



# Carbon Neutral Action Report | 2013

# Executive Summary

The bus offers a more energy-efficient mode of transportation than the car. Ongoing efforts to promote transit and support policies and programs to guide efficient public transit infrastructure are expected to encourage more people to choose transit over using a car, achieve emissions reductions and promote wider mobility options for all.

In 2013, BC Transit continued to work with the provincial government, local governments and its operating partners to implement integrated transportation networks with the goal to reduce the dependence on automobiles. Collaborative planning ensured transit networks responded to individual community and regional needs. Examples include the development of Transit Future Plans in the North Okanagan, Prince George and the Sunshine Coast regions. To ensure customers had ready access to appropriate schedule information, BC Transit expanded the reach of on-line transit trip planning tools to include the Comox Valley, Victoria, Kelowna, Kamloops and Whistler.

In Kelowna, the expansion of the RapidBus infrastructure to the Westside began in September. This 15-kilometre expansion includes four new transit stations and two new exchanges designed to provide passengers with faster, more frequent public transportation. Once complete, the entire RapidBus service will provide 30 kilometres of service between West Kelowna and the University of British Columbia - Okanagan. After the first phase was introduced, Ridership grew by more than 500,000 rides across the Kelowna system. Additional growth is anticipated once this next phase is in service starting September 2014.

As the Province's 5-year demonstration project of hydrogen fuel cell buses in Whistler drew to a close, Minister Stone wrote to congratulate Ballard Power Systems on its pivotal role in enabling this innovation success story. In his letter, the minister noted that the project had avoided more than 4,000 tonnes of greenhouse gas emissions by the end of 2013 and had generated international business opportunities for this "made in BC" technology.

The first fleet of medium duty Vicinity buses was introduced into service in communities across the province in 2013. This 27.5-foot bus enables communities to benefit from a smaller, more energy efficient and cost-effective option for developing routes.

BC Transit also moved forward with plans to introduce its first fleet of compressed natural gas (CNG) fuelled heavy-duty buses. The first 25 CNG-fuelled buses will be delivered to the Regional District of Nanaimo in early 2014. These buses are quieter, produce fewer emissions and reduce the organization's reliance on volatile diesel markets. Ongoing efforts will be made to evaluate fleet alternatives that will meet service requirements.

Operational greenhouse gas emissions continued to reduce in the last year. Emissions have declined to 28.25 kg CO<sub>2</sub>e per service hour in 2013 from 29.48 kg CO<sub>2</sub>e per service hour in 2012.

BC Transit looks forward to working with its partners in 2014 to further encourage ridership growth, increase revenue, control costs and continue to meet customer expectations while connecting people and communities to a more sustainable future.



*Brian Anderson*

Vice President,  
Operations & Chief Operating Officer  
BC Transit

## DECLARATION STATEMENT

This is the 2013 Carbon Neutral Action Report for BC Transit. This report contains our 2013 emissions profile, offsets purchased, the actions we have taken in 2013 to reduce our GHG emissions and our plans to continue reducing emissions in 2014 and beyond.

## EMISSIONS AND OFFSETS SUMMARY

Most greenhouse gases produced from BC Transit's operations come 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 2013 (TCO2E)

<b>GHG Emissions created in calendar year 2013 (from SMARTTool Homepage)</b>	
Total Emissions	62,002
Total Emissions for Offsets	1,225
<b>Adjustments to GHG Emissions Reported in Previous Years (from SMARTTool Homepage)</b>	
Total Emissions	2
Total Emissions for Offsets	2
<b>Credit owing from PCT at end of 2012 reporting year (if applicable – from May 15 Invoice)</b>	
Credit Owing	1,845
<b>Total Emissions for Offsets for the 2013 Reporting Year (from Offset Invoice):</b>	<b>-618</b>



*Brian Anderson*

Vice President and Chief Operating Officer

BC Transit

May 30, 2014

# 2013 Greenhouse Gas Emissions

## FROM THE GHG EMISSIONS SOURCE DETAIL REPORT

Emission Source		Greenhouse Gases in Tonnes
<b>Mobile Fuel Combustion (Fleet and other mobile equipment)</b>		
Offset Required	Fuel Combustion	93.01
	<b>Offset Required Sub Total</b>	<b>93.01</b>
Offset Exempt	Public Transit	58,570.69
	CO2 from Biogenic Fuel Combustion	2,206.39
	<b>Offset Exempt Sub Total</b>	<b>60,777.07</b>
<b>TOTAL MOBILE EMISSIONS</b>		<b>60,870</b>
<b>Stationary Fuel Combustion (Building Heating and Generators) and Electricity</b>		
Offset Required	Fuel Combustion	1,040.35
	Purchased Energy	79.04
	<b>Offset Required Sub Total</b>	<b>1,119.39</b>
Offset Exempt	CO2 from Biogenic Fuel Combustion	0.44
	<b>Offset Exempt Sub Total</b>	<b>0.44</b>
	<b>TOTAL STATIONARY EMISSIONS</b>	<b>1,120</b>
<b>Supplies (Paper)</b>		
Offset Required	Non-recycled Content Paper	0.07
	Recycled Content Copy Paper	12.05
	<b>Offset Required Sub Total</b>	<b>12.12</b>
<b>TOTAL SUPPLIES EMISSIONS</b>		<b>12</b>
<b>TOTALS</b>		
<b>Total Offset Exempt</b>		<b>60,778</b>
<b>Total Offset Required</b>		<b>1,225</b>
<b>TOTAL EMISSIONS</b>		<b>62,002</b>

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.

# Offsets Applied to Become Carbon Neutral in 2013

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 Pacific Carbon Trust.

In 2013, BC Transit offset 1,225 tonnes of regulated emissions plus 2 tonnes from adjustments to 2012 Reporting Year for a total offset of 1,227 tonnes.

As required by section 5 of the Carbon Neutral Government Regulation, 60,777 tonnes of CO<sub>2</sub>e of emissions resulting from the operation of transit buses was reported as part of our greenhouse gas emissions profile in 2013. However, they were not offset as they are out of scope under section 4 (2) (c) of the Carbon Neutral Government Regulation.

Vicinity Bus – Fleet Initiative –  
right-size buses for community needs



# Emission Reduction Activities

## MOBILE FUEL COMBUSTION

Greenhouse gas (GHG) emissions per service hour continued to reduce in the last year. Emissions have declined to 28.2 kg per service hour in 2013 from 28.8 kg in 2010.

By the end of 2013, the hydrogen fuel cell bus fleet operating in the Resort Municipality of Whistler had avoided more than 4,000 tonnes of GHG compared to incumbent diesel technology since the project began in 2010.

BC Transit advanced a business case for the procurement of up to 50 CNG buses as part of its bus replacement schedule. Following a request for proposals in February 2013, a contract was awarded for the supply of up to 50 CNG buses. This will be BC Transit's first CNG fleet. Compared to diesel, the primary benefit of CNG buses is lower and more stable fuel prices. Additional benefits include quieter engines and simplified emission systems.

In 2013, BC Transit and the Regional District of Nanaimo began building a new CNG fuelling station at the Nanaimo Transit Centre to be ready to support the new CNG fleet when delivered in early 2014.

### ***Non-revenue fleet***

BC Transit welcomed the addition of a Nissan Leaf battery-electric car to its non-revenue fleet. This car travelled more than 3,000 kms in 2013 avoiding more than 630 kg GHG compared to an incumbent hybrid vehicle.

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 2014.



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

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 254.81 tonnes of GHGs that would otherwise have been emitted in 2013.

### STATIONARY FUEL COMBUSTION - FACILITIES

Facilities GHG emissions declined by over 13% in 2013. This was primarily a result of continued efficiency improvements in the Victoria Regional Transit System facilities; notably the Langford Transit Centre which saw a drop in natural gas consumption of over 60% due to improved scheduling software for the heating system and also better timing for shop air extraction fans.

Langford Transit  
Centre Facility



# Actions Planned for 2014

- BC Transit will continue to advance opportunities for low emission and low carbon fuel bus demonstrations and evaluate for implementation (this will include All-Battery Electric buses).
- BC Transit will implement a CNG bus fleet and fuelling infrastructure in the Regional District of Nanaimo Transit System and will plan the introduction of a 25 bus CNG fleet in Kamloops in 2015.
- BC Transit and New Flyer Industries Canada ULC will team up to test a new medium-duty bus in the Victoria Regional System. The 35-foot New Flyer MiDi® demonstration bus will be in revenue service as of January 2014 for 3 months. The bus comes in both 30-foot and 35-foot lengths, with a choice of either one or two doors, a low floor entry way and a 1:6 sloped wheelchair ramp to provide excellent accessibility to passengers with strollers or mobility aids. The bus features a streamlined design and is built with special consideration for weight optimization. The result is a lighter, more fuel efficient transit vehicle. Both New Flyer and BC Transit will gather information on the operating performance of the vehicle, including comparative GHG emissions performance.
- BC Transit's Victoria Regional Transit System will implement a fleet logistics plan to reduce bus dead-heading kms (out of service travel between depots). These changes will target an average daily savings of 1,200 km and an avoidance of over 1.7 tonnes of GHGs.
- BC Transit will continue to investigate opportunities to introduce Battery Electric vehicles for non-revenue fleet use – specifically for our pool cars and safety department vehicles.



Sprinter Van – greater utility for lower gas mileage for non-revenue fleet

- BC Transit Facilities will conduct heating, ventilation and lighting upgrades at our Victoria Transit Centre, lighting upgrades at our Campbell River facility and build CNG fuelling infrastructure at our Kamloops facility.
- A water consumption audit will be conducted at Victoria Regional Transit System facilities in cooperation with the Capital Regional District. Findings from the audit may allow for reduced use of our water treatment system and corresponding reduced energy demands.
- The BC Transit Green Team will focus on increasing awareness and understanding of composting and recycling options to reduce volumes and improve sorting at our facilities.
- Under the British Columbia Recycling Regulation BC Transit is a producer of packaging and printed paper. The Multi-Material BC Society will act as BC Transit's agency in carrying out our duties under the regulation to implement a Packaging and Printed Paper Stewardship Plan for the collection and recycling of obligated materials.

# Links to Other BC Transit Information Relevant to Sustainability

## **Government Letter of Expectations – 2013**

[http://www.bctransit.com/corporate/general\\_info/pdf/2013-14\\_Signed\\_Letter\\_of\\_Expectation\\_MoTI\\_BCTransit.pdf](http://www.bctransit.com/corporate/general_info/pdf/2013-14_Signed_Letter_of_Expectation_MoTI_BCTransit.pdf)

## **BC Transit Service Plan 2013 – 2016**

[http://www.bctransit.com/corporate/general\\_info/pdf/3018\\_BCT\\_2014\\_Service\\_Plan\\_FINAL.pdf](http://www.bctransit.com/corporate/general_info/pdf/3018_BCT_2014_Service_Plan_FINAL.pdf)

## **BC Transit 2012 – 13 Annual Report**

[http://www.bctransit.com/corporate/general\\_info/pdf/3910\\_BCT\\_AnnualReport\\_FINAL\\_APPROVED\\_web.pdf](http://www.bctransit.com/corporate/general_info/pdf/3910_BCT_AnnualReport_FINAL_APPROVED_web.pdf)

## **BC Transit Go Green**

<http://www.bctransit.com/gogreen/default.cfm>

## **BC Transit Future Plans**

<http://www.bctransit.com/transitfuture/>

## **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>

## **BC Transit is a member of the Canadian Hydrogen Fuel Cells Association**

<http://www.chfca.ca/>

## **BC Transit is a member of the Hydrogen Bus Alliance**

<http://www.hydrogenbusalliance.org/about.html>

## **BC Transit is a member of the Clean Hydrogen In Cities program**

<http://chic-project.eu/category/cities>

## **Minister Stone's letter to Ballard Power Systems on the Hydrogen Fuel Cell Bus Demonstration Project**

[http://www.ballard.com/files/PDF/Media/Minister\\_Todd\\_Stone\\_Ltr.pdf](http://www.ballard.com/files/PDF/Media/Minister_Todd_Stone_Ltr.pdf)



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