



2014

# carbon neutral action report

SIMON FRASER UNIVERSITY



## ACKNOWLEDGEMENTS

This report was produced by Simon Fraser University. It provides a high-level overview of the actions taken by the SFU campuses to reduce greenhouse gas emissions and promote a culture of sustainability.

For more information about sustainability at SFU, please visit our website:

[www.sfu.ca/sustainability](http://www.sfu.ca/sustainability)

Thank you to the many SFU staff who contributed their time and insights to the development of this report:

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# 2014

## CARBON NEUTRAL ACTION REPORT

### SUBMITTED BY:

Candace Le Roy  
Director, SFU Sustainability Office

### EXECUTIVE SUMMARY

In 2014, Simon Fraser University (SFU) focused on strategic planning, capacity building, and continued energy-efficiency retrofits in order to further both sustainability and greenhouse gas (GHG) emissions reductions at the University. Facilities Services developed a three-year Strategic Energy Management Plan (SEMP), the Senior Sustainability Council identified sustainability and greenhouse gas reduction priorities and Facilities Services and the Sustainability Office developed targeted capacity building programming.

Long-term efforts to optimize building energy efficiency and to address energy use through culture- and behaviour-change showed demonstrable results. SFU attained and exceeded its interim goal to reduce operational greenhouse gas emissions by 18% below 2007 levels by the year 2016, with reductions reaching 18.5% in 2014. In 2014, SFU also underwent an independent review, by Deloitte, of the university's greenhouse gas emissions measurement and reporting practices. This review found no substantive issues with the practices, pointing to the integrity of the emissions reductions numbers.

The University continued to improve campus energy performance related to building operations by implementing projects funded through a number of internal and external sources including the BC Government Carbon Neutral Capital Program and the in-house Sustainable Utilities Revolving Fund (SURF), as well as through funding partnership programs such as the BC Hydro and Fortis BC Continuous Optimization Program,

In addition to various operational reductions in emissions, the university was recognized for comprehensive efforts and creative sustainability communication initiatives through the receipt of several sustainability-related awards and a Gold 2.0 Rating in the Association for the Advancement of Sustainability in Higher Education (AASHE)'s Sustainability Tracking, Assessment and Rating System (STARS) in 2014.

With the early attainment of SFU's 2016 greenhouse gas emission reduction interim goal, the university must now move beyond the "low-hanging fruit" of energy retrofits in order to achieve the 2020 goal of a 33% reduction in GHG emissions below 2007 levels. Crucial to achieving the 2020 goal will be the elevation of interest in, and the distribution of responsibility for, action on greenhouse gas emissions as a key priority across the University as a whole.





## 1.0 GREENHOUSE GAS EMISSIONS & OFFSETS

### OVERVIEW

This is the Carbon Neutral Action Report for Simon Fraser University. This report contains our 2014 emissions profile, offsets purchased, the actions we have taken in 2014 to reduce our greenhouse gas emissions, and our plans to continue reducing emissions in 2015 and beyond.

By June 30, 2015, Simon Fraser University's final CNAR will be posted to our website: <http://www.sfu.ca/sustainability/publications/cnar.html>

Candace Le Roy  
Director, SFU Sustainability Office

May 30, 2015

### 1.1 GREENHOUSE GAS EMISSIONS IN 2014

Total (absolute) greenhouse gas (GHG) emissions for Simon Fraser University's operations in 2014 were 15,696 tCO<sub>2</sub>e\*. Emissions decreased by approximately 7.5% compared to 2013 levels, due to a warmer weather year, and to energy conservation projects. Between 2013 and 2014, university physical space increased slightly, by 0.3%\*\*. Emissions for 2014 are approximately 18.5% lower than the 2007 baseline (see Table 1). Overall, the university's physical space has increased by about 11% since 2007.

Fugitive emissions are estimated to comprise less than 1% of Simon Fraser University's total emissions and the fugitive emissions data are onerous to collect, therefore these emissions are considered out of scope, as per the 2014 BC Best Practices Methodology for Quantifying Greenhouse Gas Emissions.

### 1.2 OFFSETS APPLIED TO BECOME CARBON NEUTRAL IN 2013

In 2014, as reported in the BC Provincial Government's SMARTTool, SFU purchased 15,699 tonnes of carbon offsets from Pacific Carbon Trust. At the price of \$25 per tonne, this amounted to \$392,475 plus GST in offsets. An underpayment for 13 tonnes of carbon offsets (\$325 plus GST in offsets) in 2013 was reconciled in the 2014 repayment (the payment for 2014 being for 13 tonnes more than the 2014 emissions).

\* Tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e) is a standard unit of measurement in which all types of greenhouse gases are expressed based on their global warming potential relative to carbon dioxide.

\*\* From SFU's Annual Space Reports: [http://www.sfu.ca/fs/Campus-Facility-Profiles/Campus-Space-Inventory\\_Chronology.html](http://www.sfu.ca/fs/Campus-Facility-Profiles/Campus-Space-Inventory_Chronology.html)



SOURCE*	2007 (tCO <sub>2</sub> e) BASELINE YEAR**	2012 (tCO <sub>2</sub> e)	2013 (tCO <sub>2</sub> e)	2014 (tCO <sub>2</sub> e) CURRENT YEAR
Buildings – Stationary Fuel Combustion and Purchased Energy	17,995	17,400	16,453	15,159
Fleet – Mobile Fuel Combustion	940	245	298	290
Paper – Office Supplies	357	270	250	248
<b>Total Emissions Calendar Year</b>	<b>19,292</b>	<b>17,915</b>	<b>17,001</b>	<b>15,696</b>
Carbon Neutral or Offset Exempt	N/A	-8	-10	-10
<b>Total Emissions Requiring Offset Payments</b>	<b>N/A</b>	<b>17,907</b>	<b>16,991</b>	<b>15,686</b>
Offset carry-over from Previous Year	N/A	298	72	13
<b>Total Emissions Offsets Purchased</b>	<b>N/A</b>	<b>17,520</b>	<b>16,919</b>	<b>15,699</b>

TABLE 1

Simon Fraser University Greenhouse Gas Emissions by Source per Year

Ten tonnes CO<sub>2</sub> equivalent emissions from the combustion of biomass fuels were reported as part of our total greenhouse gas emissions profile in 2014. As stated in the 2014 BC Best Practices Methodology for Quantifying Greenhouse Gas Emissions, the carbon dioxide emissions resulting from the combustion of biogenic fuel sources must be reported but do not require offsets.

### 1.3 CHANGES TO GREENHOUSE GAS EMISSIONS & OFFSETS REPORTING FROM PREVIOUS YEARS

Following the public release of Simon Fraser University's 2013 Carbon Neutral Action report it was determined that the total emissions for the 2013 calendar year were under-reported by 13 tonnes CO<sub>2</sub>e, with a

consequent under-purchase of offsets required to become carbon neutral in 2013 of \$325 plus GST. This deficit of offsets purchased in 2014 has been added to SFU's 2014 emissions offset payment.

## 2.0 ACTIONS TAKEN TO REDUCE GREENHOUSE GAS EMISSIONS IN 2014

As in all previous reporting years, buildings remain the most significant source of greenhouse gas emissions in SFU's footprint. The growing physical footprint and number of students, staff and faculty amplify the need for Simon Fraser University's community to absorb this growth with as few emissions and as little energy use impact as possible.

\* Emissions data (2012, 2013, 2014) are values are reported in SMARTTool. For simplicity, values with decimals have been rounded off.

\*\* 2007 baseline set from Willis Energy: SFU GHG Inventory



Since 2007, SFU's building footprint has grown by approximately 11%, and by just 0.3% between 2013 and 2014. Despite growth, the majority of emissions reductions in the 2014 calendar year were reductions in emissions from buildings; the actions in 2014 taken to reduce emissions are outlined in this section.

## 2.1 BUSINESS EMISSIONS

### 2.1.1 PLANNING FOR REDUCTIONS

In 2014, SFU Facilities Services adopted the Strategic Energy Management Plan 2013/14-2015/16 (SEMP), supporting SFU's Sustainability Strategic Plan, Sustainability Policy (GP 28) and University commitments to long-term energy efficiency and conservation. The SEMP provides a framework for minimizing energy consumption, building on past successes and providing direction for the next three years to meet the University's commitment to reduce the energy consumption of the Burnaby campus by 2% per year. Maintaining efficient buildings is key to managing the University's GHG emissions. SFU manages demand through the systematic "tuning-up" of buildings and by implementing retrofits to older building systems (e.g., HVAC, lighting). Retrofitting is done in conjunction with expanding and improving behaviour change programs designed to make students, faculty and staff better 'energy tenants' in campus buildings.

### 2.1.2 BUILDING FINE-TUNING

#### **Live Data Dashboard Projects**

As part of the BC Hydro and Fortis BC funded Continuous Optimization (C-Op) program, a total of 19 buildings on the Burnaby campus are now connected to energy dashboard displays. These displays provide live data on energy performance, and increase the ability of the energy management office and operational staff to review energy performance of all the buildings in close to real-time. Performance by the remaining SFU buildings continues to be monitored for future energy project opportunities.

#### **Building Envelope Projects**

Building envelope upgrade projects remain a priority for improving building GHG performance at SFU. The following building envelope upgrades were completed in 2014:

- The exterior envelope of the Education Grad Wing was upgraded.
- The Strand Hall roof insulation was upgraded.

#### **Building HVAC (Heating, Ventilation, Air-Conditioning) and Control Upgrades**

In addition to those upgrades listed below, energy upgrades, HVAC and control upgrades are integrated into current classroom, lounge and washroom upgrade programs. The following upgrades were completed in 2014:

- Two high-efficiency boilers were installed in Discovery 2 in December 2014, and commissioned in February 2015.
- One high-efficiency boiler was installed in Discovery 1 in December 2014, and fully commissioned in February 2015.



- More CO<sub>2</sub> sensors and occupancy sensors were added in the classrooms and lecture theaters of Saywell Hall and Blusson Hall to optimize the ventilation and energy consumption.
- The building control systems of Saywell, Blusson, Robert C. Brown Hall, the Education Building and Strand Hall were fine-tuned.

### **Lighting Efficiency Projects**

Lighting efficiency projects continue to contribute to improvements in energy use in buildings and in the adjacent parking lots. In particular there has been a focus on the transition to LED as the preferred lighting technology. As with HVAC and control upgrades, lighting upgrades are also integrated into current classroom, lounge and washroom upgrade programs. The following were the projects for 2014:

- The metal halide light fixtures in the centre gym were replaced with new LED fixtures.
- 300 compact fluorescent and incandescent lamps were replaced with LED lamps in various buildings.
- 30 high pressure sodium wall mount fixtures were replaced on the Visitor Parkade walkways with LED fixtures.
- Old mercury light fixtures in the concourse between the Applied Sciences Building and the Academic Quadrangle were replaced with suspended LED fixtures.
- 16 Discovery parking lot metal halide fixtures were replaced with new LED fixtures.
- 5 distribution transformers were replaced with much more efficient units.

### **2.1.3 BEHAVIOUR CHANGE**

In 2014, energy demand-side management was primarily tackled through SFU's existing behaviour-related Green Labs and Green Office Certification Program.

#### **Green Labs Program**

The Green Labs program at SFU targets some of SFU's most energy-intensive building space, laboratories, with aims to find more substantial reductions in these spaces. SFU's Green Labs Program, a partnership between the Sustainability Office, Facilities Services, Environmental Health and Safety, and dedicated building occupants, provides engagement and education materials and opportunities, as well as on-site physical adjustments to optimize energy use in laboratories.

SFU Sustainability Strategic Plan established the goal of supporting and encouraging sustainable research practices at SFU. The involvement of educators and researchers in the assessment of potential sustainability opportunities is an integral part of achieving and sharing best laboratory practices regarding lab energy efficiency, lab water conservation, lab material purchasing & recycling, green chemistry, and waste reduction & diversion. The ultimate goal of the Green Labs Program is to engage lab occupants to make minor changes in behaviour that lead to lasting changes in sustainable lab practices. The program also serves as a bridge between lab occupants and facilities staff in addressing building infrastructure and sustainability issues.





### Green Labs Certification

A signature component of the Green Labs Program is Green Lab Certification. Participating labs can certify at various levels and receive a certificate celebrating their certification status. They are then acknowledged publicly for their positive contribution to sustainability at SFU. With the expansion of the Green Labs program to all University departments and laboratories SFU now has eight certified Green Labs, with four more registered to become certified.

### **Green Office**

The SFU Sustainability Office recognizes the efforts of staff and faculty to “green” their daily activities by offering the Green Office Certification Program. Green Offices complete a certification checklist, which includes actions in a variety of categories including waste reduction, purchasing, energy conservation, and transportation. Participating offices can certify at various levels and receive a certificate celebrating their certification status. They are then acknowledged on the SFU Sustainability Office website and in other publications for their positive contribution to sustainability at SFU. Efforts made by participating offices are also included in Sustainability Strategic Plan reports and communications to encourage further participation. There are currently 11 offices with Green Office Certification, and 15 more registered to become certified.

### **Award-Winning Communications**

In 2014, SFU Facilities Services won the 2014 City of Burnaby Environmental Star Award in Communication for their “Let’s Save Energy Together” video campaign. The videos inform community members

about energy conservation issues and encourage them to take small but important actions. The videos are entertaining, humorous and have had high viewership ([http://www.sfu.ca/fs/Sustainable-Operations/Energy-Conservation/How\\_You\\_Can\\_Help.html](http://www.sfu.ca/fs/Sustainable-Operations/Energy-Conservation/How_You_Can_Help.html)).

### **Sweater Day**

Each year SFU promotes the World Wildlife Fund (WWF) Sweater Day in February. Community members are encouraged to wear an ugly or silly sweater for one day and Facilities Services turns the thermostat down saving 6500kg of greenhouse gas emissions in one day, which is equivalent to the carbon sequestered by 5.3 acres of U.S. forests in one year. Staff members and student groups send photos of their teams donning their sweaters and are entered to win a prize.

## **2.2** FLEET EMISSIONS

In 2014, several fleet vehicles were replaced with more efficient vehicles over the course of the year.

## **2.3** PAPER EMISSIONS

No new campaigns were undertaken in 2014 to reduce paper usage. Individual actions that can support a reduction in paper use are integrated into the Green Office Certification program.



## 3.0 PLANS TO CONTINUE REDUCING GREENHOUSE GAS EMISSIONS: 2015 and beyond

With a reduction of greenhouse gas emissions 18.5% below 2007 levels in 2014, Simon Fraser University has now achieved the interim goal of an 18% reduction below 2007 levels by 2016. Many of SFU's GHG emission reductions in the last seven years have been a result of actions that can be classified as "low -hanging fruit". Renewed commitment to reducing all operational emissions will be paramount to achieving the university's 2020 goal of a 33% reduction in GHG emissions below 2007 levels.

In the long term, SFU will continue building a comprehensive calculation of the carbon footprint of the university to include Scope 3 emissions in key areas of organizational impact such as commuter travel and waste.

## 3.1 BUILDING EMISSIONS

SFU will continue to optimize building performance and energy efficiency and invest in retrofits through internal funding, including the Facilities Services Sustainable Utilities Revolving Fund (SURF), through the Carbon Neutral Capital Program, and through other external funding sources. The Green Labs and Green Office Certification Programs will further support occupants of university buildings to reduce and optimize their energy demands. All upgrade and retrofit planned projects, detailed in the University's Strategic Energy Management Plan are funding-dependent.

### 3.1.1 BUILDING FINE-TUNING

#### **Building Envelope Projects:**

- Build a new entrance vestibule for the Academic Quadrangle to create an airlock in order to reduce heat-loss in the building.

#### **Building HVAC (Heating, Ventilation, Air-Conditioning) and Control Upgrades:**

- Upgrade the Robert C. Brown Building and Education Building controls, replacing existing pneumatic controllers with Direct Digital Controls (DDC).
- Upgrade the HVAC systems in Blusson Hall and Saywell Hall in order to be able to provide free rather than mechanical building cooling.
- Undertake a Coppertree fault detection diagnostic pilot to enhance energy management.
- Fine-tune the new boilers in Discovery 1 and Discovery 2.
- Retrofit the Animal Care boiler.

#### **Lighting Efficiency Projects:**

- Replace light fixtures on 4 floors of the Library with new LED fixtures.
- Replace the old metal halide fixtures in the pool and east gym with new LED fixtures.
- Replace 150 old metal halide pole top fixtures with new LED fixtures in parking lots, walkways and streets.

As in 2014 and previous years, HVAC, lighting and control upgrades are also integrated into current classroom, lounge and washroom upgrade programs.





### 3.1.2 BEHAVIOUR CHANGE

#### **Dining Hall Behaviour Programs Pilot**

Expanding on the success of the Green Labs and Green Office Programs SFU will work with BC Hydro to develop and implement a behavior change program in SFU's Residence Dining Hall.

#### **Green Labs and Green Office Certification**

The certification system for labs and offices is expected to have increased adoption rates in 2015. SFU will continue to support staff and lab-occupant energy demand-side management efforts through the Green Labs and Green Office programs.

#### **Green Dining and Green Events Certification**

With the popularity of the Green Labs and Green Office Program SFU is planning on expanding the certification system to green dining and green events with energy conservation being a key set of actions within each level of the certification checklist.

#### **Sweater Day**

SFU will explore the concept of expanding the once per year thermostat turn-down event to a more regular occurrence. This would greatly increase GHG reductions with little capital expenditure and is seen as an excellent way to engage the community and encourage the adoption of an energy conservation mindset.

### 3.2 FLEET EMISSIONS

In 2015, SFU Facilities Services will roll out GPS tracking on 44 vehicles in order to monitor usage, idling, and capacity needs for the university's fleet. These GPS will also contribute to optimizing the frequency of preventative maintenance measures. In addition, over the course of 2015 several vehicles will be replaced with more efficient vehicles.

### 3.3 PAPER EMISSIONS

Individual actions that can support a reduction in paper use are integrated into the Green Office Certification program. In addition, as part of SFU's Zero Waste Initiative, SFU will be exploring both procurement and behaviour modifications to reduce overall paper use.

## 4.0 ACTIONS TAKEN TO ADVANCE SUSTAINABILITY & CARBON NEUTRALITY

The year 2014 was an AASHE (Association for the Advancement of Sustainability in Higher Education) Sustainability Tracking, Assessment & Rating System (STARS) reporting year for SFU. The extensive data collection on curriculum, engagement, operations and planning for this reporting enabled SFU to begin establishing baseline data for further sustainability planning and actions. SFU also achieved a Gold 2.0 rating as a result of this process, demonstrating the high commitment to and progress toward sustainability goals.



Building on the 2013 approval of SFU's first University-wide Sustainability Strategic Plan (2013-2016) and SFU's Sustainability Policy GP 38 (2008), the Senior Sustainability Council, consisting of representatives from each Vice-Presidential portfolio and the Sustainability Office identified 10 core action priorities for the remaining two years of SFU's Sustainability Strategic Plan.

### **ENGAGING STUDENTS**

1. Facilitate a Council sponsored student-led engagement summit in as part of the 50th anniversary activities to create a vision for SFU in 50 years
2. Identify and promote opportunities for Alumni integrating sustainability into their work to mentor SFU students and fellow alumni

### **ENGAGING RESEARCH**

3. Ensure sustainability is integrated extensively into the new Strategic Research Plan
4. Develop tools and create a searchable database for cataloguing and reporting on sustainability research, researchers and curriculum at SFU

### **ENGAGING COMMUNITY**

5. Develop a strategy to communicate about SFU's Sustainability Initiative internally and externally
6. Adapt the Strategic Sustainability Plan to meet the needs of Surrey and Vancouver in order to facilitate implementation of sustainability

activities on all SFU campuses

### **LEVERAGING INSTITUTIONAL STRENGTHS**

7. Develop a Climate Action Plan
8. Develop a Sustainable Mobility Plan
9. Develop a Sustainable Procurement Plan
10. Develop a guiding document that outlines the University's approach to addressing issues of health, safety and sustainability in design, operation and selection of facilities, systems and equipment

In addition to high-level sustainability planning, SFU advanced sustainability (environmental, social, and economic) and carbon neutrality on each of SFU's campuses. The breadth of these achievements can be found in SFU's comprehensive STARS report: <https://stars.aashe.org/institutions/simon-fraser-university-bc/report/2014-10-29/>

Some highlights of SFU's successes in 2014 include:

- SFU was one of the first three campuses in Canada to achieve a Gold 2.0 Rating in the Association for the Advancement of Sustainability in Higher Education (AASHE) STARS (Sustainability Tracking, Assessment & Rating System), which examines a range of sustainability indicators across the campus operations, curriculum, planning and engagement.
- SFU was awarded 'Fair Trade Campus of the Year, 2014' by FairTrade Canada in the fall of 2014. SFU maintained Fair Trade Campus status, meeting Fairtrade Canada's standards in availability of Fair Trade products, visibility on the concept of Fair Trade and the establishment





of a campus Fair Trade Committee. (<https://www.sfu.ca/sfunews/stories/2014/sfu-receives-canadian-fairtrade-award.html>)

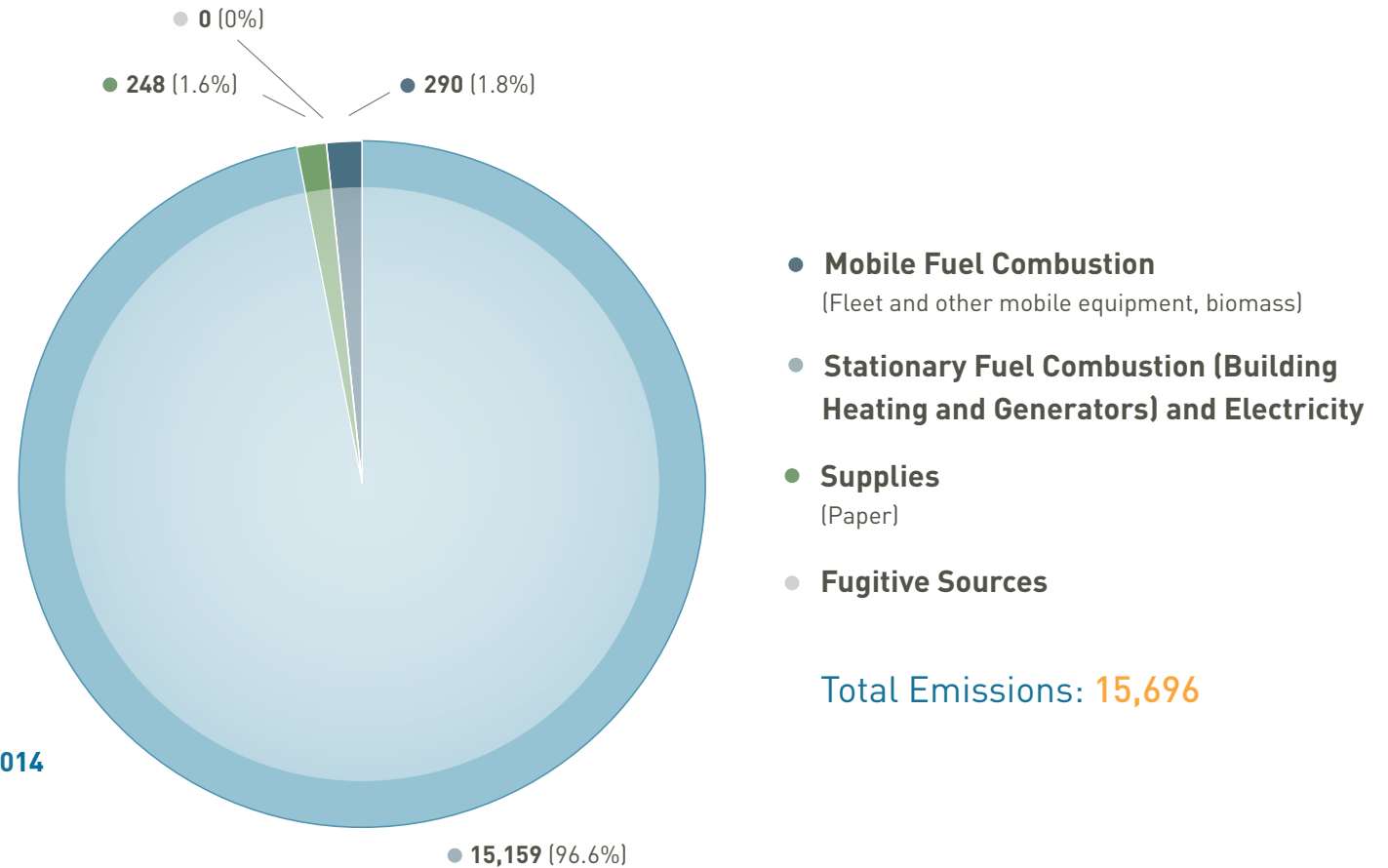
- SFU Ancillary Services received the Burnaby Business Excellence Award in Sustainability. The awards recognize organizations that have demonstrated outstanding business success and have had a positive and significant impact on the community. In the Environmental Sustainability category, SFU Ancillary Services was recognized for their sustainability leadership not only at the Burnaby Mountain campus, but globally as well. (<http://www.sfu.ca/sustainability/news-events/news-archive/campus/year/2014/sfu-ancillary-services-receives-excellence-award-in-environmenta.html>)
- In 2014, SFU Launched the Zero Waste Initiative aimed at diverting waste from landfills and reducing the total volume of waste. Details of the program can be found at: <http://www.sfu.ca/sustainability/zerowaste.html>. This initiative launched with three signature projects:
  - Four-stream Zero Waste Stations were rolled-out to all public spaces in order to move towards SFU's goal of 70% waste diversion by 2015. During this time, SFU began diverting all organic waste on all three campuses, and improved diversion rates.
  - The Sustainability Office, in partnership with SFU Centre for Dialogue, hosted a regional dialogue on "Zero Waste: Innovations to Drive the Circular Economy", attended by 90 individuals from multiple sectors across Metro Vancouver.
  - The SFU Sustainability Office, local musician Dan Moxon and Creative Services Launched the award-winning "Zero Waste at SFU" music video to support the Zero Waste Initiative: <https://www.youtube.com/watch?v=AYkhGxF9bZQ>.
- Four video-conferencing courses in the two new lecture recording theatres were piloted during the 2014 winter semester.
- The Sustainability Peers Program expanded through on-campus partnerships. There are 19 Sustainability Peers for 2014-2015. The Peer Education program is a vibrant student volunteer program that provides support to the SFU community through peer-to-peer service, while fostering the personal and professional development of the students who volunteer within it through personalized goals. Sustainability Peer Educators specifically work to empower themselves and fellow students to make SFU a more sustainable community. The Sustainability Peer Educators are trained to be highly informed about sustainability at SFU and how students can lead and participate in planning, initiatives, and events.
- In 2014, SFU undertook a comprehensive commuter behaviour survey. While commuter emissions lie outside the provincially mandated Carbon Neutral Government scope for Public Sector Organizations, this survey has provided the university with a credible high-level inventory of the annual SFU commuter travel emissions. This also provides the university with a better understanding of commuter travel needs, and will be the basis from which SFU can consider the development of viable transportation solutions in future years.

## 5.0 APPENDICES

Actions Towards Carbon Neutrality (via the online tool)

Actions to Improve Sustainability (via the online tool)

## Greenhouse Gas Emissions by Source for the 2014 Calendar Year (tCO<sub>2</sub>e)



### Offsets applied to Become Carbon Neutral in 2014

Total offsets required: **15,686**

Total offset investment: **\$392,150**

Emissions which do not require offsets: **10\***

\*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.



# 2014 Carbon Neutral Action Report (CNAR)

## - Part 2 ACTIONS

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### Organization Name

Simon Fraser University

### 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:

Live Data Dashboard Projects:

As part of the BC Hydro and Fortis BC funded Continuous Optimization (C-Op) program, a total of 19 buildings on the Burnaby campus are now connected to energy dashboard displays. These displays provide live data on energy performance, and increase the ability of the Energy Management Office and operational staff to review energy performance of all the buildings in close to real-time. Performance by the remaining SFU buildings continues to be monitored for future energy project opportunities.

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Building envelope upgrade projects remain a priority for improving building GHG performance at SFU. The following building envelope upgrades were completed in 2014:

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- Replaced 5 distribution transformers with much more efficient units.

Energy upgrades, such as lighting and HVAC and controls are integrated into current classroom, lounge and washroom upgrade programs.

#### BEHAVIOUR CHANGE PROGRAMS

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### Green Labs Program

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## **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:

Facilities Services is piloting a program to reduce emissions from vehicle idling.

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

Used less paper than previous year

Yes

Used only 100% recycled paper

No

Used some recycled paper

Yes

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

Yes

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

Document Solutions is offering Wheat Sheet to the Campus

### **Page 3**

### **Actions Taken to Reduce Emissions - continued**

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

#### **BUILDINGS**

SFU will continue to optimize building performance and energy efficiency and invest in retrofits through internal funding, including the Facilities Services Sustainable Utilities Revolving Fund (SURF), through the Carbon Neutral Capital Program, and through other external funding sources. The Green Labs and Green Office Certification Programs will further support occupants of university buildings to reduce and optimize their energy demands. All upgrade and retrofit planned projects, detailed in the University's Strategic Energy Management Plan are funding-dependent. Building Envelope Projects:

- Build a new entrance vestibule for the Academic Quadrangle to create an airlock to reduce heat-loss in the building.

#### Building HVAC (Heating, Ventilation, Air-Conditioning) and Control Upgrades:

- Upgrade the Robert C. Brown Building and Education Building Direct Digital Controls (DDC), replacing existing pneumatic controllers with DDC controllers.
- Upgrade the HVAC systems in Blusson Hall and Saywell Hall in order to be able to provide free rather than mechanical building cooling.
- Undertake a Coppertree fault detection diagnostic pilot to enhance energy management.
- Fine-tune the new boilers in Discovery 1 and Discovery 2.
- Retrofit the Animal Care boiler.

#### Lighting Efficiency Projects:

- Replace light fixtures on 4 floors of the Library with new LED fixtures.
- Replace the old metal halide fixtures in the pool and east gym with new LED fixtures.
- Replace 150 old metal halide pole top fixtures with new LED fixtures in parking lots, walkways and streets.

As in 2014 and previous years, HVAC, lighting and control upgrades are also integrated into current classroom, lounge and washroom upgrade programs.

#### Behaviour Change

##### Dining Hall Behaviour Programs Pilot

Expanding on the success of the Green Labs and Green Office Programs SFU will work with BC Hydro to develop and implement a behavior change program in SFU's Residence Dining Hall.

#### Green Labs and Green Office Certification:

The certification system for labs and offices is expected to have increased adoption rates in 2015. SFU will continue to support staff and lab-occupant energy demand-side management efforts through the Green Labs and Green Office programs.

#### Green Dining and Green Events Certification:

With the popularity of the Green Labs and Green Office Program SFU is planning on expanding the certification system to green dining and green events with energy conservation being a key set of actions within each level of the certification checklist.

#### Sweater Day:



SFU will explore the concept of expanding of the once-per-year thermostat turn-down event to a more regular occurrence. This would greatly increase GHG reductions and is seen as an excellent way to engage the community and encourage the adoption of an energy conservation mindset.

#### FLEET

GPS will be installed on 44 Facilities Services vehicles in 2015. These GPS will help monitor usage and idling, identify preventive maintenance frequency and identify the fleet capacity required by Facilities Services.

#### PAPER

Individual actions that can support a reduction in paper use are integrated into the Green Office Certification program. In addition, as part of SFU's Zero Waste Initiative, SFU will be exploring both procurement and behavior modifications to reduce overall paper use.

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 - 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 AwarenessHave 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**

Yes

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

Yes

**Planning for Cimate ChangeHave assessed whether extreme weather events and/or long term changes in climate will affect our organization's business areas**

No

**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**

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**

No

**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**

No

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

No

**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**

No

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

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

The Sustainability Office has been working with Meeting and Events Services, Ceremonies and Events and others running events to encourage the inclusion of public transit and bicycle directions and instructions in addition to instructions intended for single-occupancy vehicles.

Encourage carpooling to meetings

The Sustainability Office informally encourages staff to carpool to all meetings possible.

SFU is piloting the Go-Together ride share program and social venture run and led by SFU students and alumni [www.go2gether.ca](http://www.go2gether.ca)

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

Yes, Sustainability Ambassadors (47) and Sustainability Peers (19)

Sustainability Ambassadors (STAFF)

Ambassadors are staff members who play a unique role as sustainability educators and advocates within their departments. They are the connection between the SFU Sustainability Office and the campus community. Ambassadors volunteer a suggested 1 hour a month during work time and receive support and resources to carry out their roles. They take on specific campaigns each semester geared toward piloting new sustainability programs or filling in the gaps where more information is needed. Ambassadors are a key part of SFU's culture and behavior change initiatives.

Sustainability Peers (STUDENTS)

The Peer Education program is a vibrant student volunteer program that provides support to the SFU community through peer-to-peer service, while fostering the personal and professional development of the students who volunteer within it through personalized goals. Sustainability Peer Educators specifically work to empower themselves and fellow students to make SFU a more sustainable community. The Sustainability Peer Educators are trained to be highly informed about sustainability at SFU and how students can lead and participate in planning, initiatives, and events.

Provided resources and/or dedicated staff to support these teams

Yes, Community Engagement Coordinator at the Sustainability Office

Energy Specialist at Facilities Services for the Green Labs program

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

Sustainability Ambassadors

We provide the SAs with professional development in the form of semesterly lunch n' learn sessions with external guests that embed CBSM principles. This includes topics on waste, transportation, and energy in the recent year. The Peers receive training on sustainability principles and the structure of sustainability at SFU.

Established a sustainability/green awards or recognition program

Yes, President's Leadership Awards in Sustainability and our Green Office and Green Labs Certification Program

Provided education to staff about the conservation of water, energy, and raw materials  
Through the Sustainability Office's Talking Sustainability blog issues of water, energy and raw material conservation are discussed at length. The blog is available to and well read by staff members. More details can be found here: <http://www.sfu.ca/sustainability/talking.html>  
In 2014, SFU Facilities Services won the 2014 City of Burnaby Environmental Star Award in Communication for their Let's Save Energy Together video campaign. The videos inform community members about energy conservation issues and encourage them to take small but important actions. The videos are entertaining, humorous and have had high viewership ([http://www.sfu.ca/fs/Sustainable-Operations/Energy-Conservation/How\\_You\\_Can\\_Help.html](http://www.sfu.ca/fs/Sustainable-Operations/Energy-Conservation/How_You_Can_Help.html)).

Provided green tips on staff website or in newsletters

Yes, multiple avenues including the University's Sustainability website and regular newsletter, in the Talking Sustainability Blog and through poster, video and other communication campaigns.

Energy tips (for saving energy at work) on the Facilities Services website

(<http://www.sfu.ca/fs/Green-Services/Energy-Conservation/Energy-Savings.html>)

Secure bicycle storage is provided

Yes, Vancouver and Surrey campus have indoor secure storage. Burnaby has interior but not "secure" storage although there are ample outdoor bike lock up areas.

Other Sustainability Actions

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

No comprehensive strategy, but many water conservation actions have been taken.

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

Continuing washroom renewal program with replacement of fixtures with low flow toilets and faucets. Details can be found at: <http://www.sfu.ca/fs/Sustainable-Operations/Water-Conservation/>

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

We do not have a policy but the University has implemented an extensive four-stream Zero Waste Program. Details can be found on: <http://www.sfu.ca/sustainability/zerowaste.html>

See SFU's Sustainability Annual Report

<http://www.sfu.ca/sustainability/planning/sac/annualreport.html>

The year 2014 was an AASHE (Association for the Advancement of Higher Education) Sustainability Tracking, Assessment and Rating System (STARS) reporting year for SFU. The extensive data collection on curriculum, engagement, operations and planning for this reporting enabled SFU to



begin establishing baseline data for further sustainability planning and actions. SFU also achieved a Gold 2.0 rating as a result of this process demonstrating the high commitment to and progress toward sustainability goals.

Building on the 2013 approval of SFU's first University-wide Sustainability Strategic Plan and SFU's Sustainability Policy GP 38, in 2014 the Senior Sustainability Council, consisting of Vice-Presidential representatives, and the Sustainability Office identified core action priorities for the remaining two years of SFU's sustainability Strategic Plan. These ten core action priorities are the following:

#### ENGAGING STUDENTS

1. Facilitate a Council sponsored student-led engagement summit in Spring 2015 as part of the 50th anniversary activities to create a vision for SFU in 50 years
2. Identify and promote opportunities for Alumni integrating sustainability into their work to mentor SFU students and fellow alumni

#### ENGAGING RESEARCH

3. Ensure sustainability is integrated extensively into the new Strategic Research Plan
4. Develop tools and create a searchable database for cataloguing and reporting on sustainability research, researchers and curriculum at SFU

#### ENGAGING COMMUNITY

5. Develop a strategy to communicate about SFU's Sustainability Initiative internally and externally
6. Adapt the Strategic Sustainability Plan to meet the needs of Surrey and Vancouver in order to facilitate implementation of sustainability activities on all SFU campuses

#### LEVERAGING INSTITUTIONAL STRENGTHS

7. Develop a Climate Action Plan
8. Develop a Sustainable Mobility Plan
9. Develop a Sustainable Procurement Plan
10. Develop a guiding document that outlines the University's approach to addressing issues of health, safety and sustainability in design, operation and selection of facilities, systems and equipment.

In addition to high-level sustainability planning, SFU advanced sustainability (environmental, social, and economic) and carbon neutrality on each of SFU's campuses. The breadth of these achievements can be found in SFU's STARS report, here:

<https://stars.aashe.org/institutions/simon-fraser-university-bc/report/2014-10-29/>

Some highlights of SFU's successes in 2014 are listed below:

- SFU was one of the first three campuses in Canada to achieve a Gold 2.0 Ranking in the

Association for the Advancement of Sustainability in Higher Education (AASHE) STARS (Sustainability Tracking, Assessment & Rating System), which examines a range of sustainability indicators across the campus operations, curriculum, planning and engagement.

- SFU was awarded 'Fair Trade Campus of the Year, 2014' by FairTrade Canada in the fall of 2014. SFU maintained Fair Trade Campus status, meeting Fairtrade Canada's standards in availability of Fair Trade products, visibility on the concept of Fair Trade and the establishment of a campus Fair Trade Committee. (<https://www.sfu.ca/sfunews/stories/2014/sfu-receives-canadian-fairtrade-award.html>)

- SFU Ancillary Services received the Burnaby Business Excellence Award in Sustainability. The awards recognize organizations that have demonstrated outstanding business success and have had a positive and significant impact on the community. In the Environmental Sustainability category, SFU Ancillary Services were recognized for their sustainability leadership not only at the Burnaby Mountain campus, but globally as well. (<http://www.sfu.ca/sustainability/news-events/news-archive/campus/year/2014/sfu-ancillary-services-receives-excellence-award-in-environmenta.html>)

- In 2014, SFU Facilities Services won the 2014 City of Burnaby Environmental Star Award in Communication for their Let's Save Energy Together video campaign. The videos inform community members about energy conservation issues and encourage them to take small but important actions. The videos are entertaining, humorous and have had high viewership ([http://www.sfu.ca/fs/Sustainable-Operations/Energy-Conservation/How\\_You\\_Can\\_Help.html](http://www.sfu.ca/fs/Sustainable-Operations/Energy-Conservation/How_You_Can_Help.html)).

- Four video-conferencing courses in the two new lecture recording theatres were piloted during the 2014 winter semester.

- The Sustainability Peers Program (as described above) expanded through on-campus partnerships. There were 19 Sustainability Peers for 2014-2015.

- In 2014, Four-stream Zero Waste Stations were rolled-out to all public spaces in order to move towards SFU's goal of 70% waste diversion by 2015. During this time, SFU began diverting all organic waste on all three campuses, and improved diversion rates from 27% to 70% : <http://www.sfu.ca/sustainability/zerowaste.html>

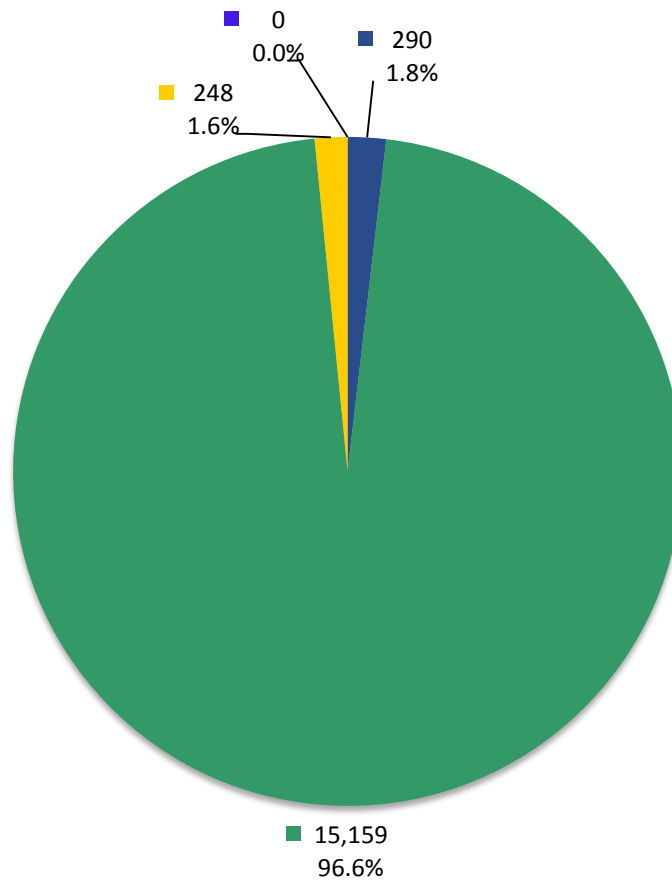
- The Sustainability Office, in partnership with SFU Centre for Dialogue, hosted a regional dialogue on "Zero Waste Innovations: Innovations to Drive the Circular Economy, attended by 90 individuals from multiple sectors across Metro Vancouver.

- The SFU Sustainability Office, local musician Dan Moxon and Creative Services Launched the award-winning "Zero Waste at SFU" music video collaboration to support the Zero Waste Initiative: <https://www.youtube.com/watch?v=AYkhGxF9bZQ>

- In 2014, SFU undertook a comprehensive commuter behaviour survey. While commuter emissions lie outside the provincially mandated Carbon Neutral Government scope for Public Sector Organizations, this survey has provided the university with a credible high-level inventory of the annual SFU commuter travel emissions. This provides the university with a better understanding of commuter travel needs, and will be the basis from which SFU to consider the development of viable transportation solutions in future years.



# Simon Fraser University Greenhouse Gas Emissions by Source for the 2014 Calendar Year (tCO<sub>2</sub>e\*)



**Total Emissions: 15,696**

- 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 23, 2015 4:41 PM)

Total offsets required: **15,686**. Total offset investment: **\$392,150**. Emissions which do not require offsets: **10** \*\*

\*Tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e) 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.