

“TRU is an... environmentally responsible institution...”.



TRU Mission Statement

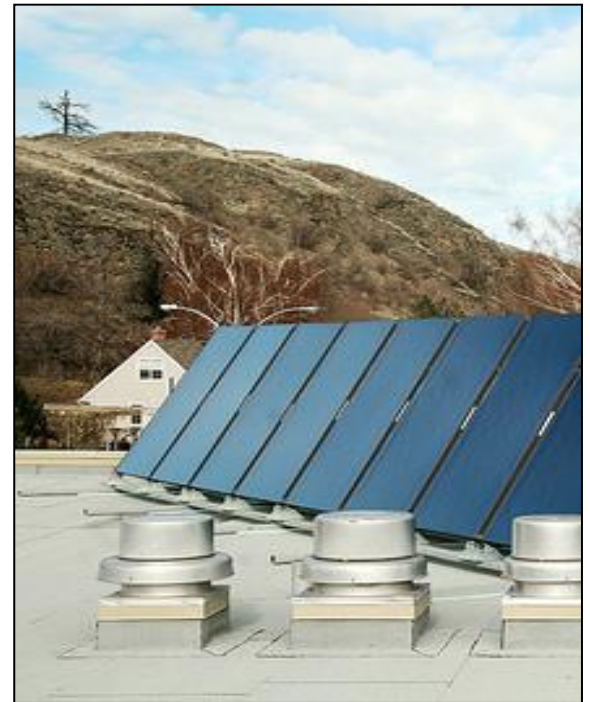


THOMPSON RIVERS
UNIVERSITY

Sustainability Office

Thompson Rivers University
Office of Environment and Sustainability
900 McGill Road
Kamloops, BC
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Thompson Rivers University identifies “Increasing Sustainability” as a strategic priority and one of seven founding values. In 2014, TRU developed a comprehensive Strategic Sustainability Plan SSP that provides the framework to measure and make improvements on four key sustainability-related areas. The four key areas; Operations, Engagement, Learning and Governance are further broken down into 18 sub-themes and within those themes there are 130 initiatives to improve sustainability throughout every level of the institution. The SSP was developed using the Sustainability Tracking Assessment and Rating System (STARS) as a framework. The STARS report was developed by the Association for the Advancement of Sustainability in Higher Education (AASHE), and is recognized by over 600 institutions as the most comprehensive benchmarking and reporting tool in North America. Under operational sustainability, energy reductions through technical upgrades, waste diversion and reducing paper use were the main areas of focus in 2014.

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. TRU has been recognized as a leader in advancing sustainability and has been asked to present at several prestigious sustainability focused conferences.

Over the past four years energy has been reduced by twenty percent and paper use has gone down by fifty percent. TRU has recently received a Gold rating for the most recent STARS report. Considering how comprehensive the STARS reporting system and the fact that TRU has increased so rapidly from silver to gold it is evident that sustainability is championed by the entire TRU community, is integral and evident in all processes and functions, and is central to the ethos of the organization. These significant milestones, plus ongoing initiatives, reinforce that TRU is on track to reach provincial GHG reduction targets well ahead of schedule.

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

James Gudjonson

Director, TRU Office of Environment and Sustainability



2.1 Offsets Applied to Become Carbon Neutral in 2014

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 2014, TRU's emissions amounted to 3,965 tCO₂e and total offsets required were 3,958 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 18, due to the disproportionately onerous task of measuring those emissions.

Offsets Applied

Reporting period 2014 offsets were 3,958 tCO₂e, for a total offset investment of \$98,950.00. 6 tCO₂e from Scope 1 (Fleet) did not require an offset payment. Those emissions (6.45 BioCO₂) were deemed offset exempt or carbon neutral as illustrated in the Totals table.

Totals Calendar Year 2014, Thompson Rivers University

State Calendar Year 2014, Wm. Paterson 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	77,994.90	180.06	6.46	0.01	0.03	195.54
Stationary Combustion, Estimated ²	GigaJoules	269.22	13.32	0.00	0.00	0.00	13.39
Stationary Combustion, Reported ³	GigaJoules	70,224.60	3,473.16	0.00	0.07	0.06	3,493.75
Scope 2 (Indirect) Emissions							
Purchased Energy, Estimated ²	GigaJoules	218.11	0.61	0.00	0.00	0.00	0.61
Purchased Energy, Reported ³	GigaJoules	56,948.64	159.46	0.00	0.00	0.00	159.46
Scope 3 (Business Travel and Office Paper) Emissions							
Office Paper	Packages	17,557.50	101.75	0.00	0.00	0.00	101.75
Total Emissions, Calendar Year 2014			3,928.36	6.46	0.08	0.09	3,965
Carbon Neutral or Offset Exempt			0.00	6.46	0.00	0.00	6
Total for Offsets ⁴			3,928.36	0.00	0.08	0.09	3,958

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 25, and nitrous oxide (N₂O) is 298. 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. The tCO₂e value from the "Total for Offsets" line represents the quantity of offset purchases required to become carbon neutral.

3.0 Actions – Reducing Greenhouse Gas Emissions in 2014



Energy Reduction Projects and Initiatives

Revolving Energy Fund

The Revolving Energy Fund (REF) was instrumental throughout 2014 in supporting TRU's Strategic Energy Management Plan (SEMP). TRU's Energy Manager and Energy Specialist oversaw the implementation of numerous technical projects that have resulted in a 20 percent reduction below 2010 baselines. TRU remains on track towards a 25 percent reduction in energy use by 2016 and 33 percent by 2022. 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 2014 and are projected to reduce energy use and GHG emissions by greater than 10 percent in all five buildings. The House of Learning (HOL) building completed the investigative phase and is currently in the implementation phase with energy conservation measures expected to achieve a 12 percent reduction in energy use. In addition new tubular LED lights will be installed throughout the HOL building which will reduce light related energy use by 50 percent. As per the COP guidelines, the projected savings will result in paying back the retro-fit costs in less than 2 years. In 2014 five additional buildings went through the implementation phase and are producing expected savings of 3000 GJ's of natural gas and further reducing campus GHG emission by ~four percent.

Boiler Replacements

In 2014 four large boilers were replaced with high efficiency condensing boilers in the Campus Activity Center (CAC). Funding through the Carbon Neutral Capital Projects (CNCP) fund and Fortis BC boiler replacement program were instrumental in completing this project, which when combined with the COP measure in the CAC have reduced natural gas use by 50 percent.

Solar Panel Installation Student Union Building

A 10 kilowatt solar PV system was installed on the roof of the Student Union Building in the fall of 2014. The system is designed to supply the lighting and plug load and help to reduce demand. The Student Union was instrumental in the success of this project by supporting the concept and providing the required capital investment.



Sustainability Initiatives

Composting

The successful composting pilot (in 2013) 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 has allowed for a full scale composting program on campus in 2014. 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 four-six 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. The composting program is part of TRU's new Waste Management Plan that has seen the addition of 90 – five bin zero waste stations across campus. The Zero waste initiative is expected to divert 1000 tons of organic and recyclable material from entering the landfill.

Sustainability Grant Fund

TRU's new Sustainability Grant Fund received numerous proposals for its second intake in 2014. 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. Replacing toxic landscaping materials with non-toxic material, a new community jogging/cycling trail system and research to examine the carbon sequestration potential in local grasslands are a few examples of the inspiring projects that received funding.

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 2014 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.

Ozonated Water Cleaning Systems

An additional 10 ozonated water cleaning systems were purchased in 2014. The systems are now in each of the larger buildings and will result in diverting over 100,000 liters of cleaning solution and contaminated water from going down the drain each year.

4.0 Moving Forward – Continued Reductions for 2015 Onward



Energy Projects

Wood Bio- Mass Boiler-Williams Lake Campus

TRU is partnering with the school district in Williams lake to install a wood bio-mass boiler to supply the campus and adjacent school with heat from a medium size wood bio-mass boiler system. The boiler will reduce natural gas use and GHG emissions by approximately 90 percent

Parking Lot and Streetlight LED Retro-fit

Approximately 450 parking lot and streetlights will be replaced with new LED technology resulting in significant electrical and operational savings

High Efficiency Boiler Upgrade

The Science and Old Main buildings will replace existing boilers with high efficiency boilers with an expected GHG reduction of 1.5 percent.

Custom Design Program (BC Hydro, Fortis BC)

A custom design funding application will be completed by summer of 2015, Heat recovery, HVAC upgrades, fume hood upgrades and domestic water supply upgrades are expected to result in an additional two-three percent in energy use and GHG emissions.

Sustainability Projects

Composting

An additional composter will be installed in the campus Activity Center to accommodate the large volume of organic waste generated at large functions such as weddings, convocation ceremonies, homecoming etc.

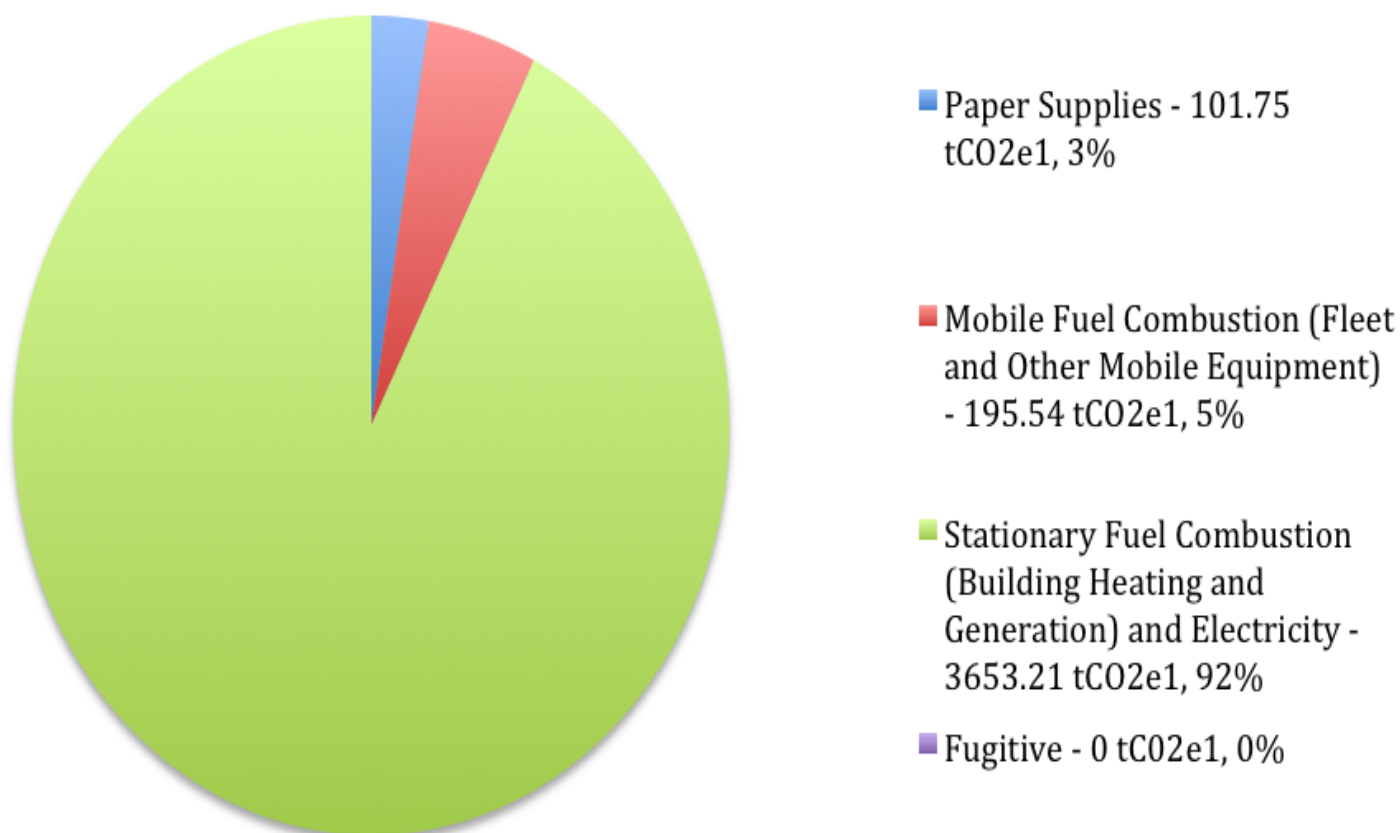
Waste Transfer Station

A feasibility study is currently underway to examine the potential of more waste diversion with a centralized waste transfer station. The station will house the composter, organic material pre-grinder, compactor and light bulb recycler. In addition to increased diversion rates the transfer station will reduce tipping and the amount of garbage trucks driving around campus.

Fleet Certification

TRU is currently examining the possibility of becoming E3 Fleet certified. Several fleet vehicles are also expected to be replaced with electric vehicles or hybrids in 2015.

Thompson Rivers University Greenhouse Gas Emissions by Source for 2014 Calendar Year (in tCO₂e1)



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

Total offsets required 3,958. Total offset Investment \$98,950.00.

Emissions not requiring offsets: 6**

*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.

2014 Carbon Neutral Action Report (CNAR)

- Part 2 ACTIONS

Organization Name

Thompson Rivers 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:

In 2014 TRU...

installed four new high-efficiency boilers in the Campus Activity Centre (one of its largest buildings on the Kamloops campus), and installed forty new solar photo-voltaic panels on the roof (which is a 10 KW system);

six large Kamloops campus buildings took part in the BC Hydro/Fortis BC Continuous Optimization program;

info-graphic posters were installed near the main entrances of the thirteen largest Kamloops campus buildings, which explain all of the significant energy-efficient and sustainability-related features of that particular building (the goal of the posters is to inform users of the buildings about the steps that TRU is taking to save energy and be good environmental stewards); and

three high-efficiency appliances were installed in the two largest commercial kitchens on the Kamloops campus.

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

Yes

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

During the non-winter months, TRU significantly expanded the overall daily use of three electric golf carts with Facilities staff so that they can be used for maintenance calls around campus.

Anti-Idling guidelines were also formally developed and promoted, along with the installation of anti-idling traffic signs at key locations around campus.

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:

All copy paper sold on campus in 2014 contained at least 30% post-consumer recycled content. Forest-free paper (such as wheat-based paper) was also promoted and sold as an alternative to tree-based paper.

In 2014, most of the framework to launch a new TRU Printer Consolidation Campaign was created. (The campaign will take place in 2015). It's aimed at significantly reducing the use of desk-top printers from many offices around campus, in favour of using the more efficient multi-function devices available.

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Actions Taken to Reduce Emissions - continued

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

In 2015...

In partnership with the Williams Lake school district, a wood bio-mass boiler will be installed to heat the entire TRU William's Lake campus as well as some school district buildings (this has the potential to start in Fall 2015);

TRU plans on buying 10% of Renewable Natural Gas in the Fortis Gas program;

two more Kamloops campus buildings are currently enrolled in the BC Hydro/Fortis Gas

Continuous Optimization program;

in order to cut down on mobile fleet emissions, all campus fleet drivers will be enrolled in a driver

training program run through E3 Fleet;
TRU is engaged in a custom design program to upgrade the HVAC system in the Campus Activity Centre, which has the potential to save 1500 GJs; and
TRU will upgrade most of the Kamloops campus traffic and parking light poles to LED technology (approximately 500 light poles).

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.

No

Provided resources and/or dedicated staff to support these teams

No

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

No

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.

Yes

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

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.)

No

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

Yes

Incorporated lifecycle costing into new construction or renovations

Yes

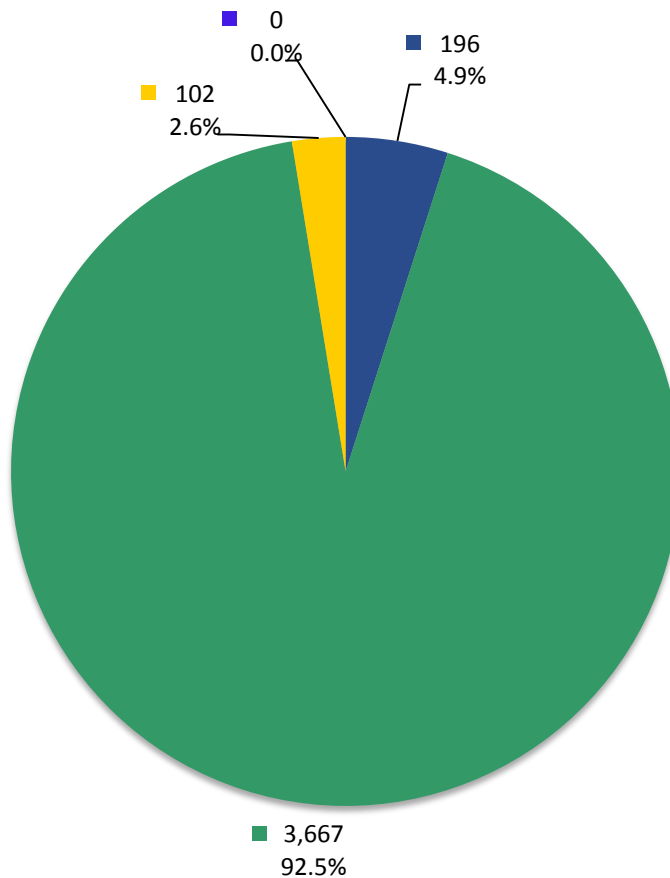
Please list and other sustainability actions you wish to report not included in the previous list.

Anti-Idling guidelines were formally developed and promoted, along with the installation of anti-idling traffic signs at key locations around campus.

A comprehensive zero waste strategy was initiated, which included the installation of over 100 new indoor and outdoor zero waste stations, the introduction of campus-wide food waste pick-up and composting in two new in-vessel composters, and the launch of a 'zero waste toolkit' which will inform campus users of how to properly dispose of/recycle most campus waste-stream items.

The TRU Sustainability Grant Fund will continue to fund up to \$100,00 each year sustainability projects initiated by students, staff or faculty that 'advance sustainability at TRU' (for example, replacing toxic building materials for environmentally preferred ones; public art projects that promote healthy living, and reuse landfill-bound materials for the art making; and creating a multi-use nature trail).

**Thompson Rivers University
Greenhouse Gas Emissions by Source
for the 2014 Calendar Year (tCO₂e*)**



Total Emissions: 3,965

- 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 4:42 PM)

Total offsets required: **3,958**. Total offset investment: **\$98,950**. Emissions which do not require offsets: **6** **

*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.