



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 CO₂e per service hour in 2013 from 29.48 kg CO₂e 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)

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



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

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 CO₂e 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

BC Transit Service Plan 2013 – 2016

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

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



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

2013 Carbon Neutral Action Report (CNAR) - Part 2 ACTIONS

Created Tuesday, February 04, 2014

Updated Friday, May 30, 2014

<https://fluidsurveys.com/surveys/cas-z/2013-cnar-form-bps-actions/b41c35b70a973f4a62571870aa3aef3c/>

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Please complete the following sections of the 2013 Carbon Neutral Action Report form. Save your work frequently to prevent it from being lost. You can also save a copy for your own use as either a WORD or PDF file using the buttons at the bottom of each page.

This is Part 2 of the Carbon Neutral Action Report form. This section reports on actions taken to reduce emissions during the 2013 calendar year. This information will be included in your final Carbon Neutral Action Report posted on the Ministry of Environment website.

When the form is complete press the submit button on the last page to automatically submit the information to the Climate Action Secretariat (CAS). Do not press submit before you are ready – this may result in a loss of work.

In addition to completing this survey (Part 1 2), you are required to submit your completed Overview (Executive Summary) and Self-Certification Checklist. The 2013 Overview template was included in the email sent and can also be found on the LiveSmart leaders Community.

Please ensure you meet the following reporting deadlines:

A DRAFT 2013 CNAR is due to CAS by March 31, 2014. The draft is comprised of the Overview ONLY (no executive sign-off required).

The FINAL 2013 CNAR is due to CAS by May 30, 2014. The final 2013 CNAR includes Part 1 Part 2 survey form and Overview.

The Self-Certification Checklist is due to CAS by May 15, 2014.

For more information about the Carbon Neutral Government process, please refer to *Becoming Carbon Neutral 2013*, or should you have any questions please contact climateactionsecretariat@gov.bc.ca.

Organization Name

BC Transit

Actions Taken to Reduce Emissions

1) Stationary Fuel Combustion, Electricity (Buildings):

Indicate which actions were taken in 2013:

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.

No

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

Energy audits with a GHG focus began in 2010 at our Victoria and Langford Transit Centres and have provided direction subsequently for energy and natural gas efficiency improvements. We continued to make progress in 2013 notably at the Langford Transit Centre which saw a drop in natural gas consumption of over 60% due to improved scheduling software for the heating system, lighting upgrades and on demand timing for shop air extraction fans.

2) Mobile Fleet Combustion (Fleet and other vehicles):

Indicate which actions were taken in 2013:

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

Yes

Reduced the overall number of fleet vehicles

No

Took steps to drive less than last year

Yes

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

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 beginning of the project in 2010.

All BC Transit employees have bus passes.

Pool cars (hybrids and battery electric) are available when meeting logistics prevent transit use.

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.

3) Supplies (Paper):

Indicate which actions were taken in 2013:

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:

Nearly all paper purchased under reporting guidelines is between 30 to 40% recycled with roughly 15% of paper used being 100% recycled content. We did continue to review opportunities to further increase our post-consumer content in purchased paper.

Actions Taken to Reduce Emissions - continued

Explain how you plan to continue minimizing emissions in 2014 and future years:

- *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'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 1200 km and an avoidance of over 1.7 tonnes of GHGs.*
- *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 will continue to investigate opportunities to introduce Battery Electric vehicles for non-revenue fleet use – specifically for our pool cars and safety department vehicles.*
- *BC Transit Facilities will conduct DDC, heating and 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 option 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 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.*

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

Yes

Actions to Promote Sustainability and Conservation - Optional

The 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 Travel

Created 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

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

Yes

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.)

No

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.

In 2013, 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 provide customers with ready access to appropriate schedule information, BC Transit expanded the reach of on-line transit trip planning tools to transit systems in Victoria, Kamloops, Kelowna and Whistler.

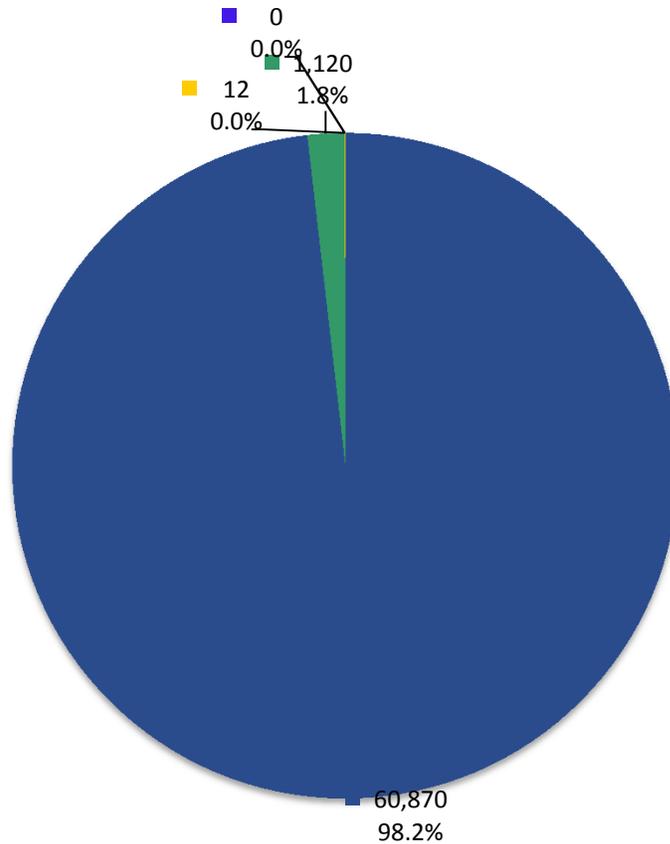
In Kelowna, expansion of the RapidBus infrastructure to the Westside began in September 2013. Once complete, the entire RapidBus service will provide 30 kilometres of service between West Kelowna and the University of British Columbia - Okanagan. After the first phase was introduced, Ridership grew by more than 500,000 rides across the Kelowna system. Additional growth is anticipated once this next phase is in service starting September 2014.

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'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 BC Scrap-It program removed 254.81 tonnes of GHGs that would otherwise have been emitted in 2013.

There were 6 communities with 10 post-secondary schools that made use of the BC Transit UPass program. The UPass helps to make transit more accessible and affordable for students.

**BC Transit
Greenhouse Gas Emissions by Source
for the 2013 Calendar Year (tCO₂e*)**



Total Emissions: 62,002

- 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 2013 (Generated May 21, 2014 1:49 PM)

Total offsets required: **1,225**. Total offset investment: **\$30,625**. Emissions which do not require offsets: **60,778** **

*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.