simon Fraser University
- ▶ School District 36 Surrey
- ▶ School District 44 North Vancouver
- ▶ School District 59 Peace River/ Dawson Creek
- ▶ School District 78 Fraser/ Cascade
- ▶ School District 52 Prince Rupert
- ▶ Okanagan College
- ▶ Insurance Corporation of British Columbia

All but one of these organizations received a report stating that there were no material errors in their emissions. Errors are considered “material” if they comprise more than 5% of the total data for an organization. The organization that received a qualified report has actively undertaken efforts to ensure that the issues identified have been corrected.

A number of the other organizations verified for 2014 had small errors in their data which were less than 5% and are not considered to be material. In many cases these small errors are common to most organizations.

These are items such as:

#### 1. KEY PERSON RISK:

The data collection process rests with only one person, so if they are unable to do the work, others need to begin the process over again.

#### 2. DOCUMENTATION:

The data collection process may not be properly documented to ensure others know all the steps involved.

#### 3. DATA ERRORS:

Simple data errors such as those arising from manual data entry can lead to larger errors if they happen frequently.



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#### 4. ASSET LIST ERRORS:

In some cases the list of assets for an organization may be incomplete or inaccurate. This can lead to not all emissions being reported or, in some cases, emissions being reported for assets no longer in use.

#### 5. LEASED PROPERTIES:

Some leased properties were not reported properly due to incorrect assumptions about scope for reporting.

The Climate Action Secretariat has worked with these organizations to ensure their reporting processes address these issues and updated information is provided to the entire public sector to ensure these types of issues do not persist. One project that is helping with this is the Electronic Data Exchange (EDX). The EDX enables energy consumption data to be loaded directly into the online measurement tool, which helps to reduce human error from manual data entry and decreases the time needed for data input. EDX is currently being used by 55 public sector organizations.





## Appendix A:

### 2014 B.C. PUBLIC SECTOR EMISSIONS AND CARBON OFFSET INVESTMENT

The total emissions reported meet the reporting requirements of the Carbon Neutral Government Regulation of the *Greenhouse Gas Reduction Targets Act*. As per the regulation, some of the reported emissions in the total do not require the purchase of offsets in

order to reach carbon neutrality. This includes emissions from mobile or stationary combustion of biomass as well as emissions from bus fleets (e.g., school buses and BC Transit buses). The total offsets purchased matches the emissions requiring offsets. For more information on how the B.C. public sector measures emissions, please visit [LiveSmartBC.ca/carbonneutral](http://LiveSmartBC.ca/carbonneutral).

ORGANIZATION	Total Emissions (tCO <sub>2</sub> e)	Total Offsets Purchased (tCO <sub>2</sub> e)	Offset Investment
<b>PUBLIC SECTOR TOTAL</b>	<b>767,583</b>	<b>659,138</b>	<b>\$16,478,450**</b>
<b>CORE GOVERNMENT TOTAL</b>	<b>67,720</b>	<b>66,965</b>	<b>\$1,674,125**</b>
<b>CROWN CORPORATIONS TOTAL</b>	<b>146,852</b>	<b>83,354</b>	<b>\$2,083,850</b>
BC Assessment Authority	421	418	\$10,450
BC Council for International Education	7	7	\$175
BC Games Society	3	3	\$75
BC Housing Management Commission	21,942	21,928	\$548,200
BC Hydro	27,383	26,637	\$665,925
BC Innovation Council	2	2	\$50
BC Liquor Distribution Branch	3,376	3,356	\$83,900
BC Lottery Corporation	1,315	1,304	\$32,600
BC Pavilion Corporation	3,927	3,918	\$97,950
BC Transit	63,843	1,178	\$29,450
British Columbia Securities Commission	231	231	\$5,775
Columbia Basin Trust	24	24	\$600
Columbia Power Corporation	24	24	\$600
Community Living British Columbia	535	533	\$13,325
Destination BC	112	112	\$2,800
First People's Heritage, Language & Culture Council	2	2	\$50
Forestry Innovation Investment	264	264	\$6,600
Industry Training Authority	32	32	\$800
Insurance Corporation of BC	22,484	22,466	\$561,650
Knowledge Network Corporation	106	106	\$2,650
Legal Services Society	47	47	\$1,175
Oil and Gas Commission	472	463	\$11,575
Pacific Carbon Trust	1	1	\$25
Partnerships BC	21	21	\$525
Private Career Training Institutions	2	2	\$50
Provincial Capital Commission	117	117	\$2,925
Royal BC Museum	74	74	\$1,850
Transportation Investment Corporation	<b>85</b>	<b>85</b>	<b>\$2,125</b>

ORGANIZATION	Total Emissions (tCO <sub>2</sub> e)	Total Offsets Purchased (tCO <sub>2</sub> e)	Offset Investment
<b>HEALTH AUTHORITY TOTAL</b>	<b>227,568</b>	<b>226,941</b>	<b>\$5,673,525</b>
BC Emergency Health Services	14,470	14,064	\$351,600
Bella Coola General Hospital	169	163	\$4,075
Fraser Health Authority	38,873	38,862	\$971,550
Interior Health Authority	43,051	42,975	\$1,074,375
Louis Brier Home & Hospital	658	657	\$16,425
Menno Hospital	430	430	\$10,750
Mount St. Mary Hospital	355	355	\$8,875
Nisga'a Valley Health Authority	181	176	\$4,400
Northern Health Authority	22,512	22,480	\$562,000
Providence Health Care	11,547	11,542	\$288,550
Provincial Health Services Authority	18,911	18,902	\$472,550
RW Large Memorial Hospital	100	100	\$2,500
St. Joseph's General Hospital	1,292	1,289	\$32,225
St. Michael's Centre	652	652	\$16,300
Vancouver Coastal Health Authority	43,355	43,337	\$1,083,425
Vancouver Island Health Authority	30,977	30,922	\$773,050
Wrinch Memorial Hospital	34	34	\$850
<b>POST SECONDARY TOTAL</b>	<b>150,488</b>	<b>126,383</b>	<b>\$3,159,575</b>
British Columbia Institute of Technology	8,363	8,360	\$209,000
Camosun College	1,443	1,442	\$36,050
Capilano University	1,668	1,666	\$41,650
College of New Caledonia	3,314	3,312	\$82,800
College of the Rockies	733	716	\$17,900
Douglas College	1,707	1,706	\$42,650
Emily Carr University of Art and Design	672	672	\$16,800
Justice Institute of BC	619	616	\$15,400
Kwantlen Polytechnic University	2,383	2,382	\$59,550
Langara College	1,243	1,243	\$31,075
Nicola Valley Institute of Technology	389	388	\$9,700
North Island College	1,013	1,012	\$25,300
Northern Lights College	1,789	1,783	\$44,575
Northwest Community College	1,475	1,461	\$36,525
Okanagan College	1,465	1,463	\$36,575

ORGANIZATION	Total Emissions (tCO <sub>2</sub> e)	Total Offsets Purchased (tCO <sub>2</sub> e)	Offset Investment
Royal Roads University	1,068	1,066	\$26,650
Selkirk College	1,165	1,164	\$29,100
Simon Fraser University	15,696	15,686	\$392,150
Thompson Rivers University	3,965	3,958	\$98,950
University of British Columbia	71,557	55,006	\$1,375,150
University of Northern British Columbia	9,595	2,163	\$54,075
University of The Fraser Valley	2,294	2,294	\$57,350
University of Victoria	11,564	11,552	\$288,800
Vancouver Community College	2,326	2,326	\$58,150
Vancouver Island University	2,982	2,943	\$73,575
<b>SCHOOL DISTRICT TOTAL</b>	<b>174,955</b>	<b>155,494</b>	<b>\$3,887,350</b>
School District 05 – Southeast Kootenay	3,376	2,880	\$72,000
School District 06 – Rocky Mountain	1,895	1,395	\$34,875
School District 08 – Kootenay Lake	2,929	2,164	\$54,100
School District 10 – Arrow Lakes (Nakusp)	356	257	\$6,425
School District 19 – Revelstoke	493	420	\$10,500
School District 20 – Kootenay-Columbia	2,016	1,628	\$40,700
School District 22 – Vernon	2,597	1,874	\$46,850
School District 23 – Central Okanagan (Kelowna)	5,416	4,513	\$112,825
School District 27 – Cariboo-Chilcoltin	4,122	2,900	\$72,500
School District 28 – Quesnel School	2,098	1,490	\$37,250
School District 33 – Chilliwack	3,431	2,670	\$66,750
School District 34 – Abbotsford	4,233	3,348	\$83,700
School District 35 – Langley	5,956	5,506	\$137,650
School District 36 – Surrey	17,126	16,911	\$422,775
School District 37 – Delta	2,670	2,619	\$65,475
School District 38 – Richmond	5,527	5,317	\$132,925
School District 39 – Vancouver	15,613	15,593	\$389,825
School District 40 – New Westminster	1,555	1,553	\$38,825
School District 41 – Burnaby	5,037	5,028	\$125,700
School District 42 – Maple Ridge	3,635	3,629	\$90,725
School District 43 – Coquitlam	8,666	8,623	\$215,575
School District 44 – North Vancouver	3,703	3,637	\$90,925
School District 45 – West Vancouver	1,367	1,365	\$34,125
School District 46 – Sunshine Coast	924	921	\$23,025
School District 47 – Powell River	1,024	856	\$21,400
School District 48 – Sea to Sky	1,952	1,580	\$39,500

ORGANIZATION	Total Emissions (tCO <sub>2</sub> e)	Total Offsets Purchased (tCO <sub>2</sub> e)	Offset Investment
School District 49 – Central Coast	315	265	\$6,625
School District 50 – Haida Gwaii	586	578	\$14,450
School District 51 – Boundary	1,009	800	\$20,000
School District 52 – Prince Rupert	875	863	\$21,575
School District 53 – Okanagan Similkameen	908	694	\$17,350
School District 54 – Bulkley Valley	1,272	925	\$23,125
School District 57 – Prince George	6,085	6,073	\$151,825
School District 58 – Nicola-Similkameen	1,025	851	\$21,275
School District 59 – Peace River South (Dawson Creek)	3,646	2,707	\$67,675
School District 60 – Peace River North (Fort St. John)	4,367	3,302	\$82,550
School District 61 – Greater Victoria	5,041	5,021	\$125,525
School District 62 – Sooke	2,287	1,876	\$46,900
School District 63 – Saanich	1,716	1,379	\$34,475
School District 64 – Gulf Islands	237	120	\$3,000
School District 67 – Okanagan Skaha (Penticton)	1,701	1,631	\$40,775
School District 68 – Nanaimo-Ladysmith	3,808	3,339	\$83,475
School District 69 – Qualicum	1,953	1,489	\$37,225
School District 70 – Alberni	1,016	897	\$22,425
School District 71 – Comox Valley	2,240	2,206	\$55,150
School District 72 – Campbell River	2,351	2,014	\$50,350
School District 73 – Kamloops/Thompson	5,769	4,246	\$106,150
School District 74 – Gold Trail	1,023	648	\$16,200
School District 75 – Mission	2,034	1,725	\$43,125
School District 78 – Fraser – Cascade	1,072	823	\$20,575
School District 79 – Cowichan Valley	2,217	1,701	\$42,525
School District 81 – Fort Nelson	647	640	\$16,000
School District 82 – Coast Mountain	2,351	2,342	\$58,550
School District 83 – North Okanagan-Shuswap	3,119	2,165	\$54,125
School District 84 – Vancouver Island West	184	164	\$4,100
School District 85 – Vancouver Island North	680	564	\$14,100
School District 87 – Stikine	459	458	\$11,450
School District 91 – Nechako Lakes	3,211	2,357	\$58,925
School District 92 – Nisga'a	176	96	\$2,400
School District 93 – Conseil Francophone	1,855	1,855	\$46,375

\*\* PLEASE NOTE that individual tonnes and dollar values are rounded to the nearest whole numbers, therefore individual numbers may not equal total values.

\*\* PLEASE NOTE that due to routine adjustments to prior year emissions, an additional 2,953 tonnes CO<sub>2</sub>e worth of emissions were offset to ensure that all PSO emissions were accounted for. A total of 662,091 tonnes CO<sub>2</sub>e were offset.

\*\* CORE GOVERNMENT actual payment was \$2,000,000; this would make the actual Public Sector Total payment \$16,804,300

## Appendix B:

### 2014 CARBON NEUTRAL GOVERNMENT OFFSET PORTFOLIO

PROJECT	REGION	DESCRIPTION	PROJECT TONNES
<i>Biomass Fuel Switch (Interfor, Adams Lake)</i>	<i>Thompson Okanagan</i>	Interfor found an innovative yet practical way to reduce its reliance on fossil fuels, turning to wood waste from its own operations to provide fuel to the sawmill. The project also results in better air quality – important for this popular tourist destination.	16,631
<i>Bus Fuel Efficiency Project (TransLink, Metro Vancouver)</i>	<i>Mainland – Southwest</i>	This project in the public transit sector replaced conventional diesel buses with more fuel efficient diesel hybrid buses. As transportation accounts for the largest share of GHG emissions in B.C., encouraging the use of fuel efficient vehicles is good for the environment, transit users, and the taxpayers who fund public transit.	6,044
<i>Improved Forest Management (Cheakamus Community Forest)</i>	<i>Mainland – Southwest</i>	The Cheakamus Community Forest project retains more carbon in the forest by increasing protected areas and uses lower impact cutting techniques, such as smaller cutblocks, more careful, intensive harvesting, and broader riparian protection. Revenues from this project help overcome barriers to environmental and economic sustainability.	13,707
<i>Clean Tech Biomass Gasification (Kruger Products/ Nexterra, New Westminster)</i>	<i>Mainland – Southwest</i>	Kruger Products installed the Canadian pulp and paper industry's first biomass gasification unit, which decreased the mill's emissions by as much as 50% annually. Developed by Vancouver's Nexterra Systems Corp., the unit converts local wood waste into clean-burning synthesis gas to provide steam for the mill.	15,570
<i>Energy Efficiency (Canfor Pulp, Prince George)</i>	<i>Cariboo</i>	In northern British Columbia, Canfor Pulp upgraded a recovery boiler to a more efficient one. The result is a marked improvement in local air quality and a reduction in natural gas consumption.	56,673
<i>Forest Conservation/ Improved Forest Management (Great Bear-Haida Gwaii)</i>	<i>North Coast BC</i>	The Great Bear (Haida Gwaii) Forest Carbon Project reduces timber harvest levels, converting forests that were previously available for logging to protected forests – a result of significant effort and collaboration by local First Nation communities and the BC government. The project sequesters more carbon, protects healthy ecosystems and supports important Haida cultural sites.	36,067
<i>Forest Conservation/ Improved Forest Management (Great Bear- North &amp; Central Mid- Coast)</i>	<i>North Coast BC</i>	This project reduces timber harvest levels and protects forests in BC's magnificent Great Bear Rainforest, renowned for its immense, ancient stands of trees – a result of significant effort and collaboration by local First Nation communities and the BC government. The project reduces timber harvest levels, protecting extensive areas of this forest that were previously slated for logging, increasing carbon stocks as the forest continues to grow.	335,467



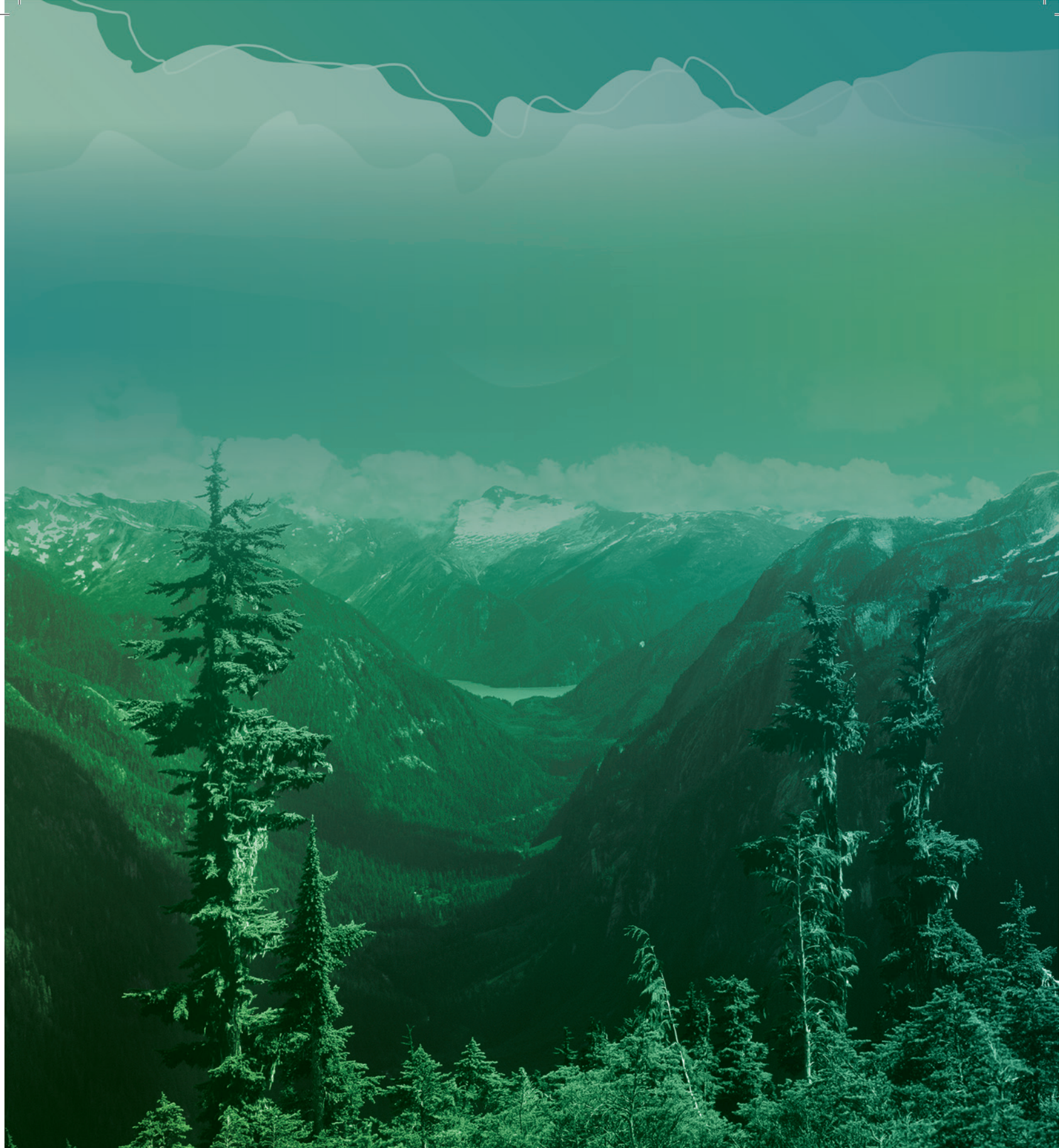
PROJECT	REGION	DESCRIPTION	PROJECT TONNES
<i>Forest Conservation/ Improved Forest Management (Great Bear-South Central Coast)</i>	<i>Vancouver Island – Coast</i>	This project reduces timber harvest levels and protects forests in BC's magnificent Great Bear Rainforest, renowned for its immense, ancient stands of trees – a result of significant effort and collaboration by local First Nation communities and the BC government. The project reduces timber harvest levels, protecting extensive areas of this forest that were previously slated for logging, increasing carbon stocks as the forest continues to grow	38,024
<i>Innovative Fuel Switch (Canfor Pulp, Prince George)</i>	<i>Cariboo</i>	Canfor Pulp reduced its use of fossil fuels improved the power boiler, along with the scrubber and hog fuel system in its Northwood plant in Prince George. The result is a marked improvement in local air quality and reduction GHG emissions.	9,062
<i>Raw Gas Transmission System Blowdown Avoidance (Blue Source, Grizzly Valley)</i>	<i>Northeastern BC</i>	This innovative project involved a blowdown avoidance process that cleared a section of natural gas pipeline during transmission system maintenance. Normally the natural gas would be vented into the atmosphere. In this project, the natural gas was reinjected back into reservoirs through two compressors. The pipeline was inspected or serviced. The natural gas was then put back into the pipeline to be sold to customers or combusted to form CO <sub>2</sub> .	4,721
<i>Landfill Methane Conversion (Columbia Shuswap Regional District, Salmon Arm)</i>	<i>Thompson Okanagan</i>	The Columbia Shuswap Regional District (CSRD) created a community landfill offset project by first capturing or destroying methane produced by decomposing organic waste in the landfill. The captured gas is then upgraded and injected into the FortisBC gas pipelines. This award-winning project captures and converts enough energy to heat over 300 homes and generate 7,000 – 10,000 tonnes of carbon offsets annually.	7,206
<i>Low Emissions Facility (ARC Resources, Dawson Creek)</i>	<i>Northeastern BC</i>	ARC Resources adopted two alternative methods in this project to replace the common practice of relying on readily available natural gas. It replaced gas used for compression applications with electricity, and implemented an instrument air system to use air instead of natural gas in pneumatic control devices and instruments.	85,916
<i>Methane Capture (Regional District of Fraser Fort George, Prince George)</i>	<i>Cariboo</i>	The Regional District implemented a landfill gas capture project to destroy potent methane emissions from waste decomposition. First, landfill gas is collected from a closed area. Then, the trapped gas is burned in an enclosed flare, reducing emissions released at the site.	24,482
<i>Switching to Biomass/ Installing Energy Curtains (Sunselect Delta)</i>	<i>Mainland – Southwest</i>	Sunselect Delta installed a biomass boiler and insulating curtains to help heat their greenhouses and to significantly reduce dependence on natural gas. The CO <sub>2</sub> from the biomass combustion is also upgraded to foodgrade quality and pumped back into the greenhouses	12,521
<b>TOTAL OFFSETS PURCHASED</b>			<b>662,091*</b>

\* This includes 659,138 tonnes CO<sub>2</sub>e of offsetable emissions for 2014 and 2,953 tonnes CO<sub>2</sub>e of prior year adjustments."

## Notes







Ministry of  
Environment