



Carbon Neutral Action Report | 2014

Executive Summary

BC Transit is the provincial Crown agency that provides transit service to over 130 communities located outside of Metro Vancouver. BC Transit operates about 1,100 buses and carries more than 50 million passengers a year. BC Transit is cost-shared between local governments and the Province.

Public transit systems carry residents within and between communities. Transit contributes to improved community connections, helps build more energy efficient and complete communities, and facilitates regional economic growth. Transit services are critical for providing access to health care and education, and are an important transportation alternative to accommodate an aging population across the province, particularly in smaller regional centres and rural communities.

Transit is also a safe, efficient and affordable form of transportation. For the same number of passengers, buses take up a lot less space on roads than private vehicles, and can help reduce both road congestion and greenhouse gas emissions while providing important links within and between communities.

BC Transit is proud of our leadership role in testing and implementing new lower-carbon vehicles and technologies. BC Transit fleets were first in North America to introduce low floor and double deck buses, and first in Canada to adopt diesel electric hybrids in heavy duty applications. In 2014 BC Transit introduced compressed natural gas (CNG) buses in our fleet, beginning with Nanaimo Regional Transit. These buses are quieter, produce fewer emissions and reduce the organization's reliance on volatile diesel markets.

Greenhouse gas emissions from our facilities continued to decline year-on-year in 2014 and, in fact, have reduced more than 17% from 2010 despite a 34% increase in our facility space as we have grown our service.

BC Transit will implement a CNG bus fleet and fuelling infrastructure in the Kamloops Transit System in 2015 and we will continue to seek opportunities to deploy additional CNG buses in communities throughout the province as we prepare to replace half of our fleet (about 500 buses) over the next five years.

Public transit is a key priority of government, which is why we partner with communities to ensure that British Columbians can have access to this important service. Transit service supports community livability and contributes to provincial and regional environmental sustainability objectives, helping to reduce greenhouse gas emissions and other pollutants while providing effective, efficient, and affordable mobility for citizens across BC.

A handwritten signature in black ink, appearing to read 'BA', with a stylized flourish extending from the end.

Brian Anderson

Vice President,
Operations & Chief Operating Officer
BC Transit

DECLARATION STATEMENT

This is the 2014 Carbon Neutral Action Report for BC Transit. This report contains our 2014 emissions profile, offsets purchased, the actions we have taken in 2014 to reduce our GHG emissions and our plans to continue reducing emissions in 2015 and beyond.

BC Transit carried forward an offset payment for 618 TCO₂e from 2013. This has been applied to the 2014 Offset Statement.

EMISSIONS AND OFFSETS SUMMARY

Most greenhouse gases produced from BC Transit's operations comes from the combustion of fossil fuels in our vehicle fleet and the energy used to heat and cool the buildings we own or lease.

BC Transit GHG Emissions and Offsets for 2014 (TCO₂E)

GHG Emissions created in Calendar Year 2014 (from SMARTTool Homepage)	
Total Emissions (TCO ₂ E)	63,843
Total Offsets (TCO ₂ E)	1,178
Adjustments to GHG Emissions Reported in Prior Years (from SMARTTool Homepage)	
Total Emissions (TCO ₂ E)	-105
Total Offsets (TCO ₂ E)	0
Total Emissions for Offset for the 2014 Reporting Year (from SMARTTool Homepage)	
Total Offsets (TCO ₂ E)	1,178



Brian Anderson

Vice President and Chief Operating Officer

BC Transit

May 30, 2015

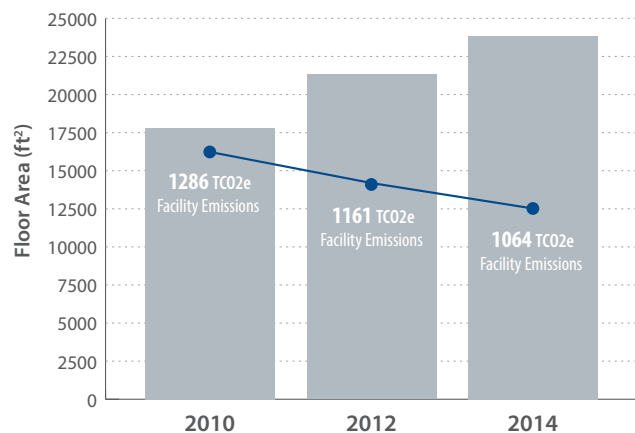
2014 Greenhouse Gas Emissions

FROM THE GHG EMISSIONS SOURCE DETAIL REPORT

Emission Source		Greenhouse Gases in Tonnes
Mobile Fuel Combustion (Fleet and other mobile equipment)		
Offset Required	Fuel Combustion	98.66
	Offset Required Sub Total	98.66
Offset Exempt	Public Transit	60,448.91
	CO2 from Biogenic Fuel Combustion	2,216.06
	Offset Exempt Sub Total	62,664.97
	TOTAL MOBILE EMISSIONS	62,764
Stationary Fuel Combustion (Building Heating and Generators) and Electricity		
Offset Required	Fuel Combustion **	1,007.44
	Purchased Energy	56.68
	Offset Required Sub Total	1,064.11
Offset Exempt	CO2 from Biogenic Fuel Combustion	0.29
	Offset Exempt Sub Total	0.29
	TOTAL STATIONARY EMISSIONS	1,064
Supplies (Paper)		
Offset Required	Non-recycled Content Paper	0.00
	Recycled Content Copy Paper	14.80
	Offset Required Sub Total	14.80
	TOTAL SUPPLIES EMISSIONS	15
TOTALS		
	Total Offset Exempt	62,665
	Total Offset Required	1,178
	TOTAL EMISSIONS	63,843

It was estimated that fugitive emissions from vehicle fleet air conditioning do not comprise more than one per cent of BC Transit's total emissions and an ongoing effort to collect or estimate emissions from this source would not be materially effective. For this reason emissions from this source have been deemed out of scope and have not been included in BC Transit's total greenhouse gas emissions profile.

GHG emissions reductions against the floor area increases



Offsets Applied to Become Carbon Neutral in 2014

BC Transit measures and is accountable for its environmental results. BC Transit measures and reports its greenhouse gas emissions under carbon accounting protocols consistent with the Carbon Neutral Government Regulation using the web-based application known as SMARTTool, and offsets those regulated greenhouse gas emissions it cannot avoid through payments to the Minister of Finance

In 2014 BC Transit offset 1,178 tonnes of regulated emissions.

As required by section 5 of the Carbon Neutral Government Regulation, 62,665 tonnes of CO₂e of emissions resulting from the operation of transit buses was reported as part of our greenhouse gas emissions profile in 2014. However, they were not offset as they are out of scope under section 4 (2) (c) of the Carbon Neutral Government Regulation.



CNG Fueling station with CNG buses in Nanaimo

Emission Reduction Activities

A. MOBILE FUEL COMBUSTION

Greenhouse gas (GHG) emissions per service hour (a Key Performance Indicator) were 28.58 kg CO₂e per service hour in 2014. Service hour emissions have declined from the 28.8 kg CO₂e/hour in 2010.

In January 2014 BC Transit and New Flyer Industries Canada ULC teamed up to test a new lighter, more fuel efficient medium-duty bus in the Victoria Regional System. The 35-foot New Flyer MiDi demonstration bus was in revenue service for three months and provided both New Flyer and BC Transit detailed information on the operating performance of this transit vehicle.

BC Transit's fuel cell bus fleet demonstration completed service as scheduled in March 2014. The key goals of the Whistler Transit project were to evaluate hydrogen fuel cell bus performance in daily use, encourage hydrogen technology jobs in British Columbia, showcase BC as a leader in clean energy deployment and contribute to the provincial government's climate action goals. The avoidance of more than 5,800 tonnes of GHG tailpipe emissions when compared to diesel buses over the demonstration period (December 2009 – March 2014) highlighted the role this technology can play in reducing greenhouse gases.

In April 2014, BC Transit, with support from FortisBC's Natural Gas for Transportation Incentive Program and the Regional District of Nanaimo, introduced natural gas fuelling and 25 CNG buses in regular service at Nanaimo Regional Transit. 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.

In partnership with the City of Kamloops, and again with additional support from FortisBC under the Natural Gas for Transportation Incentive Program, BC Transit began construction of a CNG fuelling station at the Kamloops Transit Centre ready to support a new 25 bus CNG fleet which will be delivered in spring 2015 when Kamloops will become the second BC Transit service to adopt CNG technology.

Fleet expansion and replacement of older, more polluting diesel buses continued in 2014 with the purchase of 107 more fuel efficient light duty buses.

June 2014 Canadian Urban Transit Association Corporate Leadership Award for Innovation:

BC Transit, Ballard Power, New Flyer Industries and PWTransit

Fuel Cell Bus Demonstration Project

Photo Credit: CUTA



Non-revenue fleet

Plug-in BC: As part of the Plug-in BC program and supported by Ministry of the Environment and the Fraser Basin Council, BC Transit participated in an Electric Vehicle Suitability Assessment Study to investigate the replacement of vehicles in our Non-Revenue fleet with all battery electric options available in the market today. Results from the study will be used in guiding procurement options in future years

BC Scrap-it Program: BC Transit's Victoria Regional Transit System offers a monthly pass incentive for vehicle owners to scrap their older, more polluting vehicles and adopt transit; implementation of this program removed 208.61 tonnes of GHGs that would otherwise have been emitted in 2014.

The newest vehicle in the BC Transit non-revenue fleet, a Nissan Leaf-battery electric car travelled more than 3,300 kms in 2014 avoiding more than 435 kg GHG compared to an incumbent hybrid vehicle.

Nissan Leaf – BC Transit's first all-battery electric pool car



B. STATIONARY FUEL COMBUSTION - FACILITIES

Facilities GHG emissions declined by 5% in 2014. This is despite the addition of the Nanaimo CNG compression station to our fixed asset portfolio. This reduction was primarily a result of continued efficiency improvements at the Victoria Regional Transit facilities, notably HVAC and lighting upgrades at Victoria Transit Centre, lighting upgrades at the Commerce Circle Transit Centre as well energy efficiencies in other Regional Transit Systems, for example lighting upgrades at the Campbell River Transit Centre.



Kamloops Transit
Centre Facility

Actions Planned for 2015

- BC Transit will implement a CNG bus fleet and fuelling infrastructure in the Kamloops Transit System in 2015.
- BC Transit will continue to seek opportunities to deploy additional CNG buses in communities throughout the province as we prepare to replace half of BC Transit's fleet (about 500 buses) over the next five years.
- More than 130 heavy and light duty buses will be delivered in 2015, replacing older more polluting and less energy efficient diesel buses. A procurement strategy for medium duty buses will also be implemented, providing further opportunities to right-size vehicles by service application and increase the cost effectiveness and efficiency of transit. A second NewFlyer MiDi medium duty bus will be trialled in revenue service in early 2015.

- BC Transit will partner with local communities to build transit infrastructure to provide more energy efficient operations and improved transit services.
- BC Transit will work with local governments to extend the Douglas Street Priority Transit and Cycling Lanes in Victoria. The priority lanes are designed to shorten travel times for transit customers, increase the reliability of public transit and reduce harmful greenhouse gas emissions by limiting idling and reducing the number of vehicles on the road.
- A water audit will be conducted at the Victoria Transit Centre facility in cooperation with the Capital Regional District. Findings from the audit may allow for reduced use of water as well as waste water treatment with correspondingly reduced energy demands.
- In conjunction with the water audit a capital project to replace the wastewater treatment system at our Victoria Transit Centre will begin with the goal of reducing water treatment needs and also reducing associated energy demands.
- The BC Transit Green Team will focus on a revamp of the Composting and Recycling system and education to reduce volumes and improve sorting of post-consumer at our facilities.
- BC Transit will continue to focus on building ridership in support of the Public Transit Plan goal to double transit ridership in British Columbia by 2020.

Right size bus option –
January 2014 MiDI Bus Test



Links to Other BC Transit Information Relevant to Sustainability

Government Letter of Expectations – 2014 / 2015

<http://bctransit.com/servlet/documents/1403640519915>

BC Transit Service Plan 2014 – 2017

<http://bctransit.com/servlet/documents/1403640520031>

BC Transit 2013 – 14 Annual Report

<http://bctransit.com/servlet/documents/1403640519318>

BC Transit Sustainability

http://bctransit.com/*/about/sustainability

BC Transit Future Plans

http://bctransit.com/*/corporate-reports/strategic-plan-2030

BC Transit is a member of the Community Energy Association

<http://www.communityenergy.bc.ca/node/295>

BC Transit Victoria Regional Transit System is member of BC Scrap It Program

<http://www.scrapit.ca/incentivechoices.htm>



520 Gorge Road East, Victoria, BC V8W 2P3
www.bctransit.com

2014 Carbon Neutral Action Report (CNAR) - Part 2 ACTIONS

Organization Name

BC Transit

Actions Taken to Reduce Emissions

1) Stationary Fuel Combustion, Electricity (Buildings): Indicate which actions were taken in 2014:

Performed energy retrofits on existing buildings

Yes

Built or are building new LEED Gold or other "Green" buildings.

No

Undertook an evaluation of overall building energy use.

Yes

Please list any other actions taken to reduce emissions from Buildings:

- BC Transit carried out HVAC and lighting upgrades at Victoria Transit Centre and lighting upgrades at the Campbell River and Commerce Circle Transit Centres.
- A water consumption audit was conducted at the Langford Transit Centre facility in cooperation with the Capital Regional District. Findings from the audit may allow for reduced use of water as well as waste water treatment with correspondingly reduced energy demands.

2) Mobile Fleet Combustion (Fleet and other vehicles): Indicate which actions were taken in 2014:

Do you have a fleet?

Yes

Replaced existing vehicles with more fuel efficient vehicles (gas/diesel)

Yes

Replaced existing vehicles with hybrid or electric vehicles

No

Reduced the overall number of fleet vehicles

No

Took steps to drive less than last year

No

Please list any other actions taken to reduce emission from fleet:

In April 2014, BC Transit, with support from FortisBC's Natural Gas for Transportation Incentive Program and the Regional District of Nanaimo, introduced natural gas fuelling and 25 CNG buses in regular service at Nanaimo Regional Transit. 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

All BC Transit employees have bus passes. Pool cars (hybrids and electrical) are available when meeting logistics prevent transit use.

The BC Transit non-revenue fleet vehicle - a Nissan Leaf--battery electric car. This car travelled more than 3,300 kms in 2014 avoiding more than 435 kg GHG compared to an incumbent hybrid vehicle.

3) Supplies (Paper): Indicate which actions were taken in 2014:

Used less paper than previous year

No

Used only 100% recycled paper

No

Used some recycled paper

Yes

Used alternate source paper (Bamboo, hemp, etc.)

No

Please list any other actions taken to reduce emissions from paper use:

Over 99% of all paper purchased under reporting guidelines is between 30 to 40% recycled content. We did continue to review opportunities to further increase our post-consumer content in purchased paper.

Double sided printing is encouraged whenever possible.

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Actions Taken to Reduce Emissions - continued

Explain how you plan to continue minimizing emissions in 2015 and future years:

- BC Transit will implement a CNG bus fleet and fuelling infrastructure in the Kamloops Transit System in 2015.
- BC Transit will continue to seek opportunities to deploy additional CNG buses in communities throughout the province as we prepare to replace half of BC Transit's fleet (about 500 buses) over the next five years.
- More than 130 heavy and light duty buses will be delivered in 2015, replacing older more

polluting and less energy efficient diesel buses. A procurement strategy for medium duty buses will also be implemented, providing further opportunities to right-size vehicles by service application and increase the cost effectiveness and efficiency of transit. A second NewFlyer MiDi medium duty bus will be trialled in revenue service in early 2015.

- BC Transit will partner with local communities to build transit infrastructure to provide more energy efficient operations and improved transit services.
- BC Transit will work with local governments to extend the Douglas Street Priority Transit and Cycling Lanes in Victoria. The priority lanes are designed to shorten travel times for transit customers, increase the reliability of public transit and reduce harmful greenhouse gas emissions by limiting idling and reducing the number of vehicles on the road.
- A water audit will be conducted at the Victoria Transit Centre facility in cooperation with the Capital Regional District. Findings from the audit may allow for reduced use of water as well as waste water treatment with correspondingly reduced energy demands.
- In conjunction with the water audit a capital project to replace the wastewater treatment system at our Victoria Transit Centre will begin with the goal of reducing water treatment needs and also reducing associated energy demands.
- The BC Transit Green Team will focus on a revamp of the Composting and Recycling system and education to reduce volumes and improve sorting of post-consumer at our facilities.
- Building on the achievements of the 2008 Provincial Transit Plan and in support of BC on the Move: A 10-Year Transportation Plan BC Transit will continue to work with its partners to build transit ridership and increase the adoption of cleaner-energy transit vehicles in 2015.

If you wish to list any other "sustainability actions" outside of buildings, fleet, paper and travel check "yes". This reporting is optional.

Yes

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Actions to Promote Sustainability and Conservation - OptionalThe following are actions that fall outside the scope of the Carbon Neutral Government Regulation, but which many organizations still undertake and may wish to report on. This section is optional for reporting.

Business TravelCreated a low-carbon travel policy or travel reduction goal (Low-carbon: Lowest emission of greenhouse gases per kilometre per passenger)

No

Virtual Meeting Technology Installed web-conferencing software (e.g., Live Meeting, Elluminate, etc.)

Yes

Made desktop web-cameras available to staff

Yes

Encourage alternative travel to meetings (e.g., bicycles, public transit, walking)

Yes

Encourage carpooling to meetings

Yes

Education and Awareness Have created Green, Sustainability, Energy Conservation, or Climate Action Teams.

Yes

Provided resources and/or dedicated staff to support these teams

Yes

Provided behaviour change education/training for these teams (e.g., community-based social marketing)

Yes

Established a sustainability/green awards or recognition program

No

Support green professional development (e.g., workshops, conferences, training)

Yes

Planning for Climate Change Have assessed whether extreme weather events and/or long term changes in climate will affect our organization's business areas

Yes

Long term changes in climate have been incorporated into our organization's decision making.

No

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Actions to Promote Sustainability and Conservation - Optional (continued)

Staff Awareness and Education Provided education to staff about the science of climate change

No

Provided education to staff about the conservation of water, energy, and raw materials

Yes

Provided green tips on staff website or in newsletters

Yes

Alternate Work/Commuting Options Allow for telework/working from home

Yes

Staff have the option of a compressed work week

No

Commuting by foot, bicycle, carpool or public transit is encouraged

Yes

Shower or locker facilities are provided for staff/students who commute by foot or by bicycle

Yes

Secure bicycle storage is provided

Yes

Other Sustainability Actions Establish a water conservation strategy which includes a plan or policy for replacing water fixtures with efficient models

Yes

Put in place a potable water management strategy to reduce potable water demand of building-level uses such as cooling tower equipment, toilet fixtures, etc. and landscape features

Yes

Have put in place an operations policy to facilitate the reduction and diversion of building occupant waste from landfills or incineration facilities

Yes

Have implemented a hazardous waste reduction and disposal strategy (Hazardous Waste: E.g., electronics including computer parts and monitors, batteries, paints, fluorescent bulbs)

Yes

Have incorporated minimum recycled content standards into procurement policy for consumable, non-paper supplies (e.g., writing instruments, binders, toner cartridges, etc.)

No

Established green standards for goods that are replaced infrequently and/or may require capital funds to purchase (e.g., office furniture, carpeting, etc.)

Yes

Incorporated lifecycle costing into new construction or renovations

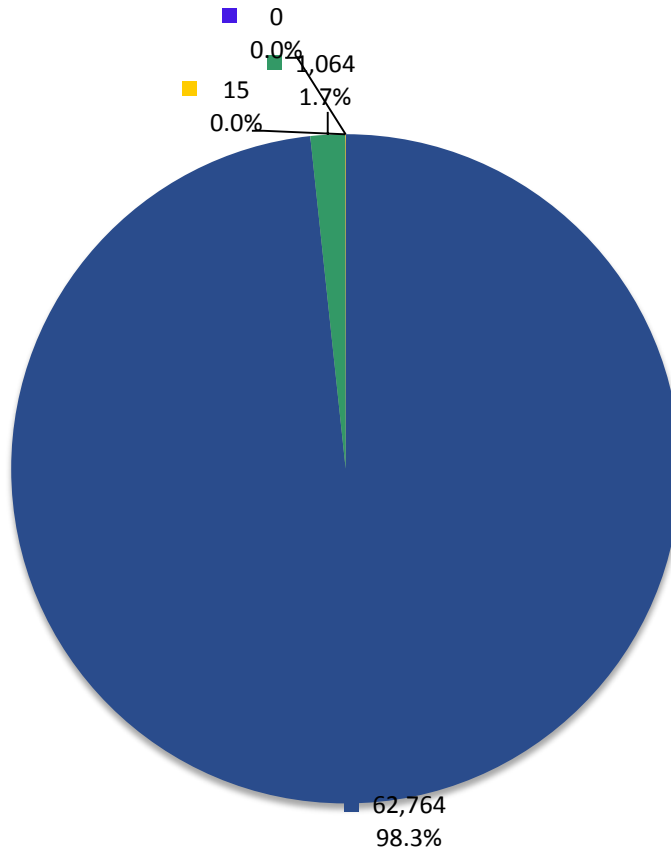
Yes

Please list and other sustainability actions you wish to report not included in the previous list.

BC Transit is a member of the U-Pass and BC Bus Pass programs, which annually help to provide discounted transit passes for over 200,000 students attending public post-secondary institutions and over 90,000 low-income seniors and people with disabilities across the province.

Fully accessible handyDART provides service to 2.5 million passengers each year.

**BC Transit
Greenhouse Gas Emissions by Source
for the 2014 Calendar Year (tCO₂e*)**



Total Emissions: 63,843

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

Offsets Applied to Become Carbon Neutral in 2014 (Generated June 22, 2015 9:25 AM)

Total offsets required: **1,178**. Total offset investment: **\$29,450**. Emissions which do not require offsets: **62,665** **

*Tonnes of carbon dioxide equivalent (tCO₂e) is a standard unit of measure in which all types of greenhouse gases are expressed based on their global warming potential relative to carbon dioxide.

** Under the *Carbon Neutral Government Regulation of the Greenhouse Gas Reduction Targets Act*, all emissions from the sources listed above must be reported. As outlined in the regulation, some emissions do not require offsets.