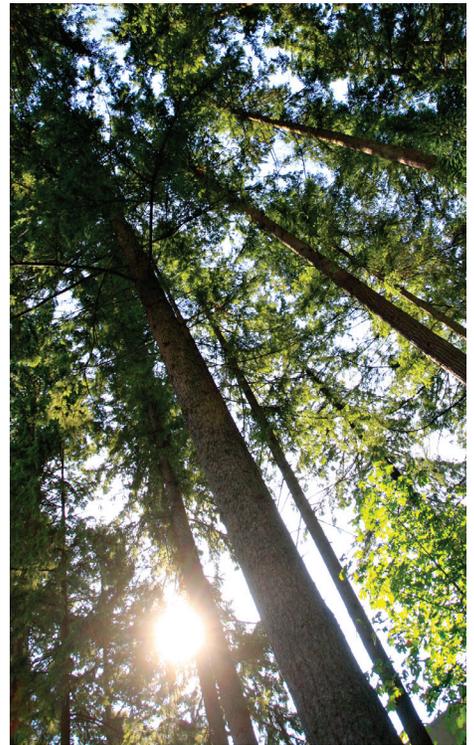


# 2014 Carbon Neutral Action Report



## **2014 Carbon Neutral Action Report**

### **Capilano University**

This *Carbon Neutral Action Report* for the period January 1<sup>st</sup> to December 31<sup>st</sup>, 2014 summarizes our emissions profile, the amount of offsets purchased to reach net zero emissions, 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, Capilano University's final *Carbon Neutral Action Report* will be posted to our website at <https://www.capilanou.ca/sustainability/Commitment/Reports/>

## Overview

At Capilano University, our mission is student success. We are a teaching-focused university offering a wide range of programs and services that enable students to succeed in their current studies, in their ongoing education, in their chosen careers, in their lifelong pursuit of knowledge, and in their contribution as responsible citizens in a rapidly changing and diverse global community.

Our main campus is located in North Vancouver, nestled in a lush forested environment at the base of the North Shore mountains, with our regional campuses in Squamish and Sechelt that serve the communities of Howe Sound and the Sunshine Coast.

At Capilano, we are committed to being both environmentally and socially conscious. We think of sustainability as a continual and on-going improvement process; to reduce our carbon footprint, resource usage, social inequalities and overall impact on our planet.

Since 2007, Capilano University has reduced its Building Energy Performance Index (BEPI) from 419 ekWh/M<sup>2</sup> to 278 ekWh/M<sup>2</sup>; (a 33.6% reduction) a total reduction of 141 ekWh/M<sup>2</sup>.

Our [Sustainability Policy](#), adopted in 2009, outlines the University's commitments to environmental stewardship and our community.

One of the key learning outcomes we strive to instill in our students is community/global stewardship and responsibility. Our students learn about sustainability in their courses and through their involvement in campus life. Examples include:

- EarthWorks/CapU Works – An ambitious initiative spearheaded by students, staff, and faculty from the university's Biology, English, Geography, Liberal Studies, Tourism and Outdoor Recreation programs and beyond. Through a series of lectures, films and engagement activities, CapU Works aims to educate and inspire students and members of the campus and local community to understand complex environmental issues from a multi-disciplinary perspective enabling all to take action for positive change.
- CapU Works Student Organizers – In the Spring of 2014, the CapU Works team included four student organizers — Sage Birley (Garden PatchWorks), Tiaré Jung (FoodWorks), Kelly Thorson (PowerWorks) and Scott Brydle (EarthWorks) — selected for their passion and commitment to sustainability. In the Fall term, four new organizers joined our team – Crysta Perak (Garden PatchWorks), Jaimie Harris (FoodWorks), Biljana Radovic (PowerWorks), and Taylor Krekoski (EarthWorks) – to continue the conservation and engagement efforts started by the previous semester's students.
- Campus Waste Audits – A hands-on project engaging students from a variety of faculties across campus to learn about our waste generation. Building on the success of the first waste audit in 2011, students in a variety of courses sort through one day of campus waste as part of an ongoing research project aimed at improving our waste management strategies at CapU. From 2011 to 2014 we have reduced our overall organics waste by implementing new zero waste stations to divert waste into the right stream.
- Examples of Embedding Sustainability in the Curriculum – Noel Genoway has been incorporating energy conservation into his BADM 218 Leadership in Team courses since 2013, and Greig Gjerdalen's REC 245 Leadership students have worked on zero waste education awareness by helping promote the campus' new waste stations. Courses such as Geography 101 and 102 include campus and community projects based on sustainability, and The Liberal Students Degree has also adopted a Sustainability theme for the year. Our annual waste audit is also an important event tied directly into multiple courses, including Business, Tourism & Outdoor Recreation, Biology, Archaeology, and English for Academic Purposes.
- Workplace Conservation and Awareness Program – Capilano students and employees continue to adopt more sustainable behaviours, supported by our partnership with BC Hydro and its Workplace Conservation Awareness (WCA) program. In the program's fourth year, a number of ongoing behavioural change initiatives to reduce electricity and energy consumption across the university, including Get Ur Fleece On, and the 30 Day Challenge were featured.
- Student-lead social and environmental initiatives - Includes the participation in our sixth annual Five Days for the Homeless campaign and Concert4Change.

- Campus Community Garden – Located at the north end of campus, the garden, officially opened on Earth Day 2013, provides a place for shared experience among students from different programs and space for everyone in our community to connect. Included amongst our 65 plots are 7 designated special access plots, 23 plots for university employees, 21 for neighbours living in Purcell Woods an adjacent townhouse complex and 2 childcare centre plots, which makes for a very diverse group of gardeners.
- Sustainable Transit – Participation in the UPass BC Program and Bike to Work Week to encourage the use of public transit and cycling to and from campus by employees and students.
- Computer and Electronic Recycling – In 2014, we recycled 5,543 kg of electronics. We have prevented 22,710 kg of carbon emissions from entering the atmosphere by recycling our electronics responsibly.

Our annual conservation targets include 3% for behaviour change and 4% for technical projects. In 2014, we implemented several technical projects that have contributed to this year's GHG reductions.

- Since 2007, Capilano University has reduced its Building Energy Performance Index (BEPI) from 419 ekWh/M<sup>2</sup> to 278 ekWh/M<sup>2</sup>; (a 33.6% reduction) a total reduction of 141 ekWh/M<sup>2</sup>.
- In 2014, Capilano achieved a reduction of 5% in electricity, and 11% in natural gas, and an overall reduction of 8.4% in ekWh consumption.
- Implementation of Energy Conservation Measures (ECM's) in areas of Lighting and HVAC's operation and controls reduced energy consumption by 559,000 kWh + 1,690 GJ (44,603 m<sup>3</sup>), resulting in reducing emissions by approximately 282 tonnes CO<sub>2</sub>.

Birch, Cedar, Studio Art and Arbutus buildings were completed during this period in addition to other partial initiatives such as replacing a Water Cooling based AC unit at our Cedar Data Server Room from a 5T to a 2T unit or at Studio Art. In that building, Natural Gas driven boilers and tanks were replaced by 2 X On Demand Water Heaters which included the restoration of sections of DHW Piping insulation between the Studio Art and Fir Buildings.

- DDC upgrades from 2013 at the Squamish and Sunshine Coast campuses continue to outperform project expectations. In 2014, The Squamish campus reduced consumption by 49,753 ekWh and the Sunshine Coast a total of 122,332 ekWh, and achieved GHG reductions of 4.08 tonnes of CO<sub>2</sub>e for Squamish and 9.06 tonnes of CO<sub>2</sub>e for the Sunshine Coast
- Paper reduction – Since 2010, we have reduced our paper purchases from 13,365 packages to 9,465, resulting in impressive emissions reductions.

Through our community efforts, we have made significant strides to decrease our greenhouse gas emissions and promote sustainability on campus. In 2014 our total GHG emissions were 1,668 tonnes of CO<sub>2</sub>e - an annual reduction of 185 tonnes (or 10%). Since 2011, we have achieved a total GHG reduction of 741 tonnes or 30.8%. I invite you to read about our achievements to date and our future plans; and to share in the success of our journey to carbon neutrality in our campus community operations.

Cindy Turner



VP Finance & Administration

**Emissions and Offsets Summary Table:**

<b>Capilano University GHG Emissions and Offsets for 2014 (TCO2E)</b>	
<b>GHG Emissions created in Calendar Year 2014</b> <i>(from SMARTTool Homepage):</i>	
Total Emissions (TCO2E)	1,668
Total Offsets (TCO2E)	1,666
<b>Adjustments to GHG Emissions Reported in Prior Years</b> <i>(from SMARTTool Homepage):</i>	
Total Emissions (TCO2E)	8
Total Offsets (TCO2E)	9
<b>Total Emissions for Offset for the 2014 Reporting Year</b> <i>(from SMARTTool Homepage)</i>	
Total Offsets (TCO2E)	1,675

**Executive sign-off:**



Signature

**MAY 27 2015**

Date

Cindy Turner

VP Finance and Administration

## Emissions Reduction and Sustainability Activities

Actions taken to reduce greenhouse gas emissions and improve sustainability in 2014 include:

### Leadership in Student Engagement

Many of our students, faculty members and employees have been working collaboratively to bring sustainability to the forefront of student life. A few examples are:

- EarthWorks/CapU Works – An ambitious initiative spearheaded by students and employees from the university's Biology, English, Geography, Liberal Studies, Tourism and Outdoor Recreation programs and beyond. Through a series of lectures, films and activities, CapU Works aims to educate and inspire students, members of the campus and local community to understand complex environmental issues from a multi-disciplinary perspective enabling all to take action for positive change. In 2014, a sampling of events included lectures (on Overconsumption, First Nations issues, and the Pollination Crises) with guest speakers, a Mobilizing Resources gathering (to unite students who want to volunteer with community organizations needing volunteers), one day of the Canadian College and University Environmental Network Conference (CCUEN), a bat house-building workshop, and documentary film screenings (*Watermark* and *Northern Grease*). For more information and to view the schedule of events, please visit the [Works page](#) on the Capilano U website.
- CapU Works Student Organizers – In the Spring of 2014, the CapU Works team included four student organizers — Sage Birley (Garden PatchWorks), Tiaré Jung (FoodWorks), Kelly Thorson (PowerWorks) and Scott Brydle (EarthWorks) — selected for their passion and commitment to work on sustainability initiatives on campus throughout the year. In the Fall term, four new organizers joined our team – Crysta Perak (Garden PatchWorks), Jaimie Harris (FoodWorks), Biljana Radovic (PowerWorks), and Taylor Krekoski (EarthWorks) – to continue the conservation and engagement efforts started by the previous semester's students.



In addition to attending weekly team meetings and building community engagement, these student organizers acted as catalysts bringing energy, support for the team, and the vision to challenge the series to grow into a rallying point of knowledge and action. They sought to engage other students within the campus and external community. The organizers were also encouraged to network with environmental organizations, arts-based organizations, performance artists, policy makers, and leaders and experts in sustainable change-making to bring a richness of views and opinions to the series. Throughout 2014, this group planned and delivered events that educated and inspired.



- EarthWorks Organizers: Scott Brydle – In the Spring, Scott helped plan lunchtime discussion sessions, student training/workshops, sustainability socials, potlucks, and film screenings. Scott also liaised between the EarthWorks Team, CSU Environmental Issues Committee, and other sustainability 'works' and groups to connect ChatLive themes (such as Overfishing, Invasive Species, and Pipelines) with opportunities for engagement/action. Scott also helped secure guest speakers, facilitators, and activity leaders (such as Kurt Frei and Marc Guimond from the Seymour Hatchery) connected to existing projects or campaigns related to the EarthWorks lecture theme (Biophilia), and recruited student volunteers to poster, use social media, set up, take pictures, film, and attend events.

In the spring term, Scott began with a short series of letter-signing events; titled Letters to Stephen Harper. Scott drafted a letter to the Prime Minister with prepared statements and room for elaboration as well as addressed envelopes. More than 100 students wrote personalized call-to-action letters to Prime Minister Harper that Scott collected and then mailed to Ottawa. Topics ranged from concern over the silencing of federally sponsored scientists, to lack of research funding, to conservation efforts for various species, and improving the response time on such issues by the government.

Scott also created an obstacle course (on campus) that was a scale model of the tanker route proposed by Enbridge in and around Kitimat. This event was a great success, demonstrating the difficulties of navigating a narrow inlet, and illustrating the risks of an oil spill on our fragile coastal ecosystems.



In the Fall, the new organizer, Taylor Krekoski, ran Letters to Stephen Harper again, and also organized Bike to Work Week at the North Vancouver campus. It was an opportunity for students, staff and faculty to get outdoors, cut down on carbon emissions, and share their love of riding with fellow cyclists.

Cyclists signed up for team Cap U, and kept a log of their trips, which helped [HUB](#) gather information about commonly used bike routes. Riders were able to keep tally of greenhouse gas emissions they saved, how many calories they burned, and were entered in a draw to win a bike from HUB, as well as multiple prizes from the Celebration Stations at Cap U.

Taylor hosted Celebration Stations throughout the week where riders could stop in to wash and tune up their bikes, and visit with other riders. Bike maps and refreshments were also provided. Though the team was small, the results were fairly impressive!

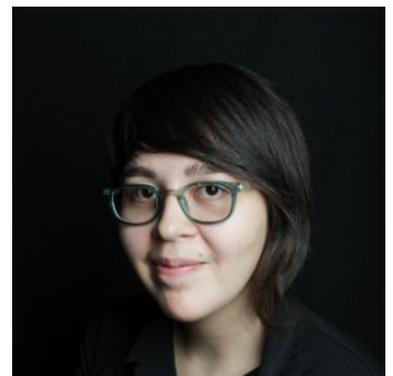


- FoodWorks Organizers: Tiaré Jung – Since April 2012, as part of the National Campus Food Systems Project, Capilano students have been identifying opportunities for food systems change. In 2014, Tiaré supported students to bring local and seasonal food to campus events and community garden workshops. She also worked with the Food and Beverage Committee to find opportunities to increase the freshness and accessibility of menu options, reduce waste, and engage the campus in conversations about food. Five key food values were crafted to capture key concerns of campus community members:

- Nourishment & sustenance
- Community engagement & Evidence based decision making
- Effective resource management
- Connection to the regional food resources and ecosystem
- Learn and make evidence based decisions

Jaimie Harris was responsible for the position throughout the Summer and Fall terms, helping bring Capilano’s first ever Farmers’ Markets to campus. The goal was to introduce the campus and surrounding community to local vendors in a convenient location, and provide access to local fresh produce, baked goods, and beautiful handmade goods and products from local artisans. Both the September and December (Christmas) markets were great reasons to celebrate the arrival of the new seasons, with live music and a bright, inviting atmosphere.

Throughout the last week of October, Jaimie collected non-perishable food items and donations for the Harvest Project through the Trick or Eat program. This event was created to face the hunger issue in Canada: 1.4 million households experience food insecurity, meaning 1 in 8 homes are affected. In addition to raising awareness about food insecurity, Jaimie represented Capilano University at the annual Food Summit in Ottawa, where she met like-minded students and forged important connections for her future work. Building upon the new skills she gained throughout the term, Jaimie planned to take this new found knowledge back to her hometown of Bella Bella.



- Garden PatchWorks Organizers: Sage Birley –Coming from a farming background, Sage was a great addition to the team, and brought his knowledge and expertise to the community garden. He helped to organize seeding workshops, invasive species & weed pulls, and made sure things were running smoothly in the garden for students, staff, faculty, and community members who held plots.

Throughout the Spring of 2014, Sage spent time planning and organizing a large event called Ode to Spring. This celebration took place in the community garden on the first day of Spring (the anniversary of the garden’s opening), brought together various groups across campus, and recognized artists and musicians from Capilano by providing a stage on which to display their work and perform for the attendees.



Crysta Perak became the organizer in the Fall and set out to host a variety of events new to CapU. In October she organized National Mushroom day; a huge hit with both staff, and students. Bringing in two local mushroom experts, the audience learned about mushrooms found around campus, while snacking on stuffed mushroom caps and mushroom soup.

She hosted an invasive species pull, as well as a Composting & Winter Gardening Tips workshop in the community garden for the plot holders, bringing a variety of people together for both education and fun.

- PowerWorks Organizers: Kelly Thorson – Through funding provided by BC Hydro's Workplace Conservation and Awareness program, Kelly continued as our PowerWorks student organizer into 2014. One of the position’s main goals is to help students become energy conservation ambassadors at Capilano U and in their future careers, and she hosted two events which did just that.

For the Spring of 2014, Kelly organized the campus to participate in the WWF's National Sweater Day (February 6, 2014), in recognition of dressing appropriately for the weather to avoid turning up the thermostat and wasting energy. She also planned a pre-Earth Hour event held on March 28<sup>th</sup>, 2014, called ‘Starry, Starry Afternoon’, which highlighted constellations that were in the sky during official Earth Hour, on March 29<sup>th</sup> at 8:30 pm.



Biljana Radovic was Kelly’s replacement, and planned an ambitious year. She ran the very successful [Your Powerful Shot](#) campaign with a photo contest and exhibition during the fall term 2014. This contest set out to raise awareness of energy conservation and energy efficiency while changing bad energy-related habits and encouraging more ‘OFF’s.

For the Spring 2015 term, Biljana has plans to work on the Building Challenge with BADM 218 (Leadership in Teams) and carry out an Earth Hour campaign for her BADM 305 team project, both helping to embed sustainability in the curriculum.



- **Campus Waste Audits** – A hands-on project engaging students from a variety of faculties across campus to learn about our waste generation. First started in 2011, students in Environmental Geography, English for Academic Purposes, Biology, Outdoor Recreation, and Archaeology sort through one day of campus waste as part of an ongoing research project aimed at improving our waste management strategies at CapU and raising consciousness.

With the first audit, our landfill-bound waste consisted of 69% organics. As of our last audit, we had reduced that number to 40% (with plastics making up 17% and paper 9%). In an effort to reduce the total amount of refuse that is sent to the landfill, in the fall of 2014, we introduced [zero waste stations](#) on every floor of every building. This made the waste sorting process much easier for the campus community, and we look forward to seeing the results of these bins in the upcoming [audit](#). As we strive to meet the new Metro Vancouver legislation, our goal is to further reduce the amount of organics to 25%.

One student remarked, “People need to be better educated on how to properly dispose and recycle the waste they are creating, as well as on the aspect of over consumption and producing excess waste in general.”

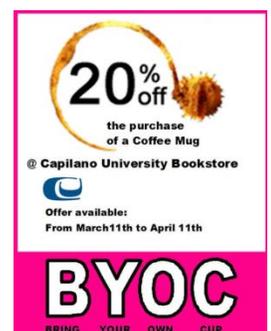
- In Noel Genoway’s Fall BADM 218 Leadership in Teams class, students became the eyes and ears on campus for finding ways to improve our campus waste systems, reduce overall waste, while making it easier for the CapU community to comply with the Metro Vancouver Organics Ban coming in January 2015. Their suggestions, such as colour-coded and image-based signage, are now part of our Zero Waste Stations – found on every floor of every building on campus.
- Students in Sharka Stuyt’s “Leadership In Teams” (BADM 218) business class were assigned to one of seven teams representing seven Capilano campus buildings to face-off in a battle to create and implement an energy saving campaign. Teams selected the most appropriate energy conservation behaviour for that building. The teams focused on the following three energy saving strategies:

1. Turning off the lights
2. Turning off computer and monitors
3. Taking fewer elevator trips



The campaigns fostered significant energy savings for their respective buildings, and raised energy awareness on campus. And most impressively, the teams involved contributed to a 10% overall energy savings for the buildings involved. This energy savings included all operations in the building. On a daily basis, 1429.79 kWh was achieved during the challenge, totalling 41,464 kWh (or 10%)!

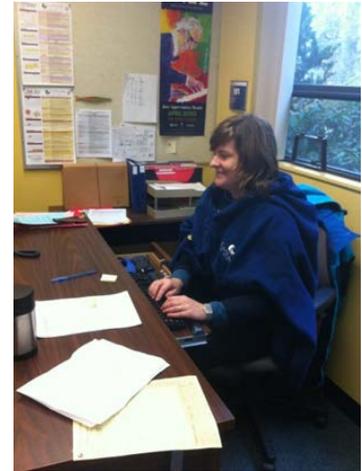
- Sustainability was a key component in Cheryl Schreder’s Geography 101 and 102 – through campus and community projects and student-directed research on topics such as waste, water, food security, wildlife conservation, and climate change.
- The Liberal Studies Degree adopted the term theme of Sustainability (for the second time), and is the upcoming theme for Fall 2015 again. This means that the delivery of approximately 8 different upper level courses in Arts and Sciences will continue to revolve around sustainability in a unique interdisciplinary way.
- In Greig Gjerdalen’s REC 245 Leadership course, the team’s assignments were to use their team leadership knowledge, skills and strengths to work together to positively contribute to Capilano University’s progress towards zero waste. The results were impressive, and some of their best ideas were implemented across our campus to make it easier to sort waste, and reduce our campus waste overall. One team even worked with the Bookstore to offer a discount on re-useable mugs (to encourage B.Y.O.C), to cut down on paper cup waste!



## Our Community

Capilano students and employees continued to adopt more sustainable behaviours in 2014, thanks in large part to our partnership with BC Hydro and its Workplace Conservation Awareness (WCA) program. In the program's fourth year, a number of behavioural change initiatives were implemented once again to reduce electricity and energy consumption across the university, including:

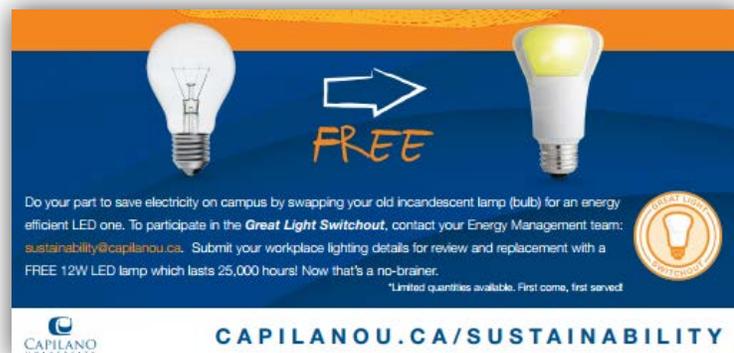
- GET UR FLEECE ON campaign – In partnership with BC Hydro and FortisBC, interested employees were provided with a fleece blanket (made of 100% recycled material) to encourage energy conservation by dressing warmly during winter months and using the blanket while working. As of Dec. 31, 2014 a total of 332 blankets had been distributed in total.



- 30 Day Challenge – In the Fall of 2014, the Capilano University community was asked to adopt one sustainability activity for a 30-day period, resulting in 86 students, staff and faculty at our North Vancouver campus rising to the challenge. Challenges ranged from packing a re-usable mug and taking shorter showers, to riding a bike to campus every day and powering down computers when not in use. All of the participants stuck with it, and are now living a little bit more sustainably as a result.



- The Great Light Switch-out - Employees were provided with a free 8W, 10W or 12W LED bulb to replace their inefficient desk lighting, in order to recognize the significant energy savings and longer life of the LED replacement. The campaign officially wrapped up December 2014, and since the program began at Capilano in 2012, over 90 efficient bulbs were distributed.





- A blog was launched by the university in 2013 called 'Your Daily Cap' which includes a dedicated section for sustainability. All members of the campus community contribute stories and comments, with new stories added every day. We use this fabulous resource to reach a varied audience to promote our student-led events and get the word out about initiatives taking place at Capilano. In 2014, 42 blog posts were written for the sustainability page. In addition to the blog, our overall communications have improved drastically throughout 2014, with communications plans being updated, ensuring we reach as many people on and off campus as possible.

- In 2014, Capilano U participated in Bike to Work Week, a Lower Mainland initiative that encourages the campus community to cycle to and from the university in order to reduce greenhouse gas emissions. For both the Spring and Fall events, the Cap U team was able to save 195 kgs of CO<sub>2</sub> by choosing a healthier alternative to driving an automobile or taking the bus. Since 2010, Capilano's participation in Bike to Work Week has resulted in the total savings of 650.19 kgs of CO<sub>2</sub>.



- Capilano participated in Five Days for the Homeless for the sixth consecutive year between March 10<sup>th</sup> and 14<sup>th</sup>, 2014. This campaign raised funds and awareness for homelessness and housing insecurity on campus by hosting a variety of activities each day throughout the week (including discussions and film screenings). All funds raised during this initiative are donated to the North Shore Youth Safe House.



- In 2014, we recycled 5,543 kg of computers and electronics. We have prevented 22,710 kg of carbon emissions from entering the atmosphere by recycling our electronics responsibly. In addition to reducing our carbon footprint, our recycling is saving the University money, which means we can re-direct this money to support our mission of student success.
- Since 2010, Capilano has reduced its total paper purchases by 3,900 packages, which has resulted in emission reductions of 25.53 tonnes of carbon. If we stacked the 3,900 packages, this would be the equivalent height of the Shangri-La Hotel in Vancouver in reduced paper (650 ft.)! For 2014, Capilano purchased 9,465 packages, compared to 9,590 in 2013 (a difference of 125 packages). Everyone, Administration, Exempt, Faculty and Staff have contributed to this success. Department, Areas and individually we have all worked to reduce paper consumption. The installation of Paper Cut software in 2012 by the IT Department has also contributed to our reductions.



- New to Capilano for 2014 was the Concert 4 Change, held January 10<sup>th</sup>, showcasing a variety of dynamic and forward-thinking performers. Live entertainment included The Boom Booms and Greg Drummond, and the inspirational speakers list included Ta'kaiya Blaney, Dini Dini, and Tamo Campos. Food trucks were also present in addition to a community fair, highlighting sustainable and local food systems.

## Our Built Environment

We are continuously seeking ways to improve the energy efficiency of our infrastructure, which accounts for the majority of our carbon emissions. A few of our 2014 projects include:

- Campus Community Garden – On Earth Day 2013, Capilano University opened its first ever community garden. Located at the north end of campus, the garden provides a site for shared experience among students from different programs and a place for everyone in our community to connect.

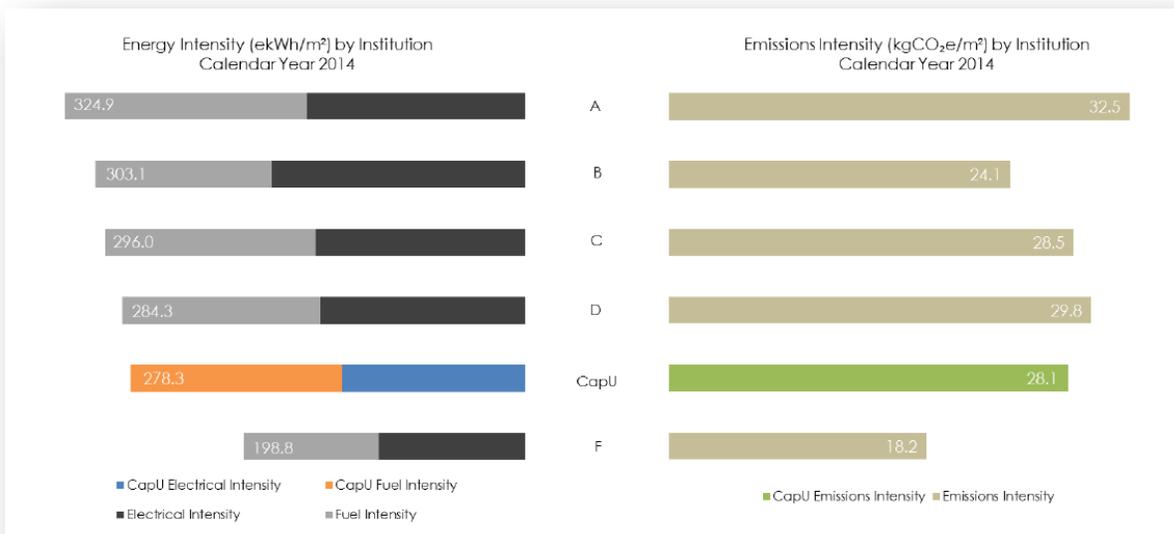


Features include a traditional First Nations garden, a ‘learning garden’ for the youngsters in the Children’s Centre, an outdoor classroom and social space, a hydroponics display, a scent garden, and communal herbs and edible flowers.

Our Garden PatchWorks student organizers (Sage and Crysta) helped organize informative workshops, arranges invasive species and weed pulls, and made sure things ran smoothly in the garden for students, staff, faculty, and community members who hold plots.

There are 58 ‘regular’ plots and 7 ‘special access’ plots for use by the campus community at large (students, faculty, staff, administration, departments/areas, alumni, and our neighbours in the adjoining townhomes). All plots were assigned in 2014, with a waitlist growing for the 2015 season. Feedback has been overwhelmingly positive, as we have been able to bridge the gap between our neighbours and campus community, and establish strong connections and relationships.

- Building Operations and Energy Performance - Our reduction targets were established at 7% (4% for technical, 3% for behaviour) for 2014, 9% (6% technical and 3% behaviour) for 2015. Between 2013 and 2014, Capilano achieved a reduction of 5% in electricity, and 11% in natural gas, and an overall reduction of 8.4% in ekWh consumption.
- Since 2007, Capilano University has reduced its Building Energy Performance Index (BEPI) from 419 ekWh/M<sup>2</sup> to 278 ekWh/M<sup>2</sup>; (a 33.6% reduction) a total reduction of 141 ekWh/M<sup>2</sup>. This reduction demonstrates quantifiably Capilano University’s progress towards more sustainable building operations and campus. The figure below is a comparison between Advanced Education Institutions and Capilano University – the average for these Advanced Education institutions is 290.2 ekWh M<sup>2</sup> and CapU ranks 2<sup>nd</sup> amongst this group.



- In 2013 the DDC upgrades at Squamish and Sunshine Coast campuses were completed. Both campuses are still outperforming the project expectations in overall energy consumption reduction. As of December 31, 2014 the Squamish campus had reduced consumption by 49,753 kWh and the Sunshine Coast a total of 122,332 kWh, and achieved GHG reductions of 4.08 tonnes of CO<sub>2</sub>e for Squamish and 9.06 tonnes of CO<sub>2</sub>e for the Sunshine Coast.
- Energy cost savings since 2007 total \$964,118 (\$879,359 natural gas and \$84,759 electricity). The costs avoided by becoming more efficient have allowed the Facilities department to implement additional energy savings projects.
- Implementation of Energy Conservation Measures (ECM's) in areas of Lighting and HVAC's operation and controls reduced energy consumption by 559,000 kWh + 1,690 GJ (44,603 m<sup>3</sup>), resulting in reducing emissions by approximately 282 tonnes CO<sub>2</sub>.

Birch, Cedar, Studio Art and Arbutus buildings were completed during this period in addition to other partial initiatives such as replacing a Water Cooling based AC unit at our Cedar Data Server Room from a 5T to a 2T unit or at Studio Art. In that building, Natural Gas driven boilers and tanks were replaced by 2 On Demand Water Heaters which included the restoration of sections of DHW Piping insulation between the Studio Art and Fir Buildings.

ECM's included the incorporation of new control algorithms measures such Outside Air Temperature (OAT) and Weather Predictors; Occupancy Sensors; Variable Speed Drives in the DHW System; additional sensors such as CO<sub>2</sub> or Temperature, and Air Balancing.

- In 2013, we installed two dual-head electric vehicle charging stations at the North Vancouver campus to promote the use of more efficient vehicles. Throughout 2014, there were 154 sessions that together totaled 801.1 kWh used, saving 336 kg of greenhouse gas. We will continue to monitor the usage of these stations and increase the number of stations if demand increases.

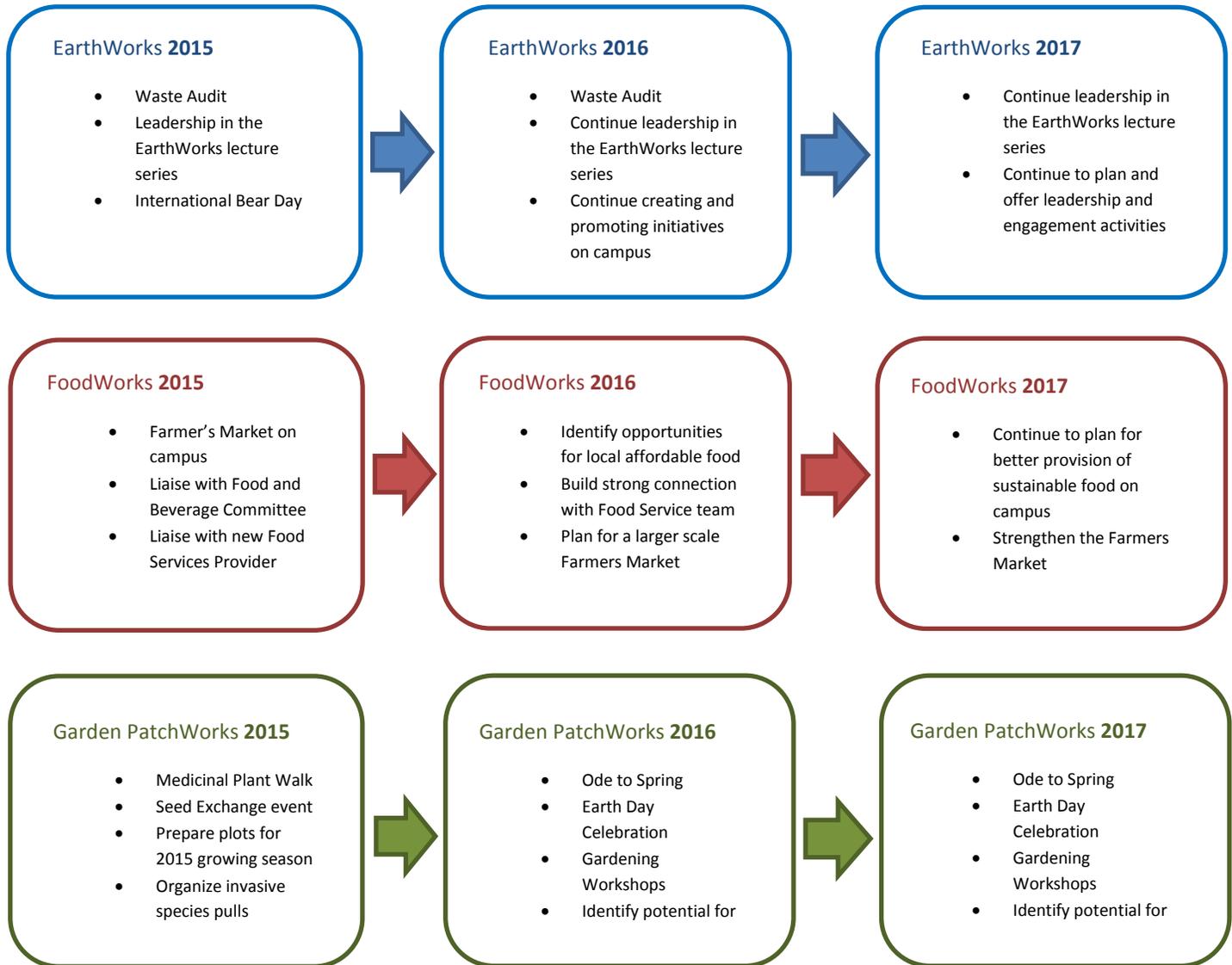


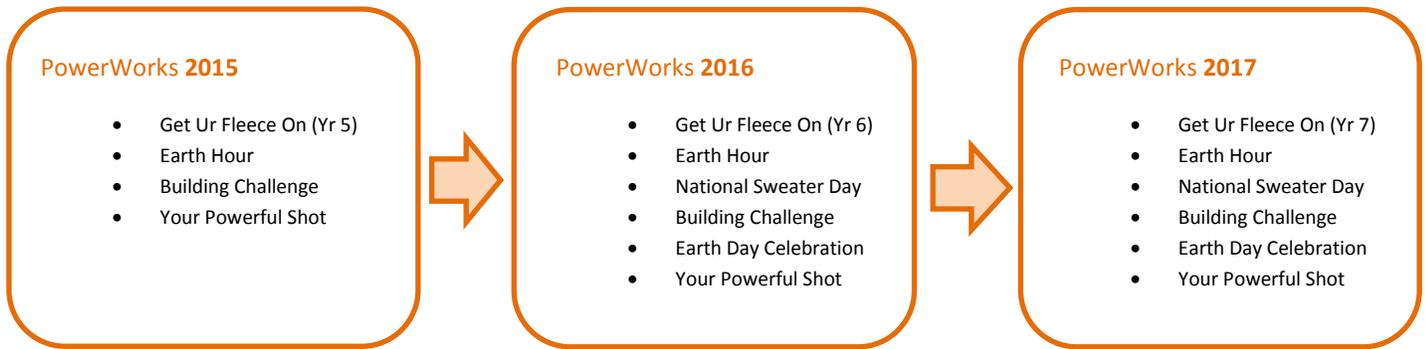
## Plans to Continue Reducing Greenhouse Gas Emissions and Improve Sustainability 2015-2017

A few highlights from our upcoming plans include:

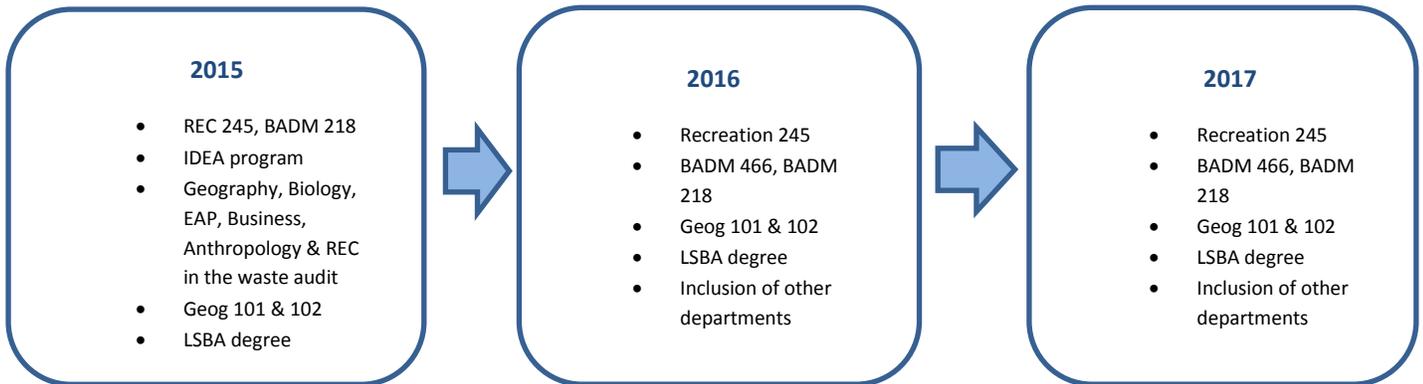
### Leadership in student engagement

- CapU Works – a continuation and strengthening of this multi-disciplinary group of students, staff, and faculty will continue to deliver events that educate and inspire. We will continue to host environmentally related guest speakers, hold invasive plant pulls, lead gardening workshops in the community garden, design energy conservation initiatives, and discuss affordable, local food on campus.
- CapU Works Organizers:





**Embedding Sustainability into Course Curriculum**



**Campus Waste Audits**



## Our community: 2015-2017

- Continued engagement and building of bridges with campus neighbours through the community garden.



- We will continue to update the 'Your Daily Cap' blog, websites and CapU Sustainability Facebook and Twitter accounts as frequently as possible to share information on student-led events and initiatives taking place on campus.

- Continued participation in the WCA program, leading behavioural changing activities on campus.
- We will continue to participate in the U-Pass BC program, encouraging students to take public transit to get to and from campus, helping reduce greenhouse gas emissions.



- Cap U will continue participating Bike to Work Week, with the Spring 2015 event being hosted by the CapU Human Resources department. Sustainability on campus has established a strong connection with HR, and have been able to expand the event as a result. We aim to improve on our results from the past few years, and compete against other post-secondary institutions to save to most greenhouse gas emissions overall.

- For the Spring 2015 term, we will have BADM 218 student teams once again working on the Building Challenge. The goal is to raise awareness of energy conservation, take action and create a community of change agents that take responsibility for personal and collective electricity consumption across all buildings through behavior change initiatives on and off Capilano's campuses.
- Recreation 245 will be revisiting the Zero Waste initiative, with their projects beginning in the Spring of 2015. Their assignment is to become recycling and composting ambassadors, creating simple educational tools to help the campus community adjust to the new zero waste stations.

## Our built environment: 2015 -2017



- We will continue to use both PUMA energy software and Pulse Energy's real-time metering to identify and resolve issues of overly high consumption and to engage occupants around energy conservation.

- Our strategic energy management plan (SEMP) includes projects that could contribute savings up to 2,378.53 ekWh or 45 ekWh per sq/m<sup>2</sup> for 2015-16, pending budget approval for implementation (1,029,000 kWh electrical or 1,029,000 ekWh and 4,950 GJ /130.642 m<sup>3</sup> of Natural Gas or 1,349,532 ekWh).
- In 2015, we will complete our 7<sup>th</sup> year of energy manager funding from BC Hydro. We hope to renew this funding for an additional year commencing October 2015. This invaluable program has enabled Capilano University to track with meeting the mandated energy consumption reduction of 33% by December 31, 2015. Something the University may not have been able to do without the support of BC Hydro and FortisBC.
- 2015/16 Projects (pending Budget approval ) range from continuing with the implementation of COP related projects and the Optimization of Systems Controls applied to Lighting and HVAC's Systems; Fluorescent based lighting T8 Lamp Replacement with LED based Units; continuing with the replacement of DHW Boilers /Tanks with On Demand Water Heaters; Heating and Boiler retrofits; Energy related studies; assessing new alternatives such as "Sensible Bldg. Science " (implemented in specific areas at UBC) along with the student and employee engagement activities that reinforce and leverage for additional savings each technical project.
- We will continue to assess the number of electric vehicle charging stations and increase as needed/able. We plan to continue promoting sustainability transportation to and from our institution.
- We will continue to add plots and other necessary infrastructure to support the continuation of a strong, vibrant, and connected gardening community. We will continue to host events in the garden, such as Ode to Spring, plot holder work days, and composting and gardening workshops, ensuring everyone has an equal opportunity to participate.

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

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## Organization Name

Capilano 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:

Campus Engagement

- Battle of the Buildings
- Get Ur Fleece On
- Great Light Switchout

Technical Projects

2014:

-Implementation of C-Op Projects at Library and Fir Buildings including Energy Conservation Measures (Controls algorithms; installation of Variable Speed Drives; additional CO2 pressure sensors).

- Relamped ; replacing approximately 13,000 florescent 32W/T8 tubes with 12W/tLEDs.
- Replaced Domestic Hot Water Natural Gas Boilers for On Demand Water Heaters (Birch bldg.)
- Replaced Boilers at the Library Building.
- Conducted energy consumption studies in Birch Food Services to assess Kitchen equipment from an operational and behavioural perspective. The intent of the studies is the identification of existing equipment to be replaced with energy efficient and/or new technologies. Coupled with specific training with the Food Services Provider, this will contribute to maximized operational efficiency and energy waste reduction.
- Working with new monitoring and controls approaches e.g. “ Sensible Building Science “ using existing occupancy activity data, generated by building occupants carrying mobile devices, to control building automation systems
- Assessment of structural related components including buildings' envelope to prevent air loss and determine impact of bldg. sealing, bldg. pressurization, etc

## **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

Yes

Reduced the overall number of fleet vehicles

Yes

Took steps to drive less than last year

Yes

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

We replaced our Parking Services vehicle (gas) with a fully electric Smart Car.

We have also participated in Bike to Work Week for the fourth straight year. For both the Spring and Fall events, the Cap U team was able to save 195 kgs of CO2 by choosing a healthier alternative to driving an automobile or taking the bus. Since 2010, Capilano's participation in Bike to Work Week has resulted in the total savings of 650.19 kgs of CO2.

### **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.)

No

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

- Continued to expand the use of 'Paper Cut software' to control print release for all printing jobs.

## Actions Taken to Reduce Emissions - continued

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

Capilano annually assesses and revises its Strategic Energy Management Plan (SEMP); targets achieved, identifying new opportunities for operational cost reductions; evaluating suggestions and ideas; determining project ROI and builds business cases for projects in alignment with the existing funding opportunities. Capilano uses the business cases to determine priorities and implementation feasibility.

Our SEMF includes a commitment to reduce our energy annually by 4% technical and 3% behavioural for 2014. It includes a target of 6% technical and 3% behavioural for 2015.

These aggressive targets will guide us to achieve and most importantly, to surpass, the provincial mandate of 33% reduction by 2015 as compared to our 2007 baseline. In 2007 CapU's campus square footage was approximately 538,000 sq ft this increased to 607,000 sq ft in 2012 .

Available data indicates CapU has reduced their tCO<sub>2</sub> per sq ft from 0.0048 in 2007 to 0.0026 in 2014 or 45%.

By utilizing the Ministry funded VFA Assessments, infrastructure improvements and replacements are prioritized. Our focus is on the development of Capital Projects Plans that support energy conservation, GHG reduction while improving the Facility Condition Index (FCI).

Finally, Energy Management and Sustainability initiatives at CapU are expected to continue to raise the level of consciousness of our campus community. At CapU we will continue to develop our CapUWorks program, our energy conservation awareness campaigns and our technical projects to ensure our campus community understand the need to embed energy conservation into the curriculum and into our daily lives.

Each year, we improve our student and Workplace Conservation Awareness campaigns and the events we host. As a result, we have increased numbers of participation. We continue to hold engaging energy conservation awareness campaigns with the expectation the campaigns will contribute to a reduction of 3% of our total annual consumption, in addition to inspiring our campus community to become more sustainability minded.

We have started a domino effect of positive change at Capilano by spearheading conservation initiatives with the CapU Works team. Our activities have changed the 'norm' and expectations on campus and help make it easy for people to adopt a lifestyle with a smaller carbon footprint.

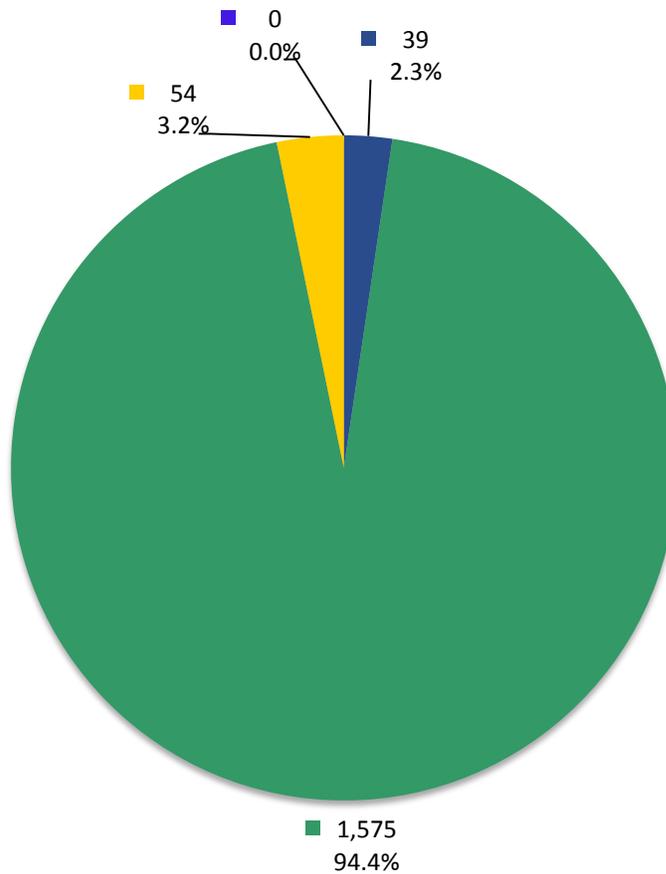
We will continue to include students in conservation projects, and embed sustainability into the curriculum, as both help us meet the needs of the entire campus community, while saving money, energy and resources. Project topics will included GHG reductions through; recruiting building energy audit volunteers, paper savings, dressing appropriately for the weather, unplugging unused devices, promoting the use of stairs and shutting the windows.

Our innovative approach demonstrates leadership within post-secondary influencing other institutions, organizations, companies, etc to get on board.

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

No

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



**Total Emissions: 1,668**

- 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 25, 2015 11:04 AM)

Total offsets required: **1,666**. Total offset investment: **\$41,650**. Emissions which do not require offsets: **2** \*\*

\*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.