

2022 BC Public Service Organization Climate Change Accountability Report

Thompson Rivers University



The Industrial Training and Technology Centre Building has been recognized with gold certification by the Leadership Energy and Environmental Design (LEED) Canada Rating System (2018). LEED-certified buildings reduce impacts on the environment and are more energy efficient.

May 2023

INTRODUCTION

This Climate Change Accountability Report for the period January 1, 2022, to December 31, 2022, summarizes our emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2022 to reduce our greenhouse gas emissions, and our plans to continue reducing emissions in 2023 and beyond.

By June 30, 2023 Thompson Rivers University's final 2022 *Climate Change Accountability Report* will be posted to our website at <https://www.tru.ca/sustainability/sustainability-office/plans-reports-surveys.html>

ACTIONS TAKEN IN 2022 TO MINIMIZE EMISSIONS

BUILDINGS & CAMPUS –

ENERGY REDUCTION PROJECTS AND INITIATIVES

Low Carbon District Energy System (LCDES)

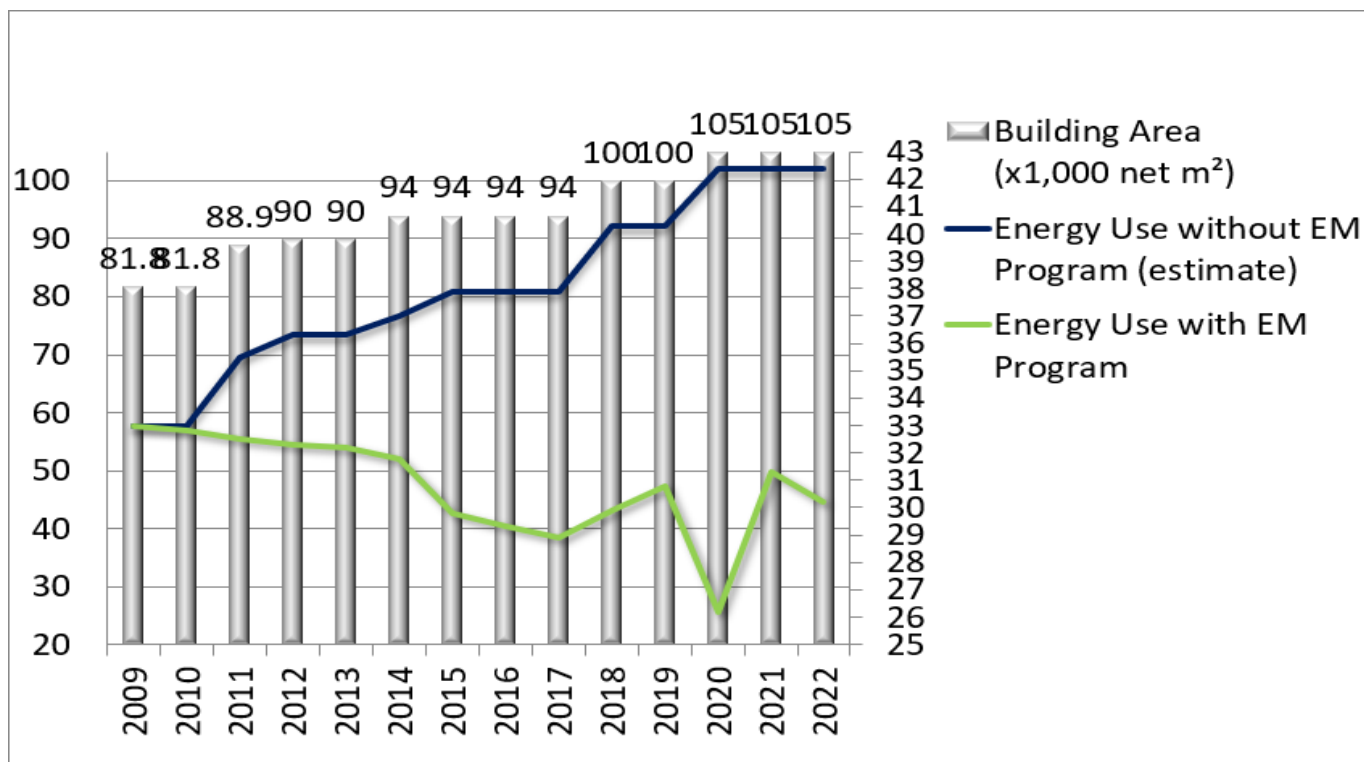
In 2022, Thompson Rivers University (TRU) made significant progress toward the implementation of the Low Carbon District Energy System (LCDES) on campus. TRU focused on obtaining approvals from the British Columbia Utilities Commission, paving the way for the construction of the system, scheduled to begin in 2024 and be completed by 2030. Once operational, the LCDES aims to reduce emissions from heating campus buildings by 95% compared to a 2020 baseline.

The LCDES project has reached several milestones. The system design has been finalized and approved by BC Hydro. Engagement sessions with the TRU community have taken place, ensuring stakeholders' involvement. Creative Energy, TRU's partner, will finance most of the system's construction and act as the utility provider for TRU over the next 30 years. This ambitious initiative demonstrates TRU's commitment to combating climate change and aligns with its sustainability goals.

Revolving Energy Fund

The *Revolving Energy Fund* (REF) continues to grow upon the completion of annual energy conservation projects and accumulated savings. TRU remains on track towards a 50 percent reduction in GHG emissions by 2023. In addition to technical changes, TRU's involvement over the years in the Energy Wise Network Program and the support of the

TRU Environmental Sustainability Advisory Committee, and the TRU Sustainability Ambassador Program (which educates, engages, and empowers students and staff), have helped garner the much-needed internal support towards reducing our carbon emissions and environmental impact. The table below illustrates TRU's reductions in the Energy Management program (EM) to date relative to the growth of building space.



Renewable Natural Gas Purchase

In 2022, Thompson Rivers University took a significant step to reduce its GHG emissions. TRU started purchasing 100% renewable natural gas (RNG) instead of regular natural gas for the Kamloops campus. By switching to RNG, the university was able to reduce its emissions from heating significantly, contributing to its overall goal of carbon neutrality by 2030. This investment demonstrates the university's commitment to sustainability and its proactive approach toward mitigating the impacts of climate change.

Continuous Optimization Program - Round 2

BC Hydro approved Old Main and the Williams Lake Campus buildings to go through Continuous Optimization Program Round 2 and be recommissioned again. This project aims to identify opportunities to improve the building's performance by tuning up building

systems to improve the efficiency of the most energy-intensive systems with simple, low-cost solutions. All Round 1 measures have been reviewed, and based on the changes in occupancy, building use, and the building's systems, new recommendations were suggested and implemented to ensure this building is performing optimally.

DDC (Direct Digital Controls) Optimization

Based on a campus-wide study (funded by the Fortis Custom Design program), most *DDC Optimization* measures recommended in the study were implemented in the following buildings: Animal Health Technology, Arts and Education, Campus Activity Centre, Old Main, Culinary Arts, Materials and Distribution Centre, Human Resources and Library. The measures included: hot water supply temperature reset, demand control ventilation, heating control upgrade, and weather predictors. We will see about 4000 GJ of natural gas and more than 250,000 kWh of electricity savings from this.

ISO 50001 - NRCan Funded Project

TRU decided to develop a more systematic energy management system to improve energy use further by achieving [ISO 50001](#) compliance within the next 1.5 years. The gap analysis portion has been completed. Based on the results, TRU has developed an implementation plan and has already started. Following the objective of the Energy Management System (EMS), TRU has installed the metering system in Clock Tower, Old Main, and the Nursing and Population Health buildings.

TRANSPORTATION

Bicycling Program

TRU is committed to promoting cycling as a means of commuting among its employees, students, and faculty. TRU's Bicycling Program is aimed at providing better support for commuters and enticing those who don't currently cycle to TRU to do so. The program is focused on promoting electric bicycles due to their numerous benefits. To make it easier for staff and faculty to acquire electric bikes, TRU is offering discounts on the purchase of these bikes. Recent survey results have shown that many potential commuters have expressed concern over the safety of cycling to the university due to a lack of cycling infrastructure. While the university cannot directly control public infrastructure in Kamloops, the TRU Sustainability Office is working closely with the city to address these concerns. TRU and the City of Kamloops have secured a federal infrastructure grant to build an overpass over Summit Road, connecting the TRU campus to the closest

residential neighborhood, allowing commuters to reach campus without having to cross one of the busiest intersections in the city. Final preparations were made for the addition of an enclosed outdoor bike shelter that can hold more than 50 bikes, significantly adding to the capacity of the safe storage options. Renovations were completed to make improved shower facilities available to cyclists as well as in the primary gymnasium on campus.

Electric Vehicle Conversion

TRU's electric vehicle conversion project is underway. Parts have been ordered and a vehicle has been selected. In partnership with skilled instructors and students from the TRU Trades and Technology Department and staff help from the TRU Sustainability Office, we hope to add to the knowledge available for those hoping to convert their own older vehicles to electric. The intention of this is to help save vehicles from being needlessly wasted, while still utilizing the best in energy efficient transportation technology.

TRU has purchased the necessary hardware to convert one of the older Astro vans on campus. These vans have been around for many years, and while they're in serviceable condition physically, the engines are expensive to maintain and produce high levels of emissions compared to even modern gasoline engines. This project is an effort to reduce the demand for brand new EV's by utilizing existing hardware when possible. The result will be a light-duty service van capable of highway speed and carrying equipment and passengers around campus. This project is meant as a learning process and is being done in partnership with the Sustainability Office and instructors from the automotive trades department.

Car Sharing Program

The *TRU CarShare* program continues to be an important aspect of the university's commitment to sustainable transportation. We are pleased to announce that our Tesla Model 3 is now available to be booked for university business-related travel. This addition to our fleet has helped drivers who are unaccustomed to electric vehicles address range anxiety and reduce the carbon footprint of transportation requirements of the university. The program is still ongoing, and we encourage staff, students, and faculty members to take advantage of this opportunity to reduce their environmental impact while enjoying the convenience of car sharing.

CAMPUS COMMUNITY ENGAGEMENT

TRU Solar Table Design Competition

In January 2022, the TRU Sustainability Office launched the first TRU Solar Table Design Competition and formed a committee to organize and evaluate the student-only submissions. The committee consisted of a graduate student, members from the Sustainability Office, and faculty members from the following TRU programs: Trades and Technology, Visual Arts, and Architectural and Engineering Technology. The application period closed on February 28, 2022, and in March 2022, the committee held its first meeting to review the nine entries received.

In March, the committee notified the winner. The construction of the solar table, however, will take several more months due to a delay in finding a suitable welding group. To address this issue, the committee reached out to the TRU welding program, but it was determined that they did not have the capacity to assist. Fortunately, the committee approached the North Kamloops High School Trades Program, and they expressed their excitement to be involved in the construction of the solar table that will take place in 2023. This initiative, organized within the TRU community, demonstrates the university's commitment to sustainability and collaboration among various departments and partners. The long-term plan is to hold nine more competitions over the next nine years.

Competition Guidelines:

Background

TRU wants solar tables around the campus for the following reasons: to promote renewable energy use; encourage student participation and learning; and have more outdoor places to study and socialize (which are mostly protected from the snow, rain, and direct sun).

General Information

The Competition is open only to students from TRU. They can do so individually or as part of a student-only team. There will be one (1) winning submission picked from all submitted designs. One table will be built in 2022. The budget for this project is a maximum of \$10,000 including labor, materials, and other miscellaneous fees. Construction and installation will be performed by faculty and students from the TRU School of Trades and Technology.

The Prizes

The winning submission will see their design adapted to at least (1) one solar table to be constructed on the TRU campus outside the front doors of the School of Trades and

Technology building. In addition, the student who submits the winning design will receive \$500.

TRU Energy Dance

On February 11, 2022, the TRU Sustainability Office hosted the Energy Dance, a virtual living-room dance party aimed at supporting climate change action and awareness. This Covid-friendly event brought together current students, staff, and faculty members from various public post-secondary institutions in British Columbia. The dance featured a live DJ, great tunes, and engaging activities such as the Energy Conservation Pledge, "Favorite Dance Song Contest," and Climate Change Trivia.

The Energy Dance was organized to raise awareness about the urgent need for climate change action, considering the latest report from the UN Intergovernmental Panel on Climate Change (IPCC). Participants were encouraged to join the dance virtually via Microsoft Teams, creating a Covid-safe environment for everyone involved. The event was free of charge, with participants required to make an energy pledge as their contribution. By turning down their thermostats and donning their best (or craziest) outfits to stay warm, attendees demonstrated their commitment to energy conservation.

To participate in the dance, individuals registered before February 7, 2022, and included their energy pledge in the registration email. The dance took place on February 11, from 9:00 to 10:30 pm. Additionally, participants had the opportunity to enter contests, such as the "Favorite Dance Song Contest" and "The Outfit," for a chance to win exciting prizes.

TRU Campus Tree Program

TRU started its Campus Tree Program in September 2021 and continued with the initiative during the 2022-2023 school year. By the end of the last tree-planting event in April 2022, 51 large trees (6'-12' tall) and 51 small trees (3'-6' tall) were planted on the campus. 51 represented the age of the TRU institution. There were five planting events in total during the first year of the program. Four 'tree care' events also took place in July and August 2022, when volunteers and staff reapplied mulch to the bases of existing trees.

The program is designed to allow members of the TRU community to actively get involved in helping maintain two of the planet's most vital sustainability attributes: thriving and healthy trees and forests.

Members of the TRU community are encouraged to volunteer in the program, whose three overall goals are tree planting, tree care, and the preservation of trees on the TRU campus. The Sustainability Office is working with members from the TRU Grounds Maintenance and Horticulture Departments who will supervise all program activities, as well as other members of the TRU community who are helping to ensure the success of the program.

TRU realizes that Planet Earth is in vital need of having more trees planted in the ground. ([link](#)). To highlight this, the Canadian Federal Government has announced a goal of planting 2 billion trees by 2030, and TRU can help with this ([link](#)). The university believes it is important to plant trees because of the irreplaceable benefits they provide, such as carbon sequestration; oxygen production; prevention of soil erosion; assisting with biodiversity; increasing wildlife habitat; health and wellness benefits for generations... just to name a few. ([link](#)).

PLANS TO CONTINUE REDUCING EMISSIONS IN 2023 AND BEYOND

BUILDINGS & CAMPUS

Lighting Upgrade

TRU has developed plans to conduct a lighting audit to upgrade all internal and external lighting to LED at its Kamloops campus. The goal of this plan is to achieve 100% LED lighting, which will not only result in significant energy savings but also reduce greenhouse gas emissions.

DDC Optimization

TRU plans to continue implementing measures that could reduce greenhouse gas emissions and/or could support energy efficiency. In 2023 TRU will start implementing measures in the International Building and the Science Building. We anticipate more than 1,700 GJ of natural gas and 130,000kWh of electricity will be saved each year.

ISO 50001 - NRCAN Funded Project

Based on the Gap Analysis that took place, TRU has developed an implementation plan which it has started on. TRU has installed the metering system in Clock Tower, Old Main, and the Nursing and Population Health buildings. To keep following the Energy Management System, TRU plans to continue installing the metering in all the main buildings on the Kamloops campus.

TRANSPORTATION

Relocation of Electric Vehicle Chargers

TRU is committed to relocating electric vehicle chargers to more convenient and accessible locations, making it easier for the community to choose sustainable transportation options. Additionally, to maintain the upkeep and maintenance of these charging stations, TRU will begin charging a reasonable fee upon usage. By implementing these changes, the university hopes to encourage greater use of electric vehicles and reduce greenhouse gas emissions, contributing to a more sustainable planet for future generations. The addition of a fee to these chargers also means it will be easier for visitors to campus to utilize the charging infrastructure, since, currently, the pass system in use is not suitable for short-term visitors.

Bicycling Program

2023 will see the launch of a new guiding plan to support cycling at TRU for staff and faculty, with the goal of creating the best bicycling commuter incentive program of any university or college in Canada. Through a combination of advocacy, renovations, financial incentives, and an online information hub – primarily focused on electric bikes - TRU will be making changes to how it supports current cycle commuters and how it hopes to entice those that are still undecided. Once the staff and faculty program is launched, the next major goal is to develop a student version.

Generic Car Sharing Program

TRU lost its public car share company, Zipcar, when it withdrew from the BC market. Over the pandemic, the need for the car share program was low but when the pandemic subsided in importance and the campus got back to normal, there arose a growing need to address parking and transportation issues once again. TRU is beginning the search for a new car share company to partner with in order to bring convenient transportation options to campus for students, staff, and faculty. The goal is offer simple and affordable options to users in order to make it easy to get errands done without needing to bring a vehicle to campus.

CAMPUS COMMUNITY ENGAGEMENT

Sustainability Programs and Events

TRU will continue hosting and organizing a variety of programs and events to engage the campus community in sustainability initiatives and campaigns. Here are just a few initiatives planned for 2023:

- Another *Solar Table Design Competition* will take place during the 2022-2023 school year, and there is tentative approval to do a similar competition annually for another 8 more years. The result will be 10 solar tables all around the campus that will help promote renewable energy and provide study and social spaces in an outdoor setting all around the campus.
- TRU will participate once again in the *Energy Wise Network* and will run one energy conservation behaviour change campaign during the 2023-2024 school year. The campaign will involve students, staff, faculty, and possibly community members.
- TRU plans to continue with its *Campus Tree Program* in 2023, building upon TRU's successful tree-planting events and tree care activities carried out during the first two years of the program. The program aims to continue the momentum by planting 53 large trees (6'-12' tall) and 53 small trees (3'-6' tall) on the campus, reflecting the age of the TRU institution. Additionally, volunteers and staff will organize several tree care events to provide ongoing maintenance, including the reapplication of mulch to the bases of existing trees. The initiative strives to enhance the campus environment and promote sustainability.
- Another popular energy conservation event will be restarted during the summer of 2023 after taking a one-year break, TRU's *Casual Shirt Days* event will happen every Friday during July and August. Like the rest of the world, TRU must constantly look for opportunities to reduce energy consumption, so the air conditioning in most campus buildings will be turned up 0.5 degrees - making it less cool - and everyone will be encouraged to dress more casually for the warm weather. Changing the temperature will save approximately 3% of TRU's electrical energy used for cooling! To encourage participation from all TRU community members, a variety of fun and unique shirt contests will happen, along with giving out free ice cream each Friday.

EMISSIONS AND OFFSET SUMMARY:

Thompson Rivers University 2022 GHG Emissions and Offsets Summary	
GHG emissions for the period January 1 - December 31, 2022	
Total BioCO2	<i>1916</i>
Total Emissions (tCO2e)	<i>3858</i>
Total Offsets (tCO2e)	<i>1942</i>
Adjustments to Offset Required GHG Emissions Reported in Prior Years	
Total Offsets Adjustment (tCO _{2e})	<i>0</i>
Grand Total Offsets for the 2022 Reporting Year	
Grand Total Offsets to be Retired for 2022 Reporting Year (tCO _{2e})	<i>1942</i>
Offset Investment (\$)	<i>\$48,550</i>

Table 1: 2022 greenhouse gas emissions and offsets for Thompson Rivers University

RETIREMENT OF OFFSETS

In accordance with the requirements of the *Climate Change Accountability Act* and Carbon Neutral Government Regulation, *Thompson Rivers University* (**the Organization**) is responsible for arranging for the retirement of the offsets obligation reported above for the 2022 calendar year, together with any adjustments reported for past calendar years (if applicable). The Organization hereby agrees that in exchange for the Ministry of Environment and Climate Change Strategy (**the Ministry**) ensuring that these offsets are retired on the Organization's behalf, the Organization will pay within 30 days, the associated invoice to be issued by the Ministry in an amount equal to \$25 per tonne of offsets retired on its behalf plus GST.

EXECUTIVE SIGN-OFF:



May 31, 2023

Signature

Date

Matt Milovick

Vice-President Administration and Finance

Name (please print)

Title