



THOMPSON RIVERS
UNIVERSITY

Carbon Neutral Action Report
Executive Summary

2010





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Executive Summary

Environmental Sustainability is one of Thompson Rivers University's (TRU) seven founding values, and TRU actively seeks to transform the way we teach, research and operate in order to reach greenhouse gas emissions targets and to create a truly sustainable campus community.

TRU's *Strategic Plan*, completed in 2008, called for the creation of a sustainable campus, and a series of greenhouse gas emission reductions for the period from 2009-2012 will continue to be made within the structure of that plan.

To this end, the university created an Environmental Sustainability department, which works to ensure that sustainability is considered in all decision-making processes from purchasing to course development.

A *Campus Sustainability Action Plan* has been developed by a committee with representatives from the two faculty unions, the support staff union, the student union, the administrator's organization and the alumni association. This action plan identifies the ecological footprint of the campus and has three components: Built, Natural and Human. Several components of the plan were completed in 2010.

As detailed in our spreadsheet and highlighted below, 2010's activities have focused upon building on the foundational steps for reducing greenhouse gas emissions initiated in 2009 and creating and maintaining a sustainable campus through 2012 and well beyond.

Targeting energy and materials waste reduction across the sectors, in 2009 TRU instituted such ground-level behavioral change activities as training, education, public awareness, and new policy development aimed at reducing greenhouse gas emissions and encouraging sustainability generally. These behavioral changes were supported by system changes in 2010, for example, the introduction of a campus wide recycling program and intensive support activities including an environmental week in November .

The university energy manager oversaw the preparation and tendering of a \$1.5 million dollar retrofit including new lighting, advanced control systems and three solar hot water systems in the three highest hot water using buildings. Also, in 2010 plans were developed for additional space by adding on to existing buildings rather than building new ones thereby increasing the campus density.

Laying the groundwork to reach its target of a 50% reduction in paper use by 2011, TRU replaced photo copiers and printers on campus with 75 new multi-functional devices with settings providing for default double sided copying and printing.

From these firm first steps, TRU is poised to take the next strides into campus, community, and climate sustainability.

Overviews

Actions Taken to Reduce Greenhouse Gas Emissions in 2010

Built:

Buildings:

- Our new House of Learning, nearing completion of construction, is being built to LEED Gold standard, as will all new buildings developed in future.
- Funding was provided for a \$1.5 million energy retrofit program. Selected components including the installation of solar water systems on the three largest water using buildings were completed in 2010 with the balance to be put in place during 2011. In addition control and monitoring systems will be established to further reduce campus energy use.

Equipment:

- Our IT Department installed power management software which shuts down more than half of the campus computers outside of regular business hours. This will be extended to all computers in 2010.
- Following an assessment of use, power smart bars were combined with the Auto-sleep settings on all computer monitors and CPUs to power down all ancillary equipment at the same time. The use of power save software alone in 2010 resulted in an approximate 40% savings in power used by computers and monitors.

Materials:

- Virtually all paper purchased for campus use contains 30% recycled content.
- Electronic T4's were available for the first time for 2010 income statements
- The campus has used only Green Seal cleaning and paper products since summer 2009.
- Fifty Eight thousand pounds of material waste were diverted from landfills and donated to Habitat for Humanity which removed \$5000 for their charitable activities. During 2010 the total for similar activities was \$10,0000

Natural:

- TRU endeavours to enhance and protect its natural setting while continuing to plant trees, shrubs and other plant species suited to our region's biogeoclimatic parameters in order to reduce water consumption. In 2010 the university completed an upgrading of its irrigation system including improved monitoring and control software.

Human:

- The first faculty Green Team was established in the School of Business and Economics.
- The first Environmental Achievement Award was presented. This will be an annual award with a scholarship in the name of the award recipient given to a TRU student.
- The public was invited to a thematic series founded in 2009 and continuing in 2010 with an additional five speakers featuring world-class speakers on such topics as climate change, Sustainability education, nanotechnology and a no growth society.
- Car pooling for staff and students was initiated and due to demand expanded in 2010

Plans to Continue Reducing Greenhouse Gas Emissions 2010 – 2012

In the period 2010-2012, the university will focus upon the following five areas, incorporating 'built,' 'natural,' and 'human' components as determined by the *Campus Sustainability Action Plan*.

TRU is dedicated to completing the bulleted objectives below, and will, according to available resources, also engage in and implement as many other activities and initiatives as possible. As the university's ability to make structural/infrastructural changes will be limited by the province's two-thirds reduction in the annual capital allowance normally used for this purpose, TRU will mainly concentrate on behavioral change initiatives aimed at demand-side management of campus resources and energy requirements.

Energy:

A major focus in 2010-2012 will be the completion of and actions arising from a campus-wide energy audit.

- The 2009 energy study recommendations which were partially implemented in 2010 will be completed in 2011 and additional monitoring and controls added through 2012
- The BC Hydro funded Continuous Optimization Program will be implemented
- Behavioural changes will continue to be incorporated into core programs such as staff orientation.

Transportation:

- A Transportation Demand Study will be completed in 2011 and recommendations reviewed and implemented.

Waste:

2010 will also see a number of waste reduction initiatives completed, including:

- The Kitchen preparation waste reuse project will be reviewed at the end of 2011
- The mixed recycling program will be reviewed and revised in 2011 after its first full year of operation

- Other behavioural change activities related to reducing, reusing and recycling materials and energy needs, from beverage containers to computer equipment, including awareness campaigns, recycling opportunities, and other initiatives and alternatives to encourage students, employees and visitors to have the will and the way to help TRU to reach its greenhouse gas reduction and other campus sustainability goals.

Awareness:

The university will also work to reach awareness and education goals outlined in the *Campus Sustainability Action Plan*, including:

- Green professional development, already in progress
- Education for staff and the public about the science of climate change, the conservation of water, energy, and raw materials through the environmental speaker program the sustainability website and social media including facebook and twitter
- Green tips on the university's website and in its newsletters

Curriculum:

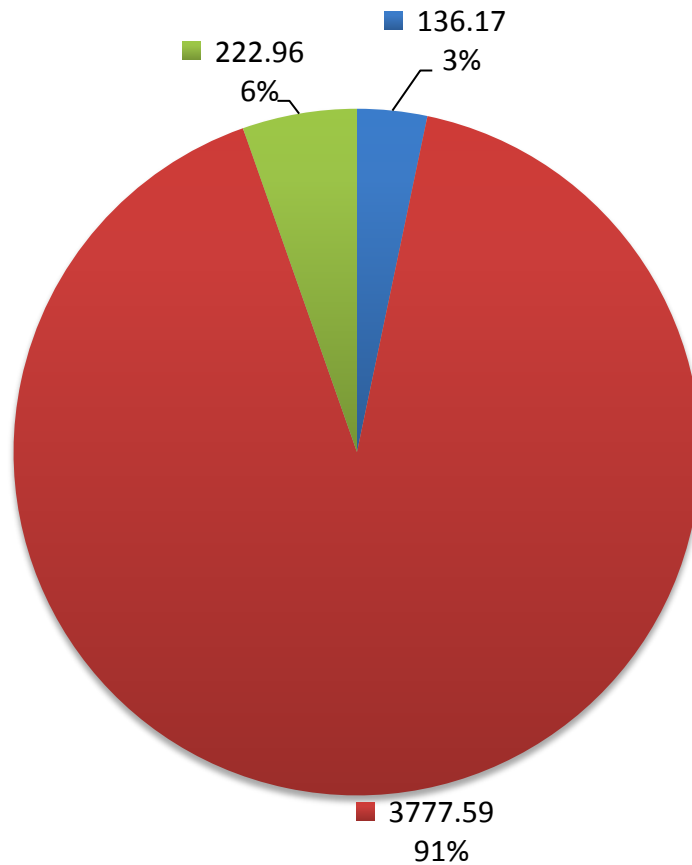
Thompson Rivers University's mandate has long included the development of an educated and skilled workforce current and nimble enough to respond to the immediate needs of business and society. Thus, Thompson Rivers University has long been at the forefront of environmental sustainability in regard to education, from the development of the Bachelor of Natural Resource Science degree in 1992, to the 2007 launch of its first Master's cohort in this discipline.

- In 2009, TRU launched a Minor in Environmental Economics and Sustainable Development available to students in the Arts, Sciences, Business and Tourism Degree programs, with the first students slated to graduate in 2011.
- For the first time, the 2010 Y Dream Home, built by TRU trades students, was a "zero-energy" home, one of only 15 in Canada. The lessons learned from this project are now being incorporated into the relevant curricula.
- A new Environment and Sustainable credential is being developed to recognize students who have made environmental sustainability a priority while at TRU



Tom Owen, PhD
Director, Environment and Sustainability

Thompson Rivers University Greenhouse Gas Emissions by Source for the 2010 Calendar Year (tCO₂e*)



Total Emissions: 4136.72

- Mobile Fuel Combustion (Fleet and other mobile equipment)
- Stationary Fuel Combustion and Electricity (Buildings)
- Supplies (Paper)

Offsets Applied to Become Carbon Neutral in 2010

Total offsets purchased: **4132.4**. Total offset investment: **\$103,310.00**. Emissions which do not require offsets: **4.32** **

*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.

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Actions Towards Carbon Neutrality

The actions listed below contribute to a reduction in greenhouse gas emissions from sources for which public sector organizations are responsible under the carbon neutral government regulation of the *Greenhouse Gas Reduction Targets Act*.

Action	Status (as of 12/31/10)	Performance to Date (as of 12/31/10)	Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Mobile Fuel Combustion (Fleet and other mobile equipment)						
Vehicle fuel efficiency						
Perform regular fleet maintenance to improve fuel-efficiency	Ongoing/In Progress	100 % of vehicles are subject to regular maintenance for fuel efficiency	Continue the maintenance program for all vehicles.	Continue the maintenance program for all vehicles.	2002	No End Date (Continuous)
Behaviour change program						
Introduce anti-idling policy and/or raise anti-idling awareness for fleet drivers (e.g., signs, stickers, messages)	Ongoing/In Progress		draft idling policy reviewd	revised idling policy or procedures will be adopted	2008	No End Date (Continuous)
Stationary Fuel Combustion, Electricity and Fugitive Emissions (Buildings)						
Planning/management						
Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)	Ongoing/In Progress		Enrolled in BC Hydro Continuous Optimization program.	Continue BC Hydro Continuous Optimization program, and expand to additional buildings.	2010	No End Date (Continuous)
Owned buildings						
Establish energy performance baseline for owned buildings	Completed in 2010		Energy audit completed in Fall of 2010.		2010	2010
Achieve LEED NC Gold certification at a minimum for new construction or major renovations	Completed in 2010		New House of Learning is LEED Gold.		2009	2011
Incorporate integrated design process into new construction or during renovations of owned buildings	Ongoing/In Progress		Expansion of Old Main building integrated environment and sustainability in the design process and selection.	Environment & Sustainability representation in all future design processes.	2010	No End Date (Continuous)
Complete energy retrofits on existing, owned buildings	Ongoing/In Progress		Lighting and lighting controls, mechanical upgrades, and solar hot water heaters.	Continue Energy Audit recommendations.	2010	No End Date (Continuous)
Retrofitting owned buildings						
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress		No retrofits in 2010	include in retrofits of CAC 2011	2010	No End Date (Continuous)
Upgrade lighting systems during retrofits	Ongoing/In Progress		No retrofits in 2010	include in retrofits of CAC 2011	2010	No End Date (Continuous)
Upgrade/adjust control systems during retrofits	Ongoing/In Progress		NO retrofits in 2010	include in retrofits of CAC 2011	2010	No End Date (Continuous)
Install an on-site renewable energy demonstration project	Ongoing/In Progress		3 solar hot water systems installed in largest water using buildings	consider as opportunities arise	2010	No End Date (Continuous)
IT power management						
Implement server virtualization	Ongoing/In Progress	50 % of servers have been virtualized since start year indicated	50 servers virtualized	Practically all new servers virtualized	2007	No End Date (Continuous)

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Action	Status (as of 12/31/10)	Performance to Date (as of 12/31/10)		Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Apply auto-sleep settings on computer monitors and CPUs	Completed in 2010	100	% of computers have auto-sleep settings applied	new computers will have sleep settings in them	new computers will have sleep settings in them	2009	No End Date (Continuous)
Remove stand-alone printers, copiers, and/or fax machines and install multi-function devices	Ongoing/In Progress			All new multi-function devices set to double-sided copying by default.	all replacement equipment will have these settings	2010	No End Date (Continuous)
Apply auto-sleep settings on printers, copiers, fax machines, and/or multi-function devices	Completed in 2010	100	% of devices have auto-sleep settings applied	new multifunctional devices purchased and installed	all replacement equipment will have these settings	2007	No End Date (Continuous)
Behaviour change program							
Ask staff to unplug electrical equipment or switch off power bars when not in use	Ongoing/In Progress	90	% of smart bars in workstations with 3 or more pug ins	SMART bars installed at workstations to automatically shut down power to peripherals when computer not in use.	smart bars will continue to be installed	2010	No End Date (Continuous)
Provide reminders for turning off lights (e.g., signs, stickers, messages)	Ongoing/In Progress	50	% of flight switches around campus with BC Hydro Power Smart stickers.	Additional stickers ordered and applied	Place additional stickers on light switches/retrofit and new bldgs have motion sensor switches	2008	No End Date (Continuous)
Promote hot water conservation	Ongoing/In Progress	3	three largest water use bldgs now solar equipped	three largest water use bldgs now solar equipped/used to promote hot water conservation	continuous promotion of hot water conservation	2010	No End Date (Continuous)
Other Stationary Fuel Combustion and Electricity Actions							
\$1.5 million energy retrofit in progress	Ongoing/In Progress	100	projects components tendered	projects components tendered	install and commission	2010	2011
Supplies (Paper)							
Paper Type							
Purchase 30% post-consumer recycled paper	Ongoing/In Progress	95	% of total paper purchased contains 30% recycled content	Continue to purchase 30% PCR paper.	Continue to purchase 30% PCR paper.	2006	No End Date (Continuous)
Purchase 100% post-consumer recycled paper	Ongoing/In Progress	0	% of total paper purchased contains 100% recycled content	Continue to purchase 100% PCR paper.	Continue to purchase 100% PCR paper.	2001	No End Date (Continuous)
Electronic media in place of paper							
Use electronic document library for filing common documents	Ongoing/In Progress			Shared computer drive accessible to staff within departments to share files. Administration forms available online.	Shared computer drive will continue to be accessible to staff within departments to share files. Administration forms available online.	2007	No End Date (Continuous)
Post materials online that were previously printed	Ongoing/In Progress			additional admin items eg T4's on line were added in 2010	additional materials will be added	2009	No End Date (Continuous)
Switch to an electronic payroll notification system in place of paper pay stubs	Ongoing/In Progress	40	% employees choosing electronic t4s after promotional campaign	Electronic T4s available and encouraged.	additional promotion of electronic option	2010	No End Date (Continuous)
Behaviour change program							
Encourage staff to hold paperless meetings or presentations (i.e., no handouts)	Ongoing/In Progress	100	% Board and Senior Staff paperless meetings	All Board and most Senior Administration and Faculty meetings are now paperless or have paperless option.	encourage other committees to hold paperless meetings	2007	No End Date (Continuous)
Encourage re-use of scrap paper	Ongoing/In Progress	1000	sheets of paper annually recycled into note pads	10,000 sheets of paper recycled into note pads and made available free to faculty, staff and students	continue to supply the notepads	2005	No End Date (Continuous)

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Actions to Reduce Provincial Emissions and Improve Sustainability

The actions listed below contribute to a reduction in greenhouse gas emissions from sources that fall outside of the reporting requirements defined in the carbon neutral government regulation of the *Greenhouse Gas Reduction Targets Act*. Public sector organizations can optionally use this section to report on actions that will help British Columbia meet its provincial greenhouse gas reduction targets, engage the public, and improve environmental sustainability across all aspects of their organization.

Action	Status (as of 12/31/10)	Performance to Date (as of 12/31/10)	Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Business Travel						
Virtual meeting technology						
Install web-conferencing software (e.g., Live Meeting, Elluminate, etc.)	Ongoing/In Progress		100% available to staff upon request.	Continue to make available.	2005	No End Date (Continuous)
Education, Awareness, and Engagement						
Team-building						
Create Green, Sustainability, Energy Conservation, or Climate Action Teams with executive endorsement	Ongoing/In Progress		Created Green Teams proposal.	Continue with Green Teams development and engagement.	2010	No End Date (Continuous)
Provide resources and/or dedicated staff to support teams	Ongoing/In Progress		Created a guide and list of resources for Green Teams.	Continue to support Green Teams development and engagement with resources and information.	2010	No End Date (Continuous)
Providing behaviour change education/training to teams (e.g., community-based social marketing)	Ongoing/In Progress		Social media program to spread news and information.	Continue to disseminate information and resources through social media.	2010	No End Date (Continuous)
Awards/Recognition						
Establish a sustainability/green awards or recognition program	Ongoing/In Progress		Environmental Achievement Award established and awarded.	Continue the Environmental Achievement Award annually.	2010	No End Date (Continuous)
Staff awareness/education						
Provide education to staff about the science of climate change	Ongoing/In Progress		Environmental Speaker Series with topics on climate change.	Continue Environmental Speaker Series.	2010	No End Date (Continuous)
Provide education to staff about the conservation of water, energy, and raw materials	Ongoing/In Progress		Web-based tips and special events.	Continue the program.	2008	No End Date (Continuous)
Provide green tips on staff website or in newsletters	Ongoing/In Progress		Web-based tips.	Continue the web-based tips.	2009	No End Date (Continuous)
Provide sustainability education during new staff orientation	Ongoing/In Progress		Environment and Sustainability included in staff orientation training	Environment & Sustainability in New Employee Orientation.	2010	No End Date (Continuous)
Client/public awareness/education						
Provide education to clients/public about the science of climate change	Ongoing/In Progress		Environmental Speaker Series and special events, to which members of broader community are invited also.	Continue Environmental Speaker Series and special events.	2009	No End Date (Continuous)
Provide education to clients/public about the conservation of water, energy, and raw materials	Ongoing/In Progress		Web-based tips and special events.	Continue the program.	2009	No End Date (Continuous)
Provide green tips on client/public website or in newsletters	Ongoing/In Progress		Environment & Sustainability website has tips and links.	Contniue and update the website.	2009	No End Date (Continuous)
Other Sustainability Actions						
Water conservation						

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Action	Status (as of 12/31/10)	Performance to Date (as of 12/31/10)	Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Establish a water conservation strategy which includes a plan or policy for replacing water fixtures with efficient models	Ongoing/In Progress		the irrigation sytem was reviewed repaired and updated software was purchased	continually improve the irrigation system	2010	No End Date (Continuous)
Waste reduction/diversion						
Put in place an operations policy to facilitate the reduction and diversion of building occupant waste from landfills or incineration facilities	Ongoing/In Progress		implenented a full recycling program on campus; diverted 58,000 pounds of furniture materials from landfills by cooperating with the local Habitat for Humanity Store to reclaim materials	continually improve the recycling programme	2010	No End Date (Continuous)
Procurement (non-paper supplies)						
Incorporate minimum recycled content standards into procurement policy for consumable, non-paper supplies (e.g., writing instruments, binders, toner cartridges, etc.)	In Development			Procurement policy and schecklist to be implemented in 2011	2010	No End Date (Continuous)
Establish green standards for goods that are replaced infrequently and/or may require capital funds to purchase (e.g., office furniture, carpeting, etc.)	In Development		Standards were used as part of the procurement process for furniture andm carpet in the new House of Learning Building	develop categories and standards to be used in all relevant purchasing decisions	2010	No End Date (Continuous)
Implement sustainable purchasing program for cleaning products, disposable paper products and trash bags	Ongoing/In Progress		The Janitorial contract required bidders to specify what green products would be used	janitorial contract with green products in effect	2010	No End Date (Continuous)
Require a minimum purchase of sustainable, and organic food and beverages supplied by contracted food suppliers or caterers	In Development		The meat program has purchased organic beef and chicken and the culinary arts switched from Atlantic to Pacific Salmon	awareness events leading up to new food contract negotiations in 2012 when current contract is up	2009	No End Date (Continuous)
Building construction, renovation, and leasing						
Establish a policy to reuse materials where possible and divert construction and demolition debris from landfills and incineration facilities	Ongoing/In Progress		Recycled old workstation furniture for metal and materials.	continue to divert materials and furniture	2007	No End Date (Continuous)
Indoor air quality						
Incorporate low volatile organic compounds (VOCs) standards into procurement policy for products such as paints, carpets, and furniture	In Development			Procurement policy and schecklist to be implemented in 2011	2010	No End Date (Continuous)
Commuting to and from home						
Introduce telework/work from home policy	In Development		staff were surveyed with respect to whether or not they are interested in telecommuting	review results of survey	2010	No End Date (Continuous)
Encourage commuting by foot, bicycle, carpool or public transit	Ongoing/In Progress		Car pool program for staff and students. Transportation Demand Study Commissioned	Implement Transportation Demand Study Recommendations	2010	No End Date (Continuous)
Provide shower or locker facilities for staff/students who commute by foot or by bicycle	Ongoing/In Progress		New HOL building has showers and bike storage planned.	New HOL building will be completed and open to use, including showers and bike storage.	2008	2011
Provide secure bicycle storage	Ongoing/In Progress		New HOL building has additional bike storage planned.	NEW HOL building will be completed and open to use, including bike storage.	2008	2011
Modify parking fees or parking availability for staff/students	Ongoing/In Progress		Transportation Demand Management Plan ongoing.	TDM Plan to be completed and implemented.	2010	2011