



THOMPSON RIVERS
UNIVERSITY



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



TRU Mission Statement

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.



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Office of Environment and Sustainability
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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". The signature is fluid and stylized, with a large loop at the beginning and a long, sweeping tail.

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 18, 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

	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 Offsets⁴			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.



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.

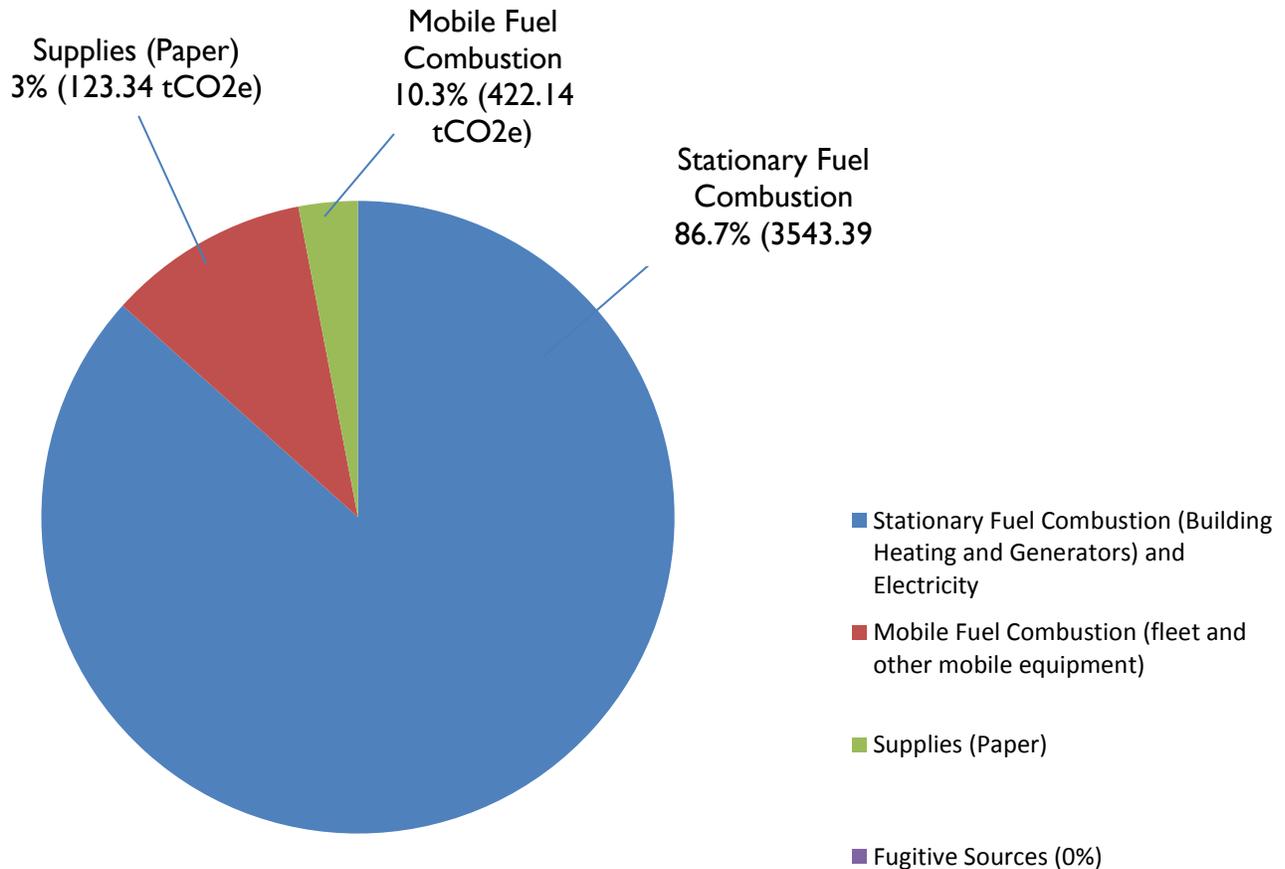
Campus Sustainability Action Plan (CSAP) and Green Guide (GG)

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.