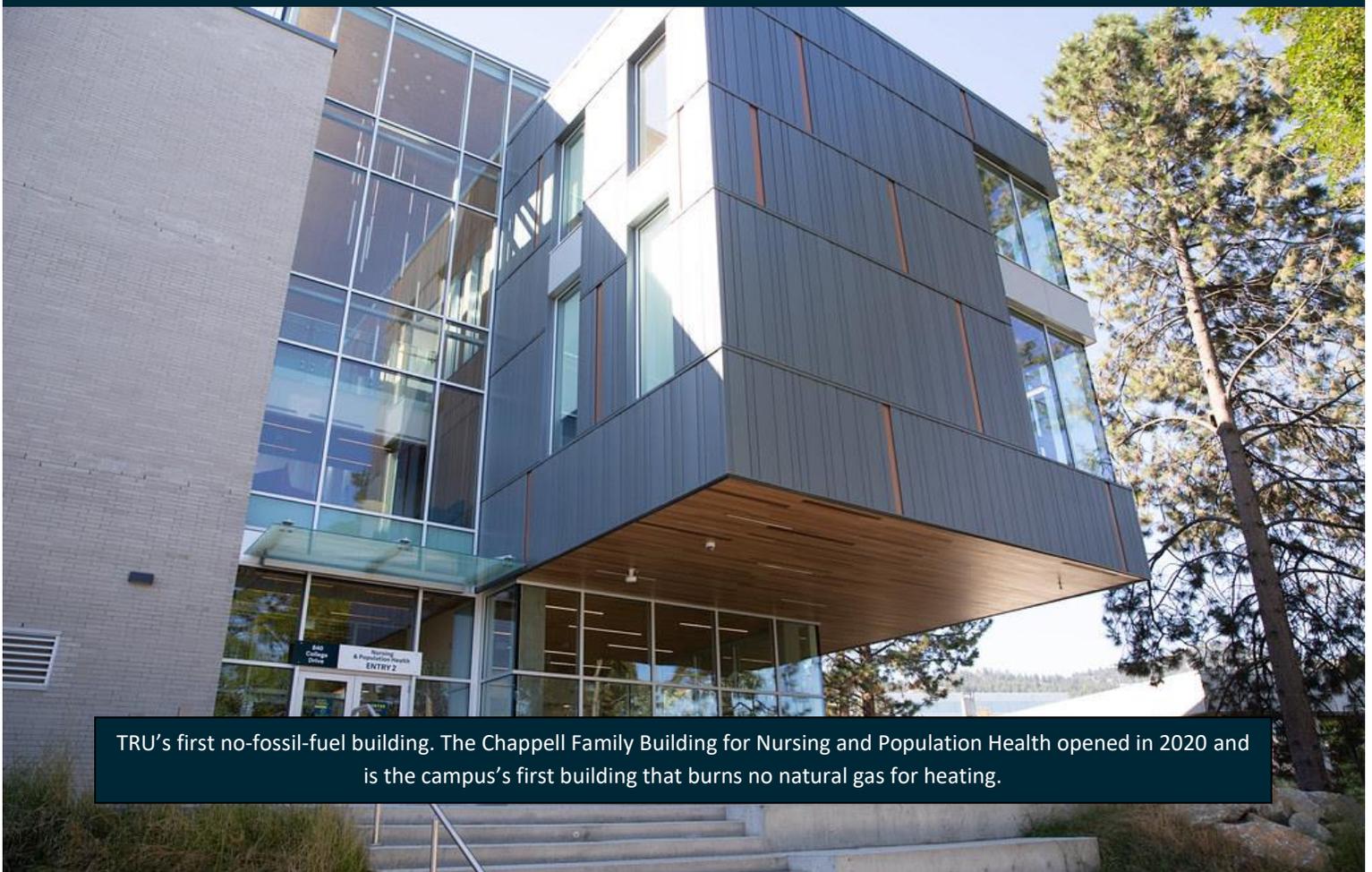


2021 BC Public Service Organization Climate Change Accountability Report

Thompson Rivers University
May 2022



TRU's first no-fossil-fuel building. The Chappell Family Building for Nursing and Population Health opened in 2020 and is the campus's first building that burns no natural gas for heating.

INTRODUCTION

This Climate Change Accountability Report for the period January 1, 2021 to December 31, 2021 summarizes our emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2021 to reduce our greenhouse gas emissions and our plans to continue reducing emissions in 2022 and beyond.

By June 30, 2022 Thompson Rivers University's final *2021 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 2021 TO MINIMIZE EMISSIONS

BUILDINGS & CAMPUS - ENERGY REDUCTION PROJECTS AND INITIATIVES

Low Carbon District Energy System (LCDES)

In 2020 Thompson Rivers University partnered with Creative Energy and began the process to build a *low carbon district energy system* on the campus. This is anticipated to be complete in 2030 and is expected to reduce emissions from heating the campus buildings by 95% (compared to a 2020 baseline). The system design is complete; it has been approved by BC Hydro; engagement sessions with the TRU community have taken place; and Creative Energy will pay for most of the whole system and then act as the utility provider to TRU for the next 30 years to recoup its investment.

The system will be built in three phases. Phase 1 began in 2020 and will consist of nine main campus buildings. Unfortunately, Phase 1 is likely delayed resulting from historic landfill contamination on a small portion of TRU's parent parcel that will require a remediation preventing the issuance of a building permit. We anticipate that we will get a permit eventually, but this will set the building schedule back almost a full year. Due to this delay, Phase 1 should be done in 2026. The system will use a 2-stage heating system using BC Hydro electricity to power air-source and water-source heat pumps. Combined, the heat pumps can extract heat from the air even when it drops to -15°C. The system will also have natural gas boilers to help with cooling peaks that are colder than -15°C.

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 empower 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 growth of building space.

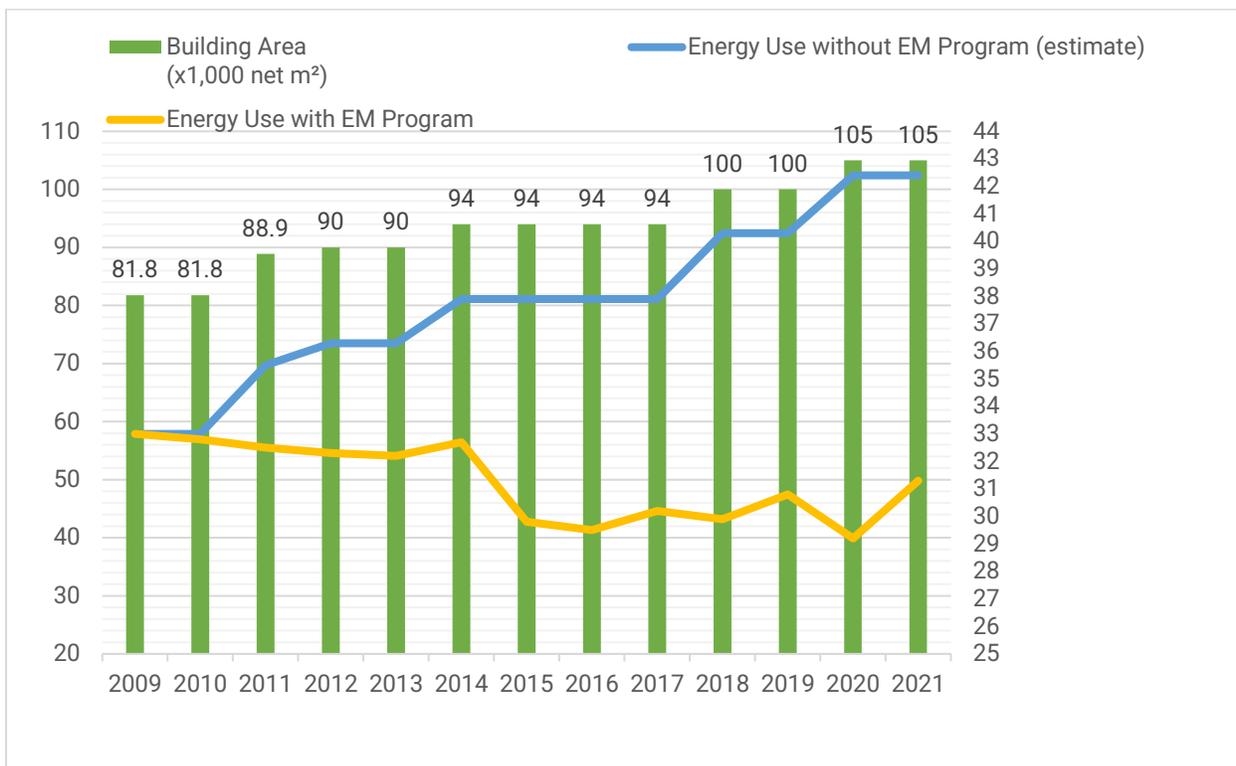


Figure 1: Comparison of Annual Energy Use: with and without Energy Management Program (EKWh)

Continuous Optimization program - Round 2

TRU has completed Round 2 of BC Hydro's Continuous Optimization Program at the BC Centre for Open Learning building. 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 upon 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, which included: hot water supply temperature reset, demand control ventilation, heating control upgrade, and weather predictors, etc... We will see about 3000 GJ natural gas savings from this.

TRANSPORTATION

Cycling Program

TRU has continued putting effort in encouraging employees, students, and faculty to embrace cycle commuting to the University. New survey results have assisted in the creation of a plan to better support commuters and to entice those that do not currently regularly commute to TRU by cycling. Efforts are currently focused on encouraging the adoption of electric bicycles due to their many benefits. However, the previously mentioned survey results have shown higher than expected concern over safety of commuters primarily due to a lack of cycling infrastructure available near the university. While the University does not have control over the public infrastructure that is installed by the city of Kamloops, the Sustainability Office has made it a priority to work with the city to address these concerns. TRU and the City of Kamloops have collaborated on a federal infrastructure grant to build an overpass over Summit Road which will effectively connect the TRU campus to downtown Kamloops which will address connectivity and safety within the City.

Car Sharing

The University's business-oriented car share program has persisted through the pandemic, and in 2021 saw return to its previous level of use. We have continued with our commitment to embrace electric vehicles whenever possible and have purchased a *Tesla Model 3*, with the intention to help expose unaccustomed drivers to electric vehicles, address range anxiety in a wider population, and reduce the carbon footprint of transportation requirements of the university.

Car Pooling and Commute Sharing

The carpooling program (*Rideshare*) at the University continues to be available, unfortunately the pandemic has made it more difficult to share small spaces with strangers and appetite for this style of commuting has waned. We hope to encourage alternative transportation initiatives like ride sharing and group cycling in an appropriate manner, bearing the risks of the pandemic in mind as restrictions lift.

CAMPUS COMMUNITY ENGAGEMENT

TRU Solar Table Design Competition

In December 2021, the TRU Sustainability Office instigated this initiative and put a committee together to organize and adjudicate the nine submissions it received. The committee comprises a graduate student, as well as faculty members from Trades and Technology, Visual Arts, and the Architectural and Engineering Technology program. The winning submission was chosen in March 2022 and the table will be built in the summer and ready by Fall of 2022.

Competition Guidelines:

Background

TRU wants solar tables around the campus to achieve the following: promote renewable energy use; encourage student participation and learning; and have more outdoor places to study and socialize, protected from the elements.

General Information

This competition is open to all students from Thompson Rivers University. Only TRU students can enter the competition and 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 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.

The Sweater Dance

The Sweater Dance was TRU's 2021 campaign event for its participation in the Energy Wise Network program, which is a BC Hydro and Fortis funded program to help organizations run energy conservation behaviour change campaigns.

Here is the opening paragraph from the event media release:

The Sweater Dance is virtual living-room dance party to support climate change – February 5, 2021. The Sustainability Office at Thompson Rivers University just loves to dance... for a good cause! TRU is hosting The Sweater Dance, which is about raising awareness and taking action on climate change while having fun with those in your Covid-bubble and dancing on a Friday night. Because who doesn't love a Friday night dance party!? And TRU is inviting all community members (including staff) from the 24 other British Columbia public universities and colleges to join – for free. Please join us! And please share the news!

All event participants were asked to turn the heat down in their homes during the dance and to consider taking other steps to reduce energy consumption in their daily lives. Over 40 people joined from six BC post-secondary institutions.

TRU Campus Tree Program

TRU started its *Campus Tree Program* in Sept 2021 and planted 51 large trees (8' to 12' tall) and 51 small trees (2' to 6' tall) between then and April 2022.

Terms of Reference:

The TRU Sustainability Office's new TRU Campus Tree Program is designed to allow members of the TRU community to actively get involved in helping maintain one 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 1-year pilot, whose three over-all goals are planting, the care, and the preservation of trees on the TRU campus. The Sustainability Office is working with members from the TRU Grounds 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.

The program launched on September 22, 2021—the 10th anniversary of National Tree Day—with an opening ceremony in front of the new Chappell Family Building for Nursing and Population Health building on the TRU Kamloops campus. Ten Celebration Maples were planted.

Rationale for the Program

Thompson Rivers University 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](#)). We believe 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

BUILDINGS & CAMPUS

Continuous Optimization program - Round 2

BC Hydro approved another two buildings, Old Main (Kamloops Campus), and the Williams Lake Campus building, to go through Round 2 of the Continuous Optimization Program, and to be recommissioned again. Both projects are at the beginning phases, all Round 1 measures will be reviewed, and new recommendations will be made to ensure each building is performing optimally, based on the changes in occupancy, building use, and the building's systems.

DDC Optimization

TRU plans to start another two FortisBC custom design studies soon, all the measures came from the recommendations of another campus wide energy audit. All the measures that get approved from the study will be implemented within the next two years. We anticipate more than 3000GJ of natural gas will be saved each year.

ISO50001 NRCan Funded Project

TRU decided to develop a more systematic energy management system to improve energy use further by achieving ISO50001 compliance within the next 1.5 years. So far,

the gap analysis portion has been completed. Based on the results, the next step is to create a detailed action plan and implement accordingly.

TRANSPORTATION

Future Plans

TRU continues its efforts to expand the university fleet with electric vehicles, in a manner that takes new data into consideration. As stated below in *Sustainability Programs and Events*, TRU is hoping to convert an older vehicle to electric as part of a feasibility study in-house, in addition to retiring our older internal combustion engine vehicles with electric vehicles.

Cycling program initiatives at TRU are currently undergoing significant change, with a major focus on supporting commuters and ensuring the safety of both person and property through such efforts as installation of secure on-campus bicycle storage facilities, and public infrastructure advocacy.

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 2022:

- Another Solar Table Design Competition will take place in 2022 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.
- The Sustainability Office is teaming up with the TRU Trades and Technology Department to convert an internal combustion vehicle engine vehicle to an electric vehicle. This will involve both students and instructors. The vehicle that will be converted will be a TRU fleet vehicle that, when complete, will then be used daily for regular duties around the campus. The end result is not only burning no fuel, but it acts as an incredible learning opportunity for students and staff.

- TRU will participate once again in the Energy Wise Network and will run one energy conservation behaviour change campaign during the 2022-2023 school year. The campaign will involve students, staff, faculty and possibly community members.
- The TRU Sustainability Office conducted a bicycling survey in 2021 and 2022 and will use the data from it to inform a relaunch of its bicycle program in 2022. At the heart of the program will be giving students, staff and faculty tools and incentives to commute to campus on their bicycles more and leave their vehicles at home more.

EMISSIONS AND OFFSET SUMMARY:

Thompson Rivers University 2021 GHG Emissions and Offsets	
GHG Emissions created in Calendar Year 2021	
Total Emissions (tCO ₂ e)	3507
Total BioCO ₂	166
Total Offsets (tCO ₂ e)	3341
Adjustments to Offset Required GHG Emissions Reported in Prior Years	
Total Offsets Adjustment (tCO ₂ e)	0
Grand Total Offsets for the 2021 Reporting Year	
Grand Total Offsets (tCO ₂ e) to be Retired for 2021 Reporting Year	3341
Offset Investment (\$25 per tCO ₂ e)	\$83,525

Table 1: 2021 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 2021 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, 2022

Signature

Date

Matt Milovick

Vice-President Administration and Finance
Thompson Rivers University

Name (please print)

Title