



THOMPSON RIVERS
UNIVERSITY



2013 Carbon Neutral Action Report



Thompson Rivers University (TRU) prioritized sustainability as a founding value and key priority in the 2007-2012 Strategic Plan. “Increasing Sustainability” was prioritized again in the new (2014-2019) Strategic Plan. Equally important plans, such as the Academic Plan, Campus Master Plan and Campus Sustainability Action Plan, are all consistent in supporting this goal. These planning documents, combined with on-going sustainability-related initiatives and projects, ensure that TRU improves on an already solid track record of embedding sustainability throughout every level of the institution.

Learn more about the work of TRU’s Office of Environment and Sustainability at www.tru.ca/sustain.



Thompson Rivers University
Office of Environment and Sustainability
900 McGill Road
Kamloops, BC V2C 5N3

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Images from TRU's International Sweater Day event



Environmental Sustainability is highlighted in Thompson Rivers University's 2007-2012 Strategic Plan as one of seven founding values. TRU recently updated the Strategic Plan and, through an extensive consultation process, stakeholders upheld sustainability as a key priority. "Increasing sustainability" is therefore listed as one of five priorities in the 2014-2019 Strategic Plan and this overarching document aligns the divisional and departmental resources needed to achieve this goal. The commitment to sustainability is further expanded on as one of four major themes in the Institutional Academic Plan, and direct actions and initiatives are detailed in the Sustainability Action Plan (CSAP) and Strategic Energy Management Plan (SEMP). Energy reductions through technical upgrades and behaviour change initiatives remained a focus in 2013, while new initiatives further underlined TRU's carbon neutral commitments.

TRU's Office of Environment and Sustainability has a full-time Director who also serves as TRU's Energy Manager. The position is partly funded (75%) through BC Hydro's Energy Manager Program. TRU received funding through the Fortis BC Energy Specialist Program to employ a full-time Energy Specialist who started in July of 2013. In addition, the Office of Environment and Sustainability has a full-time Environmental Programs and Research Coordinator and routinely hires Co-op or research students to assist with various initiatives and research.

TRU is committed to meeting the requirements of the Greenhouse Gas Reduction Targets Act. The Director of the Office of Environment and Sustainability co-chairs the Higher Education Carbon Neutral Committee and represents the Advanced Education sector on the provincial Carbon Neutral Committee. The Director also acts as a technical advisor for the Sustainable Endowments Institutes' Billion Dollar Green Challenge. The "Challenge" is an initiative that aims to have a combined billion dollars of revolving energy funds supporting energy efficiency projects in colleges and universities across North America. The TRU Office of Environment and Sustainability also engages with the broader community through supporting sustainability initiatives and committees with local environmental groups and government agencies.

TRU's recently updated Campus Master Plan will be further supported with an updated Campus Sustainability Action Plan and a Utilities Master Plan. This last plan will include a District Energy Systems (DES) study, building guidelines and transportation strategies that will also prioritize sustainability. These documents will combine to guide development and ensure sustainability is foremost within any future expansion plans. Continued energy conservation projects, grants and initiatives that engage and empower staff, students and faculty in advancing sustainability, coupled with the institutions long-term planning processes, will ensure that sustainability remains an intrinsic value and key priority for years to come.

A handwritten signature in blue ink, appearing to read 'James Gudjonson', with a stylized flourish extending to the right.

James Gudjonson, M.A.

Director, TRU Office of Environment and Sustainability



2.1 Offsets Applied to Become Carbon Neutral in 2013

Thompson Rivers University's greenhouse gas emission calculations included emissions from both the Kamloops and Williams Lake campuses along with all in-scope leased or owned regional centres. In 2013, TRU's emissions amounted to 4,090 tCO₂e and total offsets required were 4,075 tCO₂e.

Exclusions

It was estimated that stationary fugitive emissions from cooling comprised less than 0.01% of Thompson Rivers University's total emissions. TRU deemed fugitive emissions out-of-scope as per the 1% Rule listed in the *2013 B.C. BEST PRACTICES METHODOLOGY FOR QUANTIFYING GREENHOUSE GAS EMISSIONS*, Section 8.3 (How to Treat Small Emissions Sources), Table I8, due to the disproportionately onerous task of measuring those emissions.

Offsets Applied

Reporting period 2013 offsets were 4,075 tCO₂e, for a total offset investment of \$106,968.75. 15 tCO₂e from Scope 1 (Fleet) did not require an offset payment. Those emissions (14.81 BioCO₂) were deemed offset exempt or carbon neutral as illustrated in the Totals table.

Totals Calendar Year 2013, Thompson Rivers University

State Calendar Year 2013, Thompson Rivers University

	Measure	Quantity	Greenhouse Gases in Tonnes				
			CO ₂	BioCO ₂	CH ₄	N ₂ O	tCO ₂ e ¹
Scope 1 (Direct) Emissions							
Mobile Combustion (Fleet)	Litres	160,305.60	395.02	14.81	0.02	0.04	422.14
Stationary Combustion, Estimated ²	GigaJoules	253.95	12.62	0.00	0.00	0.00	12.70
Stationary Combustion, Reported ³	GigaJoules	65,951.30	3,277.12	0.00	0.07	0.06	3,296.91
Scope 2 (Indirect) Emissions							
Purchased Energy, Estimated ²	GigaJoules	223.56	0.89	0.00	0.00	0.00	0.89
Purchased Energy, Reported ³	GigaJoules	58,444.07	233.78	0.00	0.00	0.00	233.78
Scope 3 (Business Travel and Office Paper) Emissions							
Office Paper	Packages	21,217.60	123.34	0.00	0.00	0.00	123.34
Total Emissions, Calendar Year 2013			4,042.77	14.81	0.09	0.10	4,090
Carbon Neutral or Offset Exempt			0.00	14.81	0.00	0.00	15
Total for Offsets ⁴			4,042.77	0.00	0.09	0.10	4,075

1. Each greenhouse gas has been converted to a standard measurement (tCO₂e) by multiplying its emissions by its [global warming potential \(GWP\)](#). The GWP of carbon dioxide (CO₂) from both anthropogenic and biogenic sources is 1; methane (CH₄) is 21, and nitrous oxide (N₂O) is 310. The Totals for tCO₂e are shown here rounded to the nearest whole metric tonne as only whole tonnes of tCO₂e can be purchased for offsets.

2. Estimated data has been calculated based on the methods described in the Methodology Document.

3. Reported data refers to consumption which has been directly billed to the organization.

4. Report the tCO₂e value from the "Total for Offsets" line, to the Pacific Carbon Trust.

3.0 Actions – Reducing Greenhouse Gas Emissions in 2013



Energy Reduction Projects and Initiatives

Revolving Energy Fund

The Revolving Energy Fund (REF) was instrumental throughout 2013 in supporting TRU's Strategic Energy Management Plan (SEMP). TRU's Energy Manager and Energy Specialist oversaw the implementation of numerous technical projects that continue to keep TRU on track towards a 25 percent reduction in energy use by 2016 (from 2010 baselines). In addition to technical changes, TRU's Workplace Conservation Awareness Program, which educates, engages and empowers students and staff, has helped garner the much needed internal support towards reducing our carbon emissions and environmental impact.

Continuous Optimization Program

TRU has enrolled all of its major buildings into BC Hydro's Continuous Optimization Program (COP). The multi-year program utilizes TRU's Energy Management Information System (EMIS) software to analyze buildings' energy efficiency and is designed to reduce energy use through low cost re-commissioning measures. The British Columbia Center for Online Learning (BCCOL) building was TRU's first building to go through all phases of the Program. The energy conservation measures identified in the BCCOL were implemented in March 2013 and are projected to reduce energy use and GHG emissions by greater than ten percent. As per the COP guidelines, the projected savings will result in paying back the retro-fit costs in less than 2 years. In 2013 five other buildings went through the investigative phase and are currently going through the implementation phase. The three remaining buildings that qualify for COP are scheduled for the investigative phase in 2014 or 2015.

Ventilation Demand Control – Commercial Kitchens

In the spring of 2013 Ventilation Demand Control (VDC) systems were installed in the two commercial kitchens on campus – the Culinary Arts Building and the Campus Activity Center. The VDC systems integrate heat/smoke sensors with Variable Frequency Drives (VFD) to control fans bringing air into the building as well fans controlling kitchen exhaust. The sensors allow the fans to operate based on the amount of cooking being done and therefore significantly reduce the amount of energy required to heat, cool and exhaust air during periods when no or minimal cooking is being done.

Building Energy Assessment

In August 2013 three high-level building energy assessments were conducted on buildings which consume more than 2,000 GJ of natural gas per year. The assessments were funded by Fortis BC and included a review of the natural gas consumption history and the general information of each building (age classification, etc.). The assessments also included a site visit by a BC Fortis approved consultant who inspected the HVAC/gas fired equipment and the Building Automation System within each of the buildings. Energy Assessment Reports, that include a list of the potential energy conservation measures recommended by the consultant, were generated for each building. These reports will help align the Facilities Department's planned equipment upgrades with TRU's energy management priorities for combined energy and operational savings.



Sustainability Initiatives

Composting

In the summer of 2013 TRU conducted a composting review and developed a plan to initiate composting on campus. In November TRU started a composting pilot to calculate the volume of food waste, identify any barriers or concerns linked to composting and determine the resources required for a full scale composting program. The pilot project is scheduled to run until May of 2014 and is focused on food waste from lunch rooms and the many food service outlets/cafeterias around campus. The composter, showcased in a highly visible area, is an in-vessel type composter with a capacity of 100 liters of food scraps per day. The accelerated processing time of the in-vessel composter is 4-6 weeks and the compost produced will be used by the Horticulture Program and grounds keepers. Yard waste material has historically been composted in the City of Kamloops' facility, and with the addition of the new food waste composting program, TRU will eliminate most organic material from entering the land fill.

Sustainability Grant Fund

TRU's new Sustainability Grant Fund received numerous proposals for its inaugural intake in 2013. The successful applicants received funding to implement projects that not only reduce GHG emissions, but foster environmental literacy and campus community engagement, advance applied research and demonstrate the viability of sustainability technologies. The fund is available to any students, staff or faculty members in the TRU community who successfully propose a project that advances environmental sustainability at TRU. The SGF was established to improve TRU's operational environmental community, and was created through an increase in campus parking fees. The fee increase has also significantly reduced single occupancy vehicles entering campus, resulting in less congestion and GHG emissions.

Electric Vehicle Suitability Assessment

In the spring of 2013 TRU received financial assistance from the Fraser Basin Council to install 10 Electric Vehicle (EV) charging stations at the 2 main campuses (Kamloops and Williams Lake). That fall TRU was selected by the Fraser Basin Council as one of only four organizations across BC to participate in an Electric Vehicle Suitability Assessment pilot study. The EV suitability pilot studied the duty cycle of TRU fleet vehicles to determine if existing vehicles could be replaced with comparable EV or hybrid vehicles. The study identified significant financial savings and reduced GHG emissions associated with replacing existing fossil fuel powered vehicles with EV or hybrids. The study will act as a guide for TRU's Facilities managers when they are replacing and updating TRU's existing fleet vehicles in the coming years.

Awareness, Engagement and Awards

The TRU Office of Environment and Sustainability developed a social media framework to better link its various educational and engagement campaigns to the TRU community. The successful framework has created a large social media presence and allows the Office to distribute sustainability-related messages and promote sustainability-related initiatives quickly and effectively. The pilot project with Vancouver-based Built Space Technologies continued in 2013 by engaging occupants using a mixture of social media, QR code technology and online surveys. The QR code technology was also employed as the interactive educational piece that was required as per LEED qualifications in TRU's recently constructed House of Learning building. The QR codes allow occupants and visitors to scan QR codes that then link to the various LEED components and real time energy data within the building. Students that demonstrate a commitment to sustainability through their studies or through involvement in environmental clubs or initiatives are eligible for the Environmental Achievement Award or the newly created Tom Owen Sustainability Award.



Energy Projects

BC Hydro's Continuous Optimization Program (COP)

Buildings at each of the Kamloops and Williams Lake campuses will be going through the investigation phase of BC Hydro's COP Program. This study will identify potential energy saving projects that will continually improve a building's level of efficiency. At least 6 to 8 natural gas fired space heating boilers at various buildings will be upgraded to high efficiency condensing boilers before this winter. The natural gas savings and reduced GHG emissions from 2014 projects will be significant and keep TRU on track towards its 25 percent reduction in energy use by 2016.

Solar Photovoltaic (PV) Project

A solar PV project is currently going through a competitive bidding process to select a competent contractor to install a 10KW/20KW capacity grid-connected system on the Campus Activity Centre roof. This system will provide enough electricity for the lighting and plug loads for the TRU Student Union as well as enough electricity to host "off the grid" functions, such as convocation or weddings etc, at the Campus Activity Center.

Sustainability Projects

Zero-Waste Initiative

TRU is implementing a zero waste program in 2014. This includes installing zero-waste stations and removing single-use bins, expanding the successful composting program, joining the National Zero Waste Council and developing a more progressive procurement policy. The zero waste program will allow TRU to target a 50 percent reduction in the amount of organic waste and recyclable material from entering the landfill.

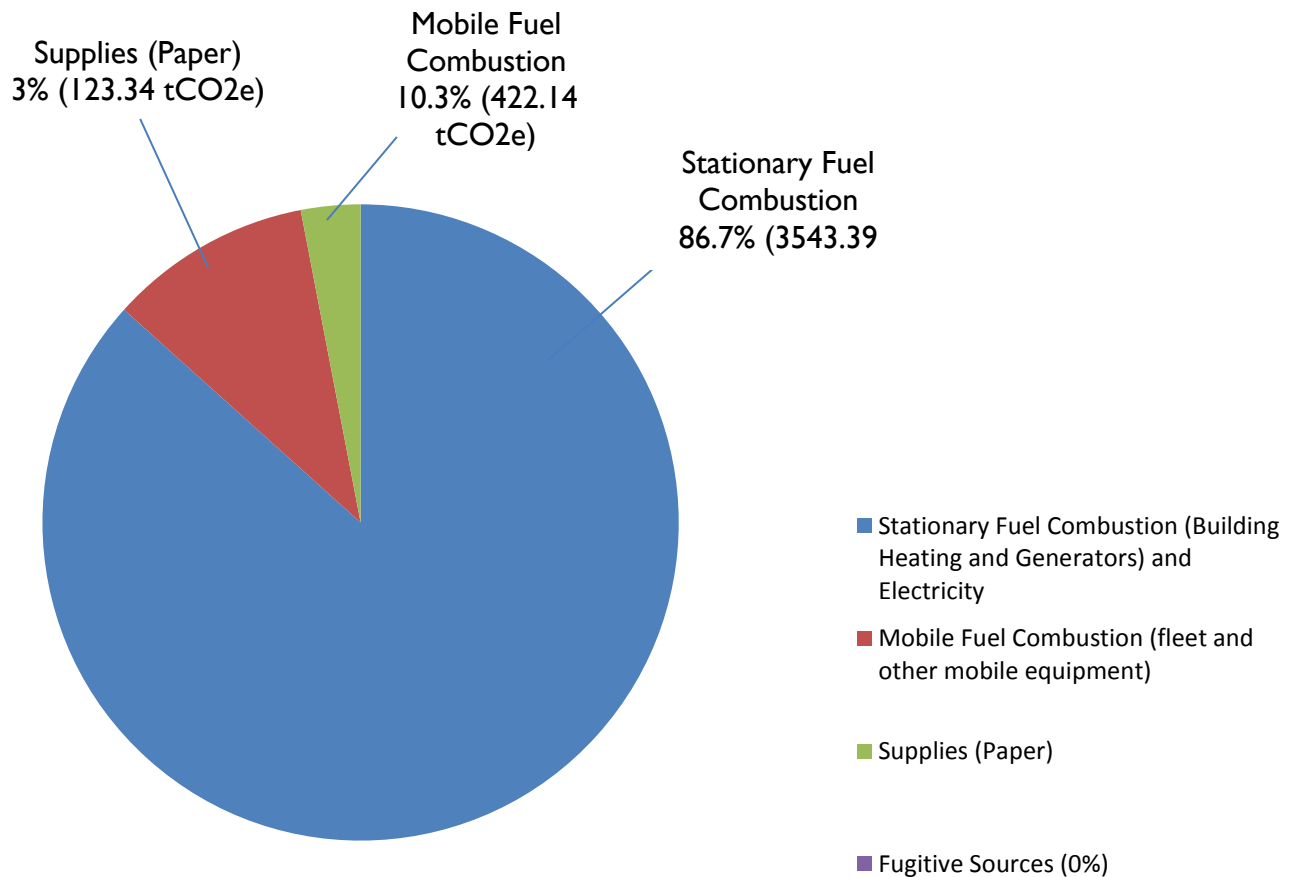
Campus Sustainability Action Plan (CSAP) and Green Guide (GG)

Through a process for broad input and consultation with all members of the TRU community, a revised and expanded CSAP will be completed by mid-2014. The recently updated Strategic Plan identified sustainability as a priority for the next 5 years and the CSAP will align the divisional and departmental resources to accomplish specific goals related to the Strategic Plan. In conjunction with the CSAP a new Green Guide (working title) will be developed to outline the key sustainability initiatives to educate and engage students, staff and faculty in sustainability-related initiatives.

Beverage Container Committee (BCC)

Initiated by TRU students a Beverage Container Committee has been established to address the concerns regarding plastic beverage containers. Relevant internal stakeholders as well as representatives from the Canadian Beverage Association, Coca Cola, and Encorp Pacific, will be taking steps to reduce the amount of disposable packaging – with a focus on plastic beverage containers – from entering the campus.

**Thompson Rivers University
Greenhouse Gas Emissions by Source
for the 2013 Calendar Year (tCO₂e*)**



Total Emissions: 4088.9

Offsets Applied to Become Carbon Neutral in 2013 (generated May 6, 2014)

Total offsets required 4075. Total offset Investment \$106,968.75.

Emissions not requiring offsets: 15**

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

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

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

Created Friday, February 21, 2014

Updated Friday, May 30, 2014

<https://fluidsurveys.com/surveys/cas-z/2013-cnar-form-bps-actions/b2a5f77a9ed96dcaa9dacb1da8c48e44/>

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

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

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

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

Please ensure you meet the following reporting deadlines:

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

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

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

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

Organization Name

Thompson Rivers University

Actions Taken to Reduce Emissions

1) Stationary Fuel Combustion, Electricity (Buildings):

Indicate which actions were taken in 2013:

Performed energy retrofits on existing buildings

Yes

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

Yes

Undertook an evaluation of overall building energy use.

Yes

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

Comprehensive Workplace Conservation Program that includes utilizing various social media platforms to promote and facilitate initiatives that educate, engage and empower students, staff and faculty to act in environmentally sustainable ways.

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

Indicate which actions were taken in 2013:

Do you have a fleet?

Yes

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

No

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:

Installed ten electric vehicle charging stations across two campuses . Participated in electric vehicle assessment pilot study which examined all current fleet vehicle duty cycles and assessed which ones could be replaced with EVs or hybrids once existing vehicles came to the end of their usefull life-cycles.

3) Supplies (Paper):

Indicate which actions were taken in 2013:

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:

Installed scanners to convert existing student files to digital copies in order to eliminate printing the supporting documents for future student files. Scanning all of these documents will also eliminate most of the storage space and energy use associated with hard copy file storage.

Actions Taken to Reduce Emissions - continued

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

- 1) 6 buildings involved in the BC Hydro Continuous Optimization Program*
- 2) 4 buildings have boiler plant upgrades scheduled*
- 3) Adding renewable energy source (PV panels) for the Student Union Building*
- 4) Reducing paper through interdepartmental paper reduction challenge*
- 5) Various events that engage occupants in energy reduction challenges*
- 6) Continue with BC Hydro Energy Manager Program and Fortis BC Energy Specialist - which provides the resources to manage energy related data and plan accordingly (scheduling, etc.)*

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

Yes

Actions to Promote Sustainability and Conservation - Optional

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

Business Travel

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

No

Virtual Meeting Technology

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

Yes

Made desktop web-cameras available to staff

Yes

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

Yes

Encourage carpooling to meetings

Yes

Education and Awareness

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

Yes

Provided resources and/or dedicated staff to support these teams

Yes

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

Yes

Established a sustainability/green awards or recognition program

Yes

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

Yes

Planning for Climate Change

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

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

Yes

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

No

Staff have the option of a compressed work week

No

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

Yes

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

Yes

Secure bicycle storage is provided

Yes

Other Sustainability Actions

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

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

Yes

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

Yes

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

Yes

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

No

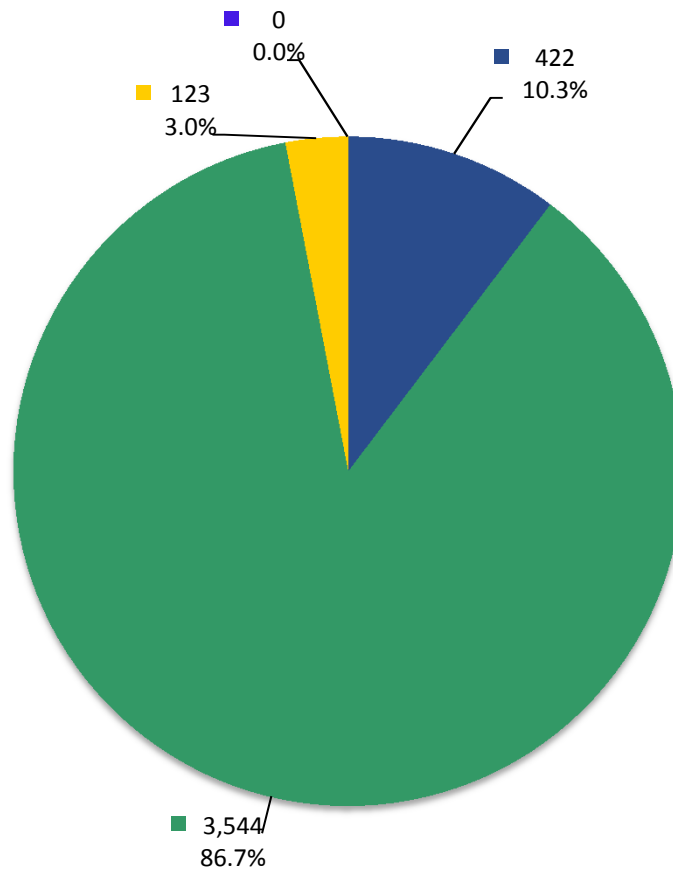
Incorporated lifecycle costing into new construction or renovations

No

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

*Developing new Campus Sustainability Action Plan - to align with one of TRU's strategic priorities, that of increasing sustainability (as highlighted in the new TRU Strategic Priorities document), with divisional and departmental resources.
Helping to host the Fresh Outlook Foundation's Building Sustainable Communities Conference (March 2014) that centers around collaboration between academia, business and community stakeholders*

Thompson Rivers University Greenhouse Gas Emissions by Source for the 2013 Calendar Year (tCO₂e*)



Total Emissions: 4,090

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

Offsets Applied to Become Carbon Neutral in 2013 (Generated May 21, 2014 3:03 PM)

Total offsets required: **4,075**. Total offset investment: **\$101,875**. Emissions which do not require offsets: **15** **

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

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