Environmental Audit 2014

Mount Allison University

PART ONE: Emissions

May 2014

Environmental Audit 2014

Preamble & Policy 2102

The audit was carried out according to Mount Allison University's Environmental Policy (2102) Section 5

Environmental Audit 2014

than those generated by Bunker A; with the University emitting nearly 2,000 fewer Metric tonnes of carbon dioxide annually since the conversion was first implemented.

Beyond the conversion to natural gas it appears as though serious investigation into alternative heating options has not been conducted, as natural gas is both relatively well priced and has resulted in a comparative decrease in emissions. Further decrease of emissions through alternative heating methods would demonstrate Mount Allison's commitment to decreasing the risk of climate change, beyond cost-effective energy efficiency measures.

Recommendations:

Specify more clearly what "viable" means in this case. Include a maximum payback period if this applies

Specify what "lower emission fuel sources" are in comparison to. For the purpose of this audit, it was acknowledged that Natural Gas releases comparatively lower emissions than Bunker A, however, now that natural gas is the new status quo, it is assumed and exdum3 (at)]TJ 0 (t)-2 (e)4 (r)(l)(um

The reader should be informed that Mount Allison is charged for Natural Gas based on the Boston, U.S. market. Predicted rising prices due to increased Boston area demands coupled with underestimated emissions risks and environmental issues associated with natural gas procurement require a very strong recommendation that alternatives for heating are earnestly investigated and used to supplement Mount Allison's heating energy requirements. In recently released reports (puge"0 (n-2 T (()3 (Q5()3 (puge"0s6 120.72 5-10 s)-5]s)-1 (

The above four projects were randomly selected for the purpose of the audit to see how often energy efficient measures are implemented within renovation projects on campus. Of the above four sample projects, all

not been seriously examined recently, as they are typically thought to be underdeveloped means of energy generation.

Recommendations:

It is strongly recommended that the University more actively and earnestly investigate alternative energy for Mount Allison, with the goal ultimately being implementation or sourcing of alternative energy in the near future.

Re-instate the Green Evolving Fund to aid in the development of alternative energy projects on campus

Actively fundraise through University Advancement to support sourcing of alternative energy

Pursuing Green Globe certification for all major renovation and construction projects (2101 2.1)

Results:

The University has worked to achieve high Green Globes ratings for some, but not all of its major construction and renovation projects. The Wallace McCain Student Centre has achieved a standing of 3 Globes respectively, while the Fitness

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Establish a minimum project size for Green Globes certification (by dollar amount)

Evaluate if Green Globes is truly the University's best means of measuring the environmental impact of a building

Working with students & employees to reduce ambient room temperature in buildings (2101 2.1)

Results:

By and large, efforts to reduce ambient room temperature are controlled by Facilities Management. Room temperatures are turned up during the day to accommodate occupation, and once buildings are closed at the end of the day, temperatures drop to conserve energy. Room for improvement exists in those residences like Campbell and Bennett/Bigelow, which allow for individual room temperature control, as opposed to other residences which only allow for vents to be opened and closed according to desired temperature. Facilities Management recognizes the need for monitoring of both residence and academic buildings in order to facilitate energy reduction through behavioural change, and through constant monitoring of any operational issues. In the past there has been an effort to employ EcoReps within residences to help with building monitoring and reporting, however, recent efforts have fallen short. The summer of 2014 is anticipated to bring change, as Facilities Management is coordinating a team of employees and students to function as EcoReps, monitoring behaviour and operations of all campus buildings, ensuring efforts are made not to waste energy in any capacity, and to encourage those people who pass through that building to be more mindful of their energy use within that space.

Recommendations:

Frequently assess the EcoRep program for achievements, challenges and ways to improve and perpetuate this very important program

Provide visual aids throughout the University around the time of the EcoRep program implementation. If measurements of energy use and emissions resulting from heating each building could be compiled into a graph, it might be an effective means of showcasing the environmental footprint of the campus, and hopefully generate a sense of competition

Generate renewable energy on campus. NB power does not provide the option of acquiring power from only renewables, therefore Mount Allison's only means of fulfilling this clause is through partnering with NB Power and its Embedded Generation or Net Metering programs and generating its own energy

Look to other universities for inspiration:

- U4 institution Bishop's University recently implemented the only Geothermal District heating system in Canada, reducing their GHG emissions by 62% and is producing an annual savings of $325,000.
- Bowdoin college, a liberal arts university in Maine has a student body of 1,770 and a carbon footprint similar to MTA's at 14, 920 MT. The college has plans to construct 3 acres of solar photovoltaic panels in 2014.

Retrofitting buildings with energy efficient lighting and motion sensor/timer/volt or power miser technology wherever it is reasonable to do so (2101 2.2)

Results:

This process is ongoing and constant, with lighting options always being considered whenever lights burn out or need to be replaced for an alternative reason. Currently nearly all lights on campus are fluorescent (T5) or LED, with the new Purdy Crawford Centre for the Arts being entirely lit by LEDs. Motion sensors are also being installed across campus more frequently, and are always being considered for installation, with Campbell Hall's common area lights being entirely connected to motion sensors. Where issues do arise is in the coupled implementation of fluorescent bulbs and motion sensors. While fluorescent bulbs do require less energy than incandescent bulbs and boast a longer lifetime, they are

The University's Procurement Policy (7101 subsection 8-Environmentally Aware Procurement,) should be expanded to reiterate the necessity of purchasing items which require lower energy use. Stressing the importance of low energy appliances is of great importance in ensuring these policies are adhered to and these issues taken into account throughout different employees and changing cultural sentiments.

Working with students and employees to reduce their use of electricity. (2101 2.2)

Results:

The response to this clause has been largely similar to the response seen to a subsection of Heating which dictates the collaboration of students and employees to reduce ambient room temperature in buildings. With the exception of the Campus Climate Challenge, which has always been successful in residence buildings, efforts to encourage and facilitate student and employee behavioural change have been lacking. EcoReps have always been employed in residences, though as of late their responsibilities are limited to waste sorting and collection and the promotion of C3. As mentioned previously in the audit, Facilities Management is redesigning the EcoRep program during the summer of 2014, and expectations are high. The new program will include students and staff, and encompass all campus buildings, not being limited to residences as before. The EcoReps will be responsible for monitoring energy use in a given building, as it results from human action or inaction. The EcoRep will report any operational issues to Facilities Management, allowing for increased and more frequent response to energy-intensive malfunctions (leaking windows, faulty ventilators, etc.) The EcoReps will also be on hand to encourage simple actions by the campus community, for instance, ensuring lights and computers are off when rooms are not in use, and spot ventilators are not left on in laboratories

Recommendation:

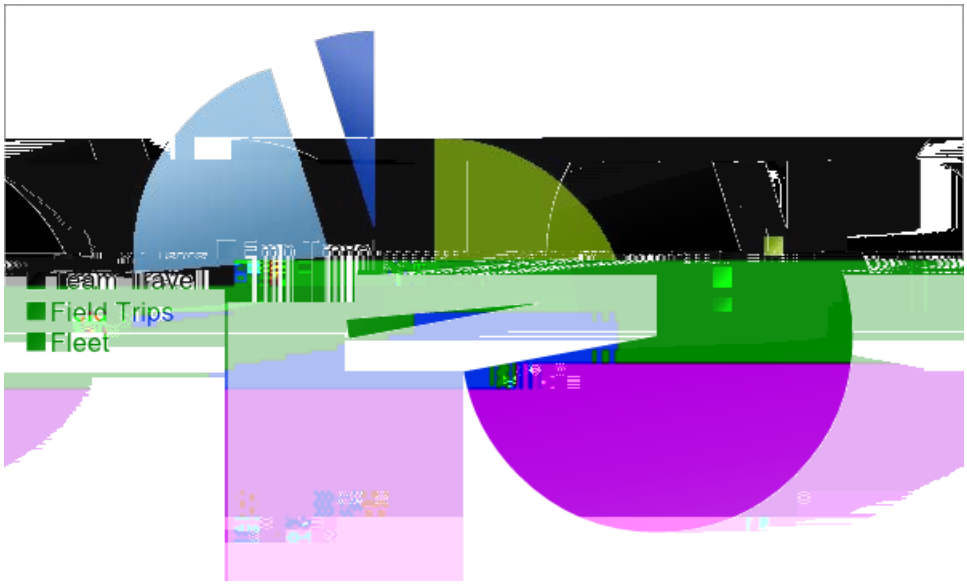
Frequently assess the EcoRep program for achievements, challenges and ways to improve and perpetuate this very important program

visual aids be utilized to encourage personal change. Data telling the story of MTA's carbon emissions and energy use is available in abundance, and providing this information to the student

and staff community through posters and digital signage may be an effective means of conveying information and encouraging individuals to find out how they contribute to the greater University impact.

Transportation (2101 2.3)

"The University will make it a priority to decrease emissions resulting from University-owned vehicles and University- approved travel."



The chart illustrates the division of emissions resulting from transportation in 2013/14

Employee Travel: 72%, Team Travel: 2%, Field Trips: 21%, Fleet: 5%

Reducing the number of university-owned vehicles where it is appropriate to do so (2101 2.3)

Results:

Strictly speaking, the size of the University fleet has not been reduced, with numbers having slightly increased with replacement of 1 truck by 3 electric gators, however, these non fossil-fuel emitting vehicles do demonstrate a dedication to emissions reduction. Thoughts of reducing fleet size have been

materials. Although the option was presented to have one of the three electric cars charged by solar panel, this option was ultimately eschewed to save cost. The adoption of electric or hybrid trucks and vans had been rejected up until this point, largely as a result of cost and the need for high-powered vehicles for grounds maintenance. Currently requests for new vehicles are placed by department managers, which are then passed on to those in procurement via Robert McCormack, the Director of Facilities Management. Because requests are put forth by individual managers, by and large the vehicles are chosen by those individuals, subject to what the manager sees as appropriate and based on factors they see to be of priority. As of yet the only electric vehicles pr-6 (r-6 (rt-2 34 (t)-)4 (hin1 (a)4 (d)-4 ((g)
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- When field trips are taken over farther land-based distances, it would be beneficial for those classes to travel by rail instead of renting a series of vans, as rail travel is one of the less carbon-intensive means of travel available, and through CAUBO Mount Allison approved travellers receive 10% off
- Individual team footprints might be collected and presented, allowing teams to understand their impact, in hopes that they might consider the environmental (and financial) benefits of vehicle sharing
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Recommendations:

- The university should strive towards incorporation of alternative energy in all new buildings, renovations and across campus
- Consider rephrasing this clause, or defining what is meant by “highly efficient construction techniques” this phrase reads as though it only pertains to the construction process, which “all renovations and new buildings incorporate alternative energy” seems to refer to the buildings themselves.
- Confirm that “highly efficient construction” does in fact refer to highly energy efficient construction, as efficiency means many things to many people depending on where their preoccupations lie.

Continued efforts at fundraising for building renewal/renovation and deferred maintenance to lessen energy consumption (2101 3)

Results:

This clause has been largely unmet. The last major attempt to garner donations specifically to lessen energy consumption was the “Greening of Mount Allison” campaign, almost a decade ago as part of the JUMP campaign. The “Greening of Mount Allison” campaign itself was unsuccessful, bringing in little money, and currently there are no scheduled attempts by University Advancement to raise money for environmentally responsible projects or those with energy reduction specifically in mind. This lack of success is thought to perhaps stem from a lack of structure and planning for the fund itself. It is believed that donors were not provided with clear goals or project ideas for the fund, which might have deterred donations. However, money has been raised for projects such as the Purdy Crawford Arts Centre, which of course incorporates energy saving measures, but funds were not raised to be devoted specifically to an environmental cause. There was an effort made by University Advancement to fundraise for environmental education when the Montreal Based EcoFoundation was approached and provided two payments of $15,000 to Dr. Brad Walters for his Environmental Activism course. The funds have gone to support numerous students attending conferences, protests and meetings, in addition to funding individual student activist projects and a Teaching Assistant for the course.

Recommendations:

- An ongoing campaign should be developed and launched through University Advancement to fundraise for projects which lessen energy consumption, offset carbon emissions, develop energy generating projects, reduce carbon emissions, etc.
- This clause should be elaborated upon to include fundraisers not just for building construction, but also to include projects which would offset carbon emissions, develop energy generating projects, reduce carbon emissions, etc.
- Clear projects, targets, timelines and goals should be planned to aid in fundraising and provide donators with assurance that their money is being well spent

Establish a Green Evolving Fund using the savings that result from such projects. (2101 3)

Results:

In May of 2010 Mount Allison implemented the Green Evolving Fund, designed as the policy required, using the savings resulting from building renewal and renovation projects, and applying them to exclusively fund energy efficiency and environmentally responsible projects. The fund operated for approximately three years, funding several projects including the Library Energy Management System, re-commissioning the WMSC, lighting retrofits and even the installation of Dyson Airblade hand-dryers in the student centre washrooms. Although there were many issues surrounding the Green Evolving Fund, it generated an exceptional amount of money far faster than had been expected, with upwards of $800,000 in the fund after three years of operations. The 2013/2014 academic year brought with it financial difficulty as a result of enrollment dropping by approximately 100 students. Upon further investigation, discrepancies arise in the reasons cited for the ultimate cancellation of the fund. Although all agree that the primary cause is the financial shortage resulting from low enrollment, the fund itself was reduced several months prior to students enrolling by several hundred thousand dollars. Lack of economically feasible projects has been reasoned, as has a lack of administrative and planning resources,

ultimately the reasons for cancellation of the fund are complex and nuanced, and demand further explanation.

Recommendations:

- In order to comply with the University's Environmental Policy the fund should be re-instated.

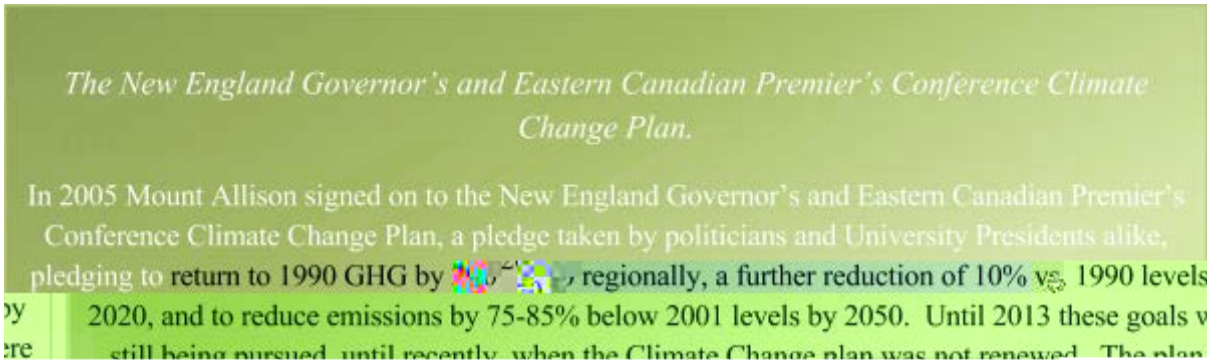
  Although resources remain in some capacity to fund energy saving projects upon application, the pay-back period required of those projects is comparably low when it is considered that many of the "low hanging fruit" projects with short payback periods have already been implemented. The Green Evolving Fund was an excellent means of Mount Allison demonstrating and acting upon its dedication to maintaining environmental integrity and supporting future generations of Mounties with a more secure climate. The existence of the fund required constant project l in2 (t)-6 ntecteqeqequ-5 (t)- EvolEMC /LBody <</MCID 3 (M2 i)-2 BDC 0.25 -2 cdedi l i (c)4 (a) (n)- ine0 urden

Performance Indicators, Accountability, Targets (2101 4)

"The Controller will collect information and report metrics and progress on emission reduction in the annual Review of Operations. The metrics to be considered for inclusion are:"

- Fossil fuel use and emissions from fossil fuels consumed for heating purposes
- Electricity use and emissions from annual electricity consumption
- Emissions from University approved travel
- Energy Consumption and emissions per square foot
- Energy consumption and emissions per student and per employee

Although all of the aforementioned information is readily available, not all information has been included in the Controller's annual report, simply because to do so would require a far more extensive document. What has been suggested by the Controller, and supported in the audit is the inclusion of a link to Mount Allison's environment page, which will include a brief summary of the above information, so that it might be more readily available to the general public, as well as to those who have access to the Controller's report and would like further detail. The single page document can be found in Appendix D of this report.


The New England Governor's and Eastern Canadian Premier's Conference Climate Change Plan.

In 2005 Mount Allison signed on to the New England Governor's and Eastern Canadian Premier's Conference Climate Change Plan, a pledge taken by politicians and University Presidents alike, pledging to return to 1990 GHG by [illegible] regionally, a further reduction of 10% vs. 1990 levels 2020, and to reduce emissions by 75-85% below 2001 levels by 2050. Until 2013 these goals v still being pursued, until recently, when the Climate Change plan was not renewed. The plan

"The University will…"

- Establish a baseline by April 30, 2010 for indicators noted above
- Establish interim targets by December 31, 2010 for goals and actions for 2012, 2015, 2020 and other years to 2039

Although a baseline of 2010 values has been established, and emission reduction targets researched and c

Total Emissions (MT C02)

Although recommendations have been made throughout the report, this should be considered an overall summation recommendations.

- Consider rephrasing language of policy clauses to reflect commitment to sustainability and to encourage more active, frequent action. Remove or rephrase qualifiers like “wherever it is reasonable to do so” and “if economically feasible.” These clause qualifiers appear to make Mount Allison’s commitment to environmental sustainability and responsibility a priority ranking below convenience and finances.

- Quantifiers should be added to all clauses: dates, specific targets, maximum/minimum payback periods, etc.

- University should be calculating methane and nitrous oxide emissions as well, especially as methane is the primary green house gas emitted from Natural Gas, which is our sole heating source. STARS and the Clean Air Cool Planet measures require/allow for methane, nitrous oxide and other GHGs to be calculated and included. Methane in particular is extremely potent, some 20times more potent than CO2 over a 100 year period, and is taken very seriously for its warming and radiation capturing potential.

Appendices

Appendix A. Environmental Policy 2102

Policy #: 2102

Subject: Environmental Policy

Group: Institutional

Approved by: Executive Committee

Approval date: May 11, 1999

Effective date: May 11, 1999

Revised: April 20, 2012

Administered by: Vice-President (Administration)

1. PREAMBLE

Mount Allison University's mission is to provide a rigorous liberal education of high quality primarily to undergraduate students.

Because the University is a perpetual and endowed institution, it must be even-handed between the current and future generations. Therefore it must protect the interests of the current generation by operating as efficie 1999Apr38.4d mn 3.783 0 Tbl0.002]TJ 0 Tc Tw 3 (

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This Policy and related sub-Policies will be included in the University's annual legal, regulatory and policy compliance report to the University's Audit Committee.

Appendix B. Emissions Policy 2101

Policy #:	2101
Subject:	Emission Reduction
Group:	Institutional
Approved by:	The President
Approval date:	April 28, 2009
Effective date:	April 28, 2009
Revised:	
Administered by:	Vice-President, Administration

1 - Purpose

Mount Allison has a strong tradition of innovation and leadership on environmental issues. However, the current state of the climate crisis demands that the University build on this tradition to reduce its carbon footprint. Doing this will pose unique challenges that will require an unprecedented degree of commitment and cooperation by the University community. The purpose of this policy is to provide guidance and direction to address these challenges and to establish Mount Allison as one of North America's leading universities in carbon reduction.

2 – Policy

It is the University's policy to concentrate its efforts in the three major areas responsible for most of the University's emissions: Heating, Electricity and Transportation.

2.1 Heating

The University will make it a priority to decrease emissions resulting from the generation of heat for campus buildings. Strategies are to include:

- Switching to lower emission fuel sources (e.g. natural gas, biomass) as these become available and represent viable options;
- Implementing energy efficiency measures within University renovation projects;
- Using alternative energy sources (e.g. geothermal, passive solar) where these sources are appropriate in building construction, maintenance and renovation;
- Pursuing Green Globe certification for all major renovation and construction projects; and
- Working with students and employees to reduce the ambient temperature of buildings.

2.2 Electricity

The University will make it a priority to decrease emissions through a reduction of the u

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Appendix D. Annual Review of Operations

Fossil fuel use and emissions from fossil fuels consumed for heating purposes

2012 was the first year Mount Allison was heated without Bunker A in

any capacity, however between 2012 andW n 33, n Td ( )Twe y al2 (h)12 (e)4s c0 (y)2satieyhe(e)4.oes al2.010 Tc 75